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Design Thinking: An Approach to Develop Writing Performance Through the EFL Context for Secondary Stage Students

A Thesis

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Abstract

This study investigated the effect of Design Thinking on developing the secondary stage students' EFL writing performance. A randomly selected group of the secondary stage students (N=14) in Al Borg Governmental School in Al Khanka, Qalyubia Governorate, Egypt ,in the academic year 2021/2022 were trained through a proposed program based on using Design Thinking for developing writing performance. The design of the present study was based on the one-group, mixed research design. A pre-posttest was designed and administered to the group before and after the implementation of the proposed program. The test aimed to determine to what extent the Design Thinking Approach helped the secondary stage students to master their writing performance. The researcher designed a nine week program, the pre / posttest, the rubric, and the participants' questionnaire. The nine-week intensive English language program was three sessions a week, to boost their writing performance. The obtained data was statistically analyzed using Wilcoxon Test, and the effect size factor as well as qualitatively analyzed through the rubric. Both the quantitative and qualitative analysis revealed that design thinking has an effective influence on promoting EFL secondary stage writing performance.

Keywords: EFL writing performance, design thinking, EFL secondary stage students.

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List of abbreviations

1- Writing performance= **WP**

2-design thinking = **DT**

3- American Council on the Teaching of Foreign Languages=
ACTFL

4- The National Assessment of Educational Progress= **NAEP**

5-Complexity, accuracy, and fluency= CAF

Term	Abbreviation
WP	Writing Performance
DT	Design Thinking
ACTFL	American Council on the Teaching of Foreign Languages
NAEP	The National Assessment of Educational Progress
CAF	Complexity, accuracy, and fluency

Chapter One
Problem and its Context

Chapter One

Problem and its Context

1.1 Introduction

The English language is the most widely spread language in the world. It is taught as a foreign language in many countries and it is considered the language of educational technology. It also increases an individual's chances of getting a good job. It gives people a sense of satisfaction and achievement in their lives. The English language is a medium of international communication. Writing is essential, especially in the present digital era. Students today use computers to write essays, reports, home projects, and other types of writing assignments. Writing is a thinking and interaction tool in EFL that aids students in expressing their emotions and ideas.

A focus on critical thinking, decision-making, problem-solving, reasoning, and expressing viewpoints are some of the changes that new technology has forced upon writing habits. Learning to think critically and creatively enables students to absorb pertinent facts and ideas, to add their own understanding and beliefs, and to choose and integrate helpful material (Lin, 2018). Furthermore, technology supported teachers and students with diverse sources like digital cameras, projectors, e-books, computers, PowerPoint presentations, 3D visualization tools.

Critical and creative thinking became an important requirement nowadays in teaching and learning in general and in learning the English language in particular. Successful students use their intellectual knowledge to think critically and solve complicated problems. There is a strong relationship between critical thinking and writing as writing in the first place is a thinking process. Writing requires critical thinking. According to Nunan (2003) , writing is the mental art of manipulating ideas, thinking and rethinking about how to express them and organizing them into statements and paragraphs that will be clear to a reader, it can be a tool for expressing the students' ideas as well as feelings and communication with others.

Writing is an important learning activity for all educational levels and disciplines. It is generally regarded as a difficult activity and complex task (Graham et al, 2005). However, it helps to achieve the main purpose of learning a foreign language that is a means of communication. It is a medium for students to reflect on their knowledge and interact with the world outside. Writing is used more than before by students unconsciously. They use it in texting their friends or teachers through emails or Whats App messages (Camps, 2014)

The difficulty of writing activities may stem from many reasons related to the nature of the writing process itself, the students themselves, or from teachers, tutors, or professors. Concerning the nature of the writing process, it is not only a

matter of mastering grammar and spelling skills to be perfect in writing. Writing is related to feelings, emotions, and self-expression; however, students do not usually see it this way. Moreover, many researches confirm students' inability to establish cohesion and coherence in writing texts (Ghasmi, 2013; Meisuo, 2000).

Furthermore, writing is seen by some teachers as an unimportant and time-consuming part of learning English. Writing is a reflective act that aims to communicate and convey ideas. It necessitates a distinct mental process with extra time to consider the issue, come up with ideas, put them down on paper, and then revise to fix errors and change concepts or expressions. Hence, for successful communication to be achieved, students' writing needs to be shaped and polished to help them bring out finest of what is in their ideas more precisely and competently. Writing is a research tool; it is a dynamic, creative process that allows for the imaginative and engaging recollection of events and emotions.

Based on what mentioned, the notion of teaching writing as performance is different from teaching it as a skill. Writing as a skill refers to the mechanic aspect while writing as performance refers to a multi-dimensional process used for communicating, thinking, criticizing, contextualizing, reflecting, imagining, and designing. According to the American Council on the Teaching of Foreign Languages (ACTFL, 2012), performance refers to

language ability that has been practiced and is within familiar content, regions of context and content.

DT is an approach for problem- solving, which helps students find alternatives and make better decisions in the future. It is probably a new pedagogical approach in EFL contexts. It has been used in the business world, and is being used now into education. The cross-disciplinary creative problem-solving approach known as design thinking combines analytical thinking, creative thinking, and practical abilities. It is an approach to problem-solving that depends on intricate procedures and mental models that help people generate novel solutions to problems. It can result in new objects, ideas, narratives, or systems, and brings to life new kinds of inquiry for students, teachers, and classrooms (Goldman & Kabayadondo, 2017).

DT, as a new approach for learning, focuses on inquiry, problem-solving, planning, prototyping, collaboration and feedback. Martin (2009) described design thinking as a way of thinking equitably combined both the exploration of new information and the use of current knowledge.

According to Pink (2006), the 21st century will be controlled by a mode of knowing, being, and acting which will be different. This will necessarily require students to be able to use writing as a tool for effective and self –expression, reflection, critique, and decision making. The approach helps students to

measure their creativity and innovation, and to put what they have learned into action.

DT is an approach that can be used to enhance writing performance inside and outside the classroom. Writing performance can benefit a lot from applying design thinking processes and techniques. Under the DT strategy, students can be encouraged to think critically about problems, develop a deep knowledge of users, recognize, and appreciate others' contributions. (Dunne & Martin 2006). The writing process can be seen as a designing process, where writers will be designers and the text is a design. (Maun & Myhill, 2005).

Owen (2007) asserts that knowledge is generated and accumulated through actions. Using the DT approach helps teachers to use writing assignment inside the classroom that requires empathy, thinking, and decision-making. Teachers have to play an effective role; they can encourage students to think in teams, and to have an attitude of experimentation, prototyping, make the best use of others' comments, and express their collaborative experiences in writing.

A belief in one's capacity to complete a task also develops when pupils have the power to affect the conditions of their learning (Absolum et al., 2009). Through the processes and mindsets of design thinking, Students can get the confidence to pick up new skills, come up with ideas, and test solutions (Razzouk & Shute, 2012). Students can be given the tools they

need to become engaged community members who develop solutions that benefit their communities now and in the future. In doing so, they begin to see themselves as change-makers.

There are several similarities between writing and design thinking that are reflected in the application of its stages through the writing process: In the Empathize stage, Students gain the ability to produce value, sympathize with the topic they wish to write about, and research difficulties and possible solutions. (Osterwalder, 2010). In the Define stage, students can generate upbeat definitions of issues by examining the positive elements of difficulties. In the Ideate stage, Students begin by using brainstorming to generate ideas, choosing the most promising ones and then mind-mapping those concepts. In the Prototype stage, Students begin writing their essays using the mind map as a guide, and teachers expect students to modify and evaluate their writings using the writing checklist and specific writing rubrics during the revision stage. In the final stage of testing, Students are invited to post their writing online or on the bulletin boards at school.

Students' writing improved as a result of publishing and sharing since it allowed them to get valuable comments on it from a real audience, grow as authors, and foster genuine dialogue in a collaborative setting (Glaser & Brunstein, 2007; Johnson, 2008).

Traditional writing approaches are useful and were proved to help students succeed in their writing. However, they are not valid for the 21st century writing. It is necessary to alter writing abilities to enable student-writers to successfully navigate the 21st century actual world. Students live in a context where writing is necessary for both academic and professional settings. (Leverenz, 2014; Alrehaili, 2020). There is a need to evaluate students' abilities in EFL writing in more informative, precise, and efficient methods. DT thinking will promote EFL students' abilities to communicate their opinions and use the resources in novel ways, which empowers them to come up with ideas, overcome writing obstacles, and resolve issues (Leverenz, 2014).

1.2 Context of the Problem

A large number of EFL students struggle with writing. Rao (2007) points out that writing in English is challenging for students because it requires a variety of cognitive and linguistic skills that they may not be familiar with. As for the Egyptian context, students are encouraged to write starting from grade three when they are asked to write a sentence describing the picture and it is developed till they are asked to write an entire topic in the secondary stage. However, this part is always neglected and students depend on ready-made pieces of writing, so it is a kind of memorization. The focus of education is on rote learning and memorising. Writing as a creative and mental

process that requires asking questions, reflecting, analyzing, thinking, visualizing is neglected in our schools. Ahmed (2010) states that many students at the faculty of education in Egypt find EFL writing challenging. Furthermore, Feenstra (2014) reports that second-year secondary students' essays reflect poor competence in many areas including textual cohesion and coherence.

As a teacher of EFL, the researcher experienced many students who face difficulties in creating ideas, connecting them, or even in using the basics of writing.

There is a persistent need to enhance secondary stage students' writing performance to be able to face the challenges of the digital age in which they live. Given its capacity to offer a wide range of interdisciplinary academic topics and foster students' creativity, design thinking is advised for research into how it affects different learning outcomes (Razzouk & Shute, 2012). One of the 21st century abilities is efficient written communication, as advised by researchers such as Marback, (2009), Leverenz, (2014), Purdy (2014).

In light of what has already been said, writing performance is developed when students try to create organized ideas, expand their thoughts, reflect on the writing, visualize what the thought, think for themselves, collaborate, discuss real -life problems, link their thinking with their surroundings, use different resources, activate their prior knowledge, decide on their

actions, and accept their failure. Thus, the DT approach is suggested to develop the WP of the 1st secondary stage students.

1.3 Pilot Study

The researcher also conducted a pilot study at AL-Borg Secondary School in El khanka. The pilot study was conducted on thirty first-secondary students. They took a writing diagnostic test and a picture to try to visualize some ideas about it (appendix A).

The results proved that most of those students lacked essential WP components; the most important features taken from the results of the test were as follows:

- 20% of the students wrote a good introduction and made few structural mistakes, but they did not divide their writing into paragraphs, they revealed low transion of ideas. The ideas and sentences were written randomly without preparation, there were mistakes in subject- verb agreement, pronoun reference, verb tenses, articles, prepositions. Most of their sentences were simple without using transion words. They wrote without organizing their ideas before writing.
- 60% of the students did not write an introduction or thesis statement for their topics. They made so many mistakes concerning grammar and punctuation. They did not develop their ideas logically. They made many spelling mistakes.

- 10% did not understand the topic. They wrote ideas that are far from the topic. They wrote loose sentences with many mistakes in grammar and punctuation. They had difficulty in expressing their ideas although they studied grammar for eight years.
- 10% depended on a ready-made introduction/conclusion that did not relate to the topic. They did not develop their ideas. They just wrote surface ideas without using elaboration or development. They committed errors related to grammar, punctuation, writing clear sentences, and writing mechanics.

Concerning the second part of the test (picture description)

Students were given a picture and are asked to describe what they can infer from it through writing, the most important features taken from the results were:

- 80% of them were not able to establish deep relations from the picture. They did not use their background knowledge to tackle the problem in the picture.
- They were not able to create a mental image of the picture and relate it to their background knowledge.
- They made many mistakes in grammar and mechanics.
- 20% were not able to generate different ideas about the picture.

- All of them did not divide their writing into paragraphs that deal with complete ideas. They did not achieve coherence or cohesion in their writings.

The most important deficiencies can be summarized in the following:

- Unclear connections and ideas.
- Inability to express clear meaning.
- Uncompleted thoughts.
- Inability to use nouns, adjectives, and adverbs.
- Lack of cohesion and coherence.
- Lack of ideas to support their writing.
- Lack of knowledge about the topic.

Considering the outcomes of the previous pilot study, it is noticed that students lack essential WP components, this may be due to the deficiency of some of the traditional teaching methods used by teachers. Instead of using the traditional approaches for writing, there should be a shift towards a new approach to develop meta-concepts, reflection, visualization, critical and creative thinking .Therefore, the need for the current study, which adopts DT to develop students' WP.

1.4 Statement of the Problem

Most of the secondary stage students have a clear weakness in writing, which is reflected on their WP. To successfully complete their academic career, these students should have a strong grasp of writing, so the researcher suggests using the

design thinking approach to help students develop their writing performance.

1.5 Study Questions

To tackle this problem, the current study sought to investigate the following main question: "What is the effectiveness of the application of a program based on design thinking on developing writing performance for the 1st secondary stage students?"

In attempting to answer this main question, the following subquestions should be answered first:

- 1- What is the status quo of writing performance level of the targeted students?
- 2- What are the successful WP indicators of the 1st secondary stage students?
- 3- What are the writing performance components required for the 1st secondary stage students?
- 4- What are components and the activities of a suggested program based on using the design thinking approach for developing writing performance for the 1st secondary stage students?

1.6 Aim of the Study

The purpose of the current study is to investigate the effectiveness of applying design thinking approach in developing writing performance for the secondary stage students. The model used in this study is the model adopted by

the Stamford d. school with some modifications done by the researcher to fit the purpose of the study which is developing and enhancing writing performance for the secondary stage students.

1.7 Hypotheses of the Study

The present study attempts to verify the following hypotheses:

- There is a statistically significant difference between the mean scores of the study participants on the pre and post WP test administrations with regard to the development of their "**Overall WP**" favoring the posttest scores.
- There is a statistically significant difference between the mean scores of the study participants on the pre and post WP test administrations with regard to the development of their "**WP subcomponents**" favoring the posttest scores.

- **1.8 Delimitations of the Study**

This study is delimited to the following:

- The study is delimited to the 1st secondary Stage Students.
- Participants are delimited to one group of the 1st secondary stage students, in AL Borg School (N, 14)
- The duration of the experiment is delimited to 9 weeks (four sessions a week, the session is 45 minutes, totally 3 hours a week) (27 hours).
- Blended learning strategy will be used sometimes for interacting with students through using of Whats

App, Grammarly and Mi Mind Program. The researcher will meet with students online for 1 hour each week.

- The total number of learning hours will be (39) [27 for face to face interaction & 12 for online learning].
- Only writing performance, as it is the context through which students would be assessed.
- The study is delimited to only five components of WP, they are; coherence, clarity of ideas, structure, visualization, and coherence.

1.9 Significance of the Study

Studies on design thinking as a teaching strategy in the area of EFL are scarce. Few experimental researches have looked at the advantages and benefits of implementing design thinking in many fields. Among these benefits are increasing students' motivations to debate and resolve problems, opening their minds to new concepts, and fostering their innovative and creative thinking.

To the best of the researcher's knowledge, no experimental study has looked at the benefits of teaching EFL writing to secondary students using design thinking. The significance of the current study may also stem from the following considerations:

- **For EFL students:** The study has to develop the students' writing performance.

- **For EFL teachers:** The results may help them to develop their students' writing performance.
- **For EFL supervisors:** They may use the study findings and results in creating professional development opportunities for teachers to train them on using design thinking in teaching writing

The study may help EFL teachers to increase the opportunities of collaboration and self-directed learning inside the classroom. It may open the door for using this approach in EFL teaching. Furthermore, the study may fill a gap in the literature. There are no local previous studies, to the researcher's knowledge, that used design thinking to develop EFL writing performance.

1.10 Definition of Terms

1.10.1 Writing Performance

AnsariMoghaddam & Tan (2013) believed that writing can be viewed as a fruitful learning process that begins with the development of ideas and ends with the release of the finished document.

Al-Jumaily (2014) defines writing as" the process of using symbols to communicate ideas. It is a system/method of representing language in visual or tactile form. It's the mirror that reflects/shows one's knowledge about a language". (p. 29)

As for this study, writing performance is defined as a multifaceted, multidimensional process that requires fluency of

ideas, visualization, contextualization, communication, and correctness of ideas, thinking, reflection, critique, and decision making that helps EFL secondary stages students to reach a high level of performance.

1.10.2 Design Thinking

Li et al (2019) considered design thinking to be a model of thinking that should be sustained and developed in school instruction for all students in the twenty-first century.

Design thinking is a human-centered approach to innovation that puts the observation and discovery of usually incredibly subtle, sometimes even unspoken, human requirements at the forefront of the innovation process. (Gruber et al., 2015). According to this study, design thinking is referred to as a process that requires divergent, creative, analytical thinking based on planning that urges creative decision-making abilities through ideation and prototyping that enables EFL students to create well organized essays.

1.11 Organization of the remainder of the study

To explore the study research questions and achieve the study objectives, the chapters ahead have been organized as follows:

Chapter two reviews the theoretical framework discussing the processes relevant to the writing performance of the secondary stage students, components of writing performance; writing and thinking, approaches of writing performance the factors behind students' inefficiency in writing, a critique of the existing

situation of writing. It proceeds to describe writing as a design; it discusses the mental processes involved in writing. The second part deals with design thinking discussing the processes involved in design thinking, different opinions related to D.T, the critique of design thinking, its techniques, and its application in education. It concludes with the researcher's commentary.

Chapter three illustrates the method adopted to implement the study by presenting an account of the study design, participants, and instruments.

Chapter four presents the study results, results analyses, as well as the discussion and interpretation of these results.

Chapter five involves a summary of the study and its findings.

Chapter Two

Review of literature and Related Studies

Chapter Two

Review of literature and Related Studies

This chapter reviews the theoretical framework on which the present study is based

First, it reviews the theoretical framework through discussing writing performance, approaches of writing performance, the mental processes involved in the writing performance of the secondary stage students, components of writing performance; writing and thinking, writing for the 21st century, and finally, a critique of the existing situation of writing.

Second, it deals with DT discussing its possible components, its techniques, the teacher's, and students' roles, discussing its implicit advantages, its importance for 21st century learning, DT and EFL classroom, using technology in DT, it goes to discuss writing as a design, its application in EFL secondary stage writing performance, the critique of design thinking. Finally, it provides the researcher's commentary on its importance and application.

2.1 Writing Performance

Writing is a process when students produce their texts which are based on their previously acquired knowledge (Davidson, 2007). Unlike oral language, writing is not naturally acquired, but it is developed if students master the abilities that can unlock their creativity. The traditional way of teaching and learning English is not useful and effective nowadays especially in the age of information technology and highly effective communication. Students should learn to be creators, innovators rather than imitators. They need to practice writing as a creative and thinking activity. In this concern, According to Brown

(2001), writing is a form of thinking. Students can master grammar rules and have a rich vocabulary background, and yet they cannot compose a paragraph as it is not just a matter of competence, but it is also a fluent writer's performance. Students and teachers should realize that the main function of a language is to use it communicatively and meaningfully, and if this occurs, there will be a balance between competence and performance. Writing is more than just connecting words or sentences together.

2.2 Approaches to Writing Performance

The constructivist approach suggests that participants in the learning process are active learners, and they can construct their knowledge and meaning from their prior knowledge and experiences by asking questions, exploring, and assessing what they know. According to Ozer (2004), learning is a social process that involves language, the real- world, interaction, and collaboration among learners. Thus, collaborative writing increases self-confidence, motivation, tolerance, decision making and reduces fear and anxiety.

The communicative approach deals with writing as a social activity. It focuses on authentic language. As a result, it is determined by the communication's meaning and context. Thus, it contextualizes writing and gives it authentic environment. Students perform well when they feel that language is authentic and meaningful. The free writing approach deals with writing as any ideas or thoughts that come to mind in a given time without stopping (Elbow, 2000). The idea of keeping writing without editing increases writing fluency which in turn increases motivation and self-confidence in writing.

2.3 Mental Processes in Writing

The new technology today and in the future requires new and flexible abilities in the use of spoken and written language.

Writing is mainly seen as a cognitive activity that includes some mental processes in each stage. These processes are not limited to certain stages of writing, but they can be used at any stage of writing without a certain order. The prewriting stage, requires imagination about the topic layout, the title, the ideas included, and how they can be organized. It also requires analysis and visualization of the knowledge they have. Students can use mind maps to help them think visually about written topics. Writing is the process of conveying ideas and concepts via the use of visual symbols. Furthermore, the expression of ideas is aided by the use of pictures.

According to Aschawir (2014), images help to motivate and arouse learners' interest. Beckley (2014) explored how student engagement is affected by the use of both written and visual storytelling. She concluded that Students will develop stories that are richer, more elaborate, and entertaining when given a variety of techniques, notably image creating. Through the prewriting stage, students also use brainstorming ideas which later require decision making, critical thinking, and evaluation to arrange and rearrange their ideas and sub - ideas through the process of writing itself, Students also use reflection

2.4 Components of Writing Performance

Writing is the most challenging, stimulating, and engaging ability to learning a language. However, it is the most important of all language abilities. Writing proficiency, according to Hyland (2003), can help language development. According to Housen and Kuiken (2009, p.461), CAF has been utilized as performance indicators for the oral and written assessment of English language learners as well as indicators of learners' proficiency underpinning their performance. They have also been used to track language learning progress. Graham & Harris (2003) assert that the writing process requires several abilities,

including planning, generating the content, organizing the composition, putting content into textual form, revising, and utilizing self-regulation abilities.

WP components are numerous, but some of them are selected for this study such as writing clear ideas, implementing a correct structure, moving smoothly for further written parts, reflecting meaningful ideas, and visualization of possible written products. According to (Rico, 2014) incoherent text fails to communicate ideas. Thus, writing clear ideas, implementing a correct structure can be seen as important components in writing performance. It can be concluded that writing as a performance includes, moving smoothly for further written parts, reflecting meaningful ideas .

As for the idea of visualization, Bilbokaitė (2016) mentions that the artistically conveyed visible item in visualisation might elicit a sensation of satisfaction. The following features set it apart from other representations: the capacity to convey meaning through colour, tone, and depth; the ability to use externalisations of internal visions in the form of tangible, symbolic, or abstract imagery. Huh (2016) maintains that the use of visual thinking in EFL classrooms helps students to look closely at pictures, explain what they see, provide proof of concepts, and consider the different views of others. The resources used to generate ideas and opinions are pictures, icons, photographs, charts, graphs, posters, cartoons, and text. Tillmann (2012) explains that the ability to verbally comprehend, understand, and transmit ideas is what is meant by writing. The use of visuals in writing helps learners to construct ideas through visual comprehension.

2.5 Writing and Reformulating Thinking

Writing is an active and a dynamic process in which one should learn to think more clearly. There is much more in writing than the orthographic representation of speech. It requires a deliberate choice and arrangement of experience. This selection requires active thinking. It requires thinking about one's purpose, audience, organization of ideas, and choice of suitable vocabulary. Writing arouses thinking starting from the title of the topic. Students find themselves involved in a process of thinking about which topic to choose to write about depending on recalling their previous knowledge and the information they have, then they start many other processes of thinking about their ideas, and how they can be arranged, word choice, and the style of writing they can use.

We cannot reduce students as mere imitators of what they see or hear. Schools are still trying to teach one technique that fits all students. Students are responding and communicating in fundamental and increasing ways thanks to the internet, e-mail, and web sites. A new writing style was created by the new digital media.

Writing can also be seen as a spontaneous process of creating meaning, and generally developing and modifying thought (Galbraith & Torrance, 1999). It should not be treated as a practice for only passing exams. Consequently, it should be viewed as self-expression, finding alternatives and visualization, a continuous thinking process that requires problem- solving and reflection.

Writing is an expression and communication tool in and of itself. Writing helps individuals to think more clearly because it forces them to express their ideas clearly and to analyze and select the appropriate instruments for a good dialogue (Quitadamo & Kurtz, 2007). It engages students in active thinking practices and enables them to negotiate meaning

between themselves and their readers through the text. It also helps students to express their prior knowledge and ideas. Thus, writing can be seen as a learning factor by which communication and reflection is achieved.

2.6 Writing and the 21st Secondary Stage Students

From the previous discussion, writing performance cannot be seen as the usage of grammar, vocabulary, and correct sentences. Performance is how to use your knowledge about language in communicative situations, and that means the connection between different aspects of language, society, culture, norms. Writing in homes, schools, colleges, and businesses has been impacted recently by the quick growth of digital technologies. (DeVoss et al, 2005). Pachler (2000) asserts on the interactional function of a language as one of the important functions of a language.

Students in the 21st century need to be able to address different challenges by thinking creatively and using technology. The need for an innovative thinking approach was also emphasized by this change; this is the biggest challenge facing them now and in the future. As a result, not only good academic achievements alone, but also skills from the 21st century that are needed in the educational environment in this century. McCoog (2008, pp.1-6) argues that students must be motivated to develop new concepts, assess and interpret the material presented, and apply the information to their previous learning experiences. They need to share their information and experience in an atmosphere of tolerance and collaboration.

In their response to this issue, the National Council Teachers of English outlined the significant reforms in literacy instruction

and literacy practices that are required. Due to these changes, there are some requirements that schools must follow, such as creating new writing models, promoting writing both inside and outside of the classroom, taking into account various audiences, and ensuring that writing opportunities and intellectually interesting learning environments are available to all students, depend on authentic activities for writing, deal with writing as a collaborative and thinking process, encourage self and peer editing, and use digital technology to share their writings.

2.7 The Status Quo of Students' Writing Performance

Although writing has become a demanding ability especially in 21st century education, yet it is still neglected in Egyptian schools which depend mainly on memorization, encourage competition, and discourage creative or critical thinking. Ahmed (2010.pp.58-62) in his study discussing the contextual challenges to Egyptian students' writing development stated the most important results affecting writing development; among these factors are using stereotyped writing topics, using of written clichés represented in fixed opening and concluding sentences, lacking critical and creative thinking to review their essays, writing only for the exam, lacking reading habits that enable them to enhance their writing, L1 interference in L2 writing.

Writing instruction in Egyptian schools employs either the product approach or the process one. Yan (2005), has criticized the product approach as it emphasizes imitation rather than the actual procedures students or writers employ to create a piece of writing. It may affect students' motivation and self-esteem as a result of constant error correction. On the other hand, Badger and White (2000) criticized the process approach as it views writing as the same for all writers. Nevertheless, it is widely accepted and utilized.

Teachers always focus on grammar and vocabulary by making their students memorize the writing piece by heart and that contradicts with the nature of the writing process as a creative art. Thus, Egyptian language learners need a new, engaging, and creative approach to teach writing. An approach that focuses on creative, critical thinking, problem-solving, self-expression, visualization, thinking out of the box, collaboration, decision making, ownership of learning, and the culture of learning from their mistakes.

2.8 Design Thinking

Design thinking relies on our capacity for intuition, pattern recognition, the ability to develop ideas that are both emotionally and practically meaningful, and the capacity for nonverbal or symbolic expression (IDEO, 2019). DT is an original, imaginative, and people-focused methodology. Lor (2017) describes design thinking DT as an inventive, creative, and human-centered methodology and mentality that makes use of cooperative interdisciplinary teams to produce user-focused goods, services, or experiences.

2.8.1 Design Thinking and EFL Writing Performance

Particularly in the context of EFL, developing writing performance necessitates the capacity to structure ideas in clear and cohesive ways through the use of precise language and sensible word choice in order to make one's work accessible and simple for the reader to understand.

Raising students' enthusiasm to participate in writing activities and acquire the language as a tool for communication is significantly aided by teaching writing in EFL classrooms that emphasizes student-centered learning. EFL writing classes should be safe places where students are encouraged to use excellent inventive writing methods rather than an excessive emphasis on memorization of texts and set linguistic patterns.

EFL writing is seen as a social activity. It is not limited to a specific individual or school of thought, but instead emerges in social circumstances between discourse groups.

The most effective method for teaching writing is design thinking, a design approach that shares many similarities with writing. This is because it equips EFL writers with the abilities they need to address difficult real-world problems in their writing. DT can make great changes to the notion of EFL writing performance.

Purdy (2014) linked the writing process to design thinking. Leverenz (2014) investigated how design thinking could support students' understanding of academic writing as a creative act in which authors create not only texts but also themselves and their worlds.

Writing and design are mainly creative communication. The Connection between writing and Design thinking is set by (Brown, 2009) and (Cross, 2011) as the following:

- Both of them are considered problem-solving processes that involve audience, brainstorming, planning, revising, and publishing.
- Both processes require creating a large number of ideas and thinking of various possibilities rather than relying on a single answer.
- Both urge collaboration and interdisciplinarity.
- The human -centered nature of design thinking increases students' awareness of their surroundings and the problems they face. Design thinking requires authors to start by taking into account the demands of individuals who will be affected by the issue. As a result, Students will learn to empathize with the topic they want to write about (Osterwalder, 2010).
- The principle of accepting failure to learn more that design thinking adopts helps students to accept feedback and

improve their writings depending on others' opinions and take the risk of the writing process.

DT deals with writing from a broad perspective and EFL students need to develop writing inside and outside the classroom.

The significance of using DT with writing performance stems from the variety of mindsets that can work well in the writing process. Empathy is the main motivator of design thinking reminds students of their larger goals as authors. During pre-writing phases teachers train students to define their audiences and aims. Design thinking encourages EFL writers to develop connections with readers before they begin writing, supporting them as the process progresses. Their writing is shaped to better when engage the audiences they are writing for as they get to know their interests, needs, and needs. Using design thinking, students step by step experiment, employ many strategies, mix models, and create new approaches that improve upon the old. They learn how to correct themselves throughout the process rather than at the end.

2.8.2 Design Thinking Components

There are many components involved in design thinking which makes it a unique approach for writing and creativity:

Divergent Thinking/Creativity

Divergent thinking is a form of thinking that aims not at producing correct responses ,but rather at coming up with a wide range of unique, original wide variety ,or even the – wall ideas (Baer, 2012) .Ideas that "diverge " from the norm. Divergent thinking is often contrasted with "convergent" thinking, which refers to thinking that concentrates on a single right answer. Convergent thinking produces the correct answer, but divergent

thinking produces interesting, innovative, and potentially creative ideas.

DT encourages students to think creatively and pursue multiple options for solutions to daily problems. It facilitates divergent thinking to build multiple alternatives [possible or impossible], and then use convergent thinking to realize the best solution. In the words of Tim Brown (2009, p.44), the purpose of DT is "to multiply options to create choices." This means that the main aim of design thinking is using divergent thinking to generate many ideas and options which are unexpected and unconventional to reach creative solutions and answers.

In the researcher's viewpoint, creativity is connected with divergent thinking. The more creative an individual is the more up-to-date ideas and solutions that he can make. Divergent thinking helps students to approach the problem or issue from different backgrounds and this is a must in the writing process since it is mainly a creative process that expresses the student's personality and ability. Divergent thinking can be seen clearly through the "ideation stage" which requires brainstorming many usual or even unusual ideas.

Visualization

Designers use visual thinking to deal with the ill-defined issues of design thinking expressing ideas in a non-verbal way makes them strengthens their persuasiveness and enables the identification of issues and opportunities. Drawing is a means of expression for designers, according to Brown (2009, p. 44), and only drawing can reveal both an idea's aspects practically and its emotional content. Visualization helps in idea generation. It also helps in the brain storming stage. Through using visualization, writing can be a unique activity as each student has a unique mental image. It helps to deepen learning and thinking.

In the researcher's viewpoint, design thinking and visualization are closely related; visualization starts with DT from the beginning to the end and helps to better understand the problem. Visualization starts from the moment the student attempts to imagine how his/her topic will be organized and developed. It continues through all the processes. Visualization urges creativity and divergent thinking in design thinking. It helps students to organize their ideas and reach better solutions.

Decision Making

Decisions in design thinking mainly seek to create critical judgments while conventional decision making aims at producing true judgments. Nelson and Stolterman (2003) think judgment is the source of creativity and is therefore a valuable ability. Decision making happens when designers try to select some diverse ways to reach creative solutions and it is a way to accomplish creative solutions and it is also a continuous process throughout design thinking. Designers always find themselves involved in a process of decision making to move to the next phase and also throughout the phase itself.

In the researcher's opinion, design thinking helps people take better decisions, helps them also accept their failures and learn from it and that enables them to build their self-confidence. Decision-making is an essential ability especially in the secondary stage, when students are trained to make better decisions on the level of their writing, this will help them make better decisions about their future later. The researcher thinks that most of our secondary stage students lack this ability. Throughout the researcher's experience, she found out that students in this stage are not able to decide how to study or what they want.

Problem Solving

The utility of Design thinking in solving complex or "wicked problems" as opposed to well -defined problems is significant (Cross 2001). Poulsen and Thogersen (2011) defined wicked problems are those complex issues that need to be reframed and addressed by designers and cannot be solved by rationalistic processes. Design thinking is a method of problem-solving that connects idea and action directly and dynamically, according to Zande (2007). In the researcher's opinion, the world around us today became filled with different complex problems, and students, especially in the secondary stages, should be responsible and participate in solving problems in their societies. Writing, in the first place, may be a complex and challenging problem for EFL students .However, if we start with it as a starting point, this may help students to apply different strategies to solve their future problems .

Collaboration

D T is focused on different multidisciplinary teams which will lead to greater innovations. It benefits from the views of multiple perspectives and shared knowledge to build new knowledge. (Wagner, 2008) calls for collaboration across networks as one of the survival skills for careers, college, and citizenship.

In the researcher's opinion, most successful educational systems are those which encourage collaboration and the best use of it instead of creating conflicts. Students should be trained to consider others and should understand that different viewpoints do not mean that they are enemies .DT will help students to collaborate and divide tasks among them to reach better products. Writing also can be developed if it is viewed as a collaborative activity between teachers and students.

Reflection

Reflection is an important requirement in design thinking. From the beginning to the end, designers are engaged in a process of monitoring, and reflecting on their actions, attitudes, and decisions in the design process. Lawson (2006, p. 229) emphasizes that there are two ways to interpret the concept of reflection in design: reflection in action and reflection on action

- Reflection in action takes place throughout the entire process. Designers constantly switch between formulating, representing, moving and assessing. This process of reflection helps in taking decisions or modifying solutions.
- In contrast, reflection on action takes place when the outcome has been produced. Reflection in design thinking does not end with the product, whatever the form of the product is, but also continues after presenting it.

Brunette (2015) emphasizes many reasons why reflection is necessary for designers: First, it encourages designers to focus on the full design process rather than just the finished item. Second, it aids in accepting accountability for deeds. Third, it helps designers accept failure and quantify success throughout the entire process.

2.8.3 Techniques Involved in Design Thinking

DT users, as stated by The Institute of Design at Stanford, use different techniques along their journey in DT phases as the following:

- Through the "empathize phase", students use interviews, interactions, and observations to reach a better definition and a deeper meaning of the problem. Successful designs are built on real and authentic observations and understanding.

- Through the " ideate phase" , students can use different techniques according to the type of their topics such as brainstorming, mind mapping, to try to find as many ideas as they can, in this phase quantity is favored. Ideation urges students for the widest possible range of ideas from which they can select .
- Through the " prototype phase", students use conversations, discussions to receive meaningful feedback in the testing phase.

2.8.4 Teachers' Role in Design Thinking

The core of design thinking is not found in design but rather in thinking. According to Ou yang (2007), thinking and creativity go hand in hand. The teacher's role here is to provide chances for creativity and thinking. Adopt creative thinking strategies; be a helper, focuses on students' interaction, uses diversified and authentic teaching materials, and different evaluation methods.

2.8.5 Students' Role in Design Thinking

Owen (2007, Pp.16-27) summarizes some of the design TD thinkers'(students') roles that are:

- Designers must continually consider human needs.
- Designers should also consider environmental interests through the design process
- Designers work visually (i.e., the depiction of ideas).
- When faced with a challenge, designers should consider various, original solutions.
- Designers should be able to articulate their creative process.
- Designers need to have interpersonal skills that enable them to collaborate with others and communicate across disciplines.

2.8.6 The Implicit Advantages of Design Thinking

Design thinkers, according to Bauer and Eager (2008), drive the idea of creation through a generative process called "imagining". Imagining relies on logical, associative thinking, and

daydreaming. Cross (2011) asserts that design thinkers move between the concrete and abstract thinking modes. Cross (2010) describes different forms of intelligence that may be drawn on DT. They include linguistic, logical mathematical, spatial, musical, bodily - kinesthetic, and personal intelligence. Also, Dunne and Marten (2006) state that DT includes inductive, deductive, and abductive reasoning. DT helps to foster imagination through the phases of definition, and ideation, creativity through the phase of prototyping and innovation through the phase of testing.

Robinson (2011) thinks that there are three necessary processes in creative culture, whether in the workplace or education. First, imagination is defined as "the power to imagine things that do not exist in our senses. Creativity is the process of having creative ideas that have worth, the act of combining and putting novel ideas into practice. The previous definition of creative culture matches with the definitions and processes of design thinking in building imagination, creativity, and innovation toward a creative culture.

Buchanan (1992) states that inventing new trends and concepts to address possibilities, relates to DT whilst filtering through facts to discover insights relates to scientific thinking. The researcher, in this study, suggests the DT approach as a bridge between sciences and humanities and that will make it much more realistic.

DT is about challenging students to think at a deeper level. When students are thinking creatively; they are completely interested in their learning. Cottrell (2005) asserts that critical thinking is a cognitive activity that emphasizes discussion and necessitates the use of reason. Facione (2000) characterizes critical thinking as a process of self-adjusting involving the use of cognitive abilities to make judgments and to improve the

quality of judgments. Thinking is driven by questions. Students, through inquiry, learn to create, enhance their significant questions, and concentrate on how to formulate, respond, and reflect on their questions. This process of using the mind is often related to reasoning, making judgments, and reflection (Sternbery et al. 2007), and all these qualities are the essences of the DT process.

2.8.7 Design Thinking for the 21st Century Learning

DT, as an approach to learning and teaching, employs abductive reasoning, empathy, experimentation, and creative problem - solving to address "wicked problems" that require interdisciplinary approaches in order to be resolved (Brown, 2009; Leinonen & Durall, 2014). Kwek (2011) went on to say that design thinking, as a constructivist learning technique, enables students to be inspired for inquiry and problem-solving, being open to ideas, helping them to be innovative and creative. It also promotes collaboration which is a requirement of education in the 21st century education.

DT power results from the promotion of a variety of interdisciplinary academic topics (Carroll et al, 2009). Thus, using design thinking in the classroom can create a stimulating environment that encourages the creation of meaning without imposing a preset set of skills and knowledge.

By immersing the student in activities that allow them to exhibit divergent thinking, it is now possible to enhance the co-activation and interaction among brain regions that are not typically strongly connected during noncreative activities (Hardiman, 2010). Therefore, design thinking as a learning strategy in the twenty-first century was adequately covered by these findings.

According to Jacobs and Farrell (2001), there are ten key elements in language education that are related to the paradigm

shift of the twenty-first century. These include the shift from a teacher-dominated environment to a learner-dominated one, the focus on the learning process rather than a product, the appreciation of learner diversity and recognizing it, student voices, the importance of holistic learning, aiding students in understanding and developing the purpose of their learning, the focus on student voices, and the value of holistic learning.

The inventive nature of group learning in educational environments has been emphasized by Hämäläinen and Vähäsantanen (2011).

Design process offers a channel for divergent thinking, collaboration, innovative decision making, and problem-solving. Chen (2010) thinks that the design thinking process would be valuable as a tool in primary education. He also claims that it is a method that can be integrated into the existing plans for education. The power of doing is seen in the Design – Thinking process because it involves learning experiences where students are engaged in creating their solutions or perspectives to a topic, instead of simply being receptacles of information.

DT process will allow students with different abilities and learning styles to excel and achieve their objectives. Comparing the findings from various studies, Barron and Hammond (2008) concluded the following:

- Students comprehend concepts better when they can apply what they have learned in the classroom to real-world issues and when they work on projects that need constant involvement and collaboration.
- The impact of active learning activities on student performance is greater than that of any other factor, including student background and achievement.
- The best learning outcomes for students occur when they are taught both what to learn and how to learn it.

DT encourages learners to understand topics and problems from various points-of-view. It helps to use multiple abilities together. It gives students an appreciation for different jobs and roles in society. It also helps to challenge and incorporate students with different learning styles. DT helps to develop students' problem-solving abilities which is an important requirement for success in both school and life. It enables students to put the gained knowledge into practical use. It also encourages students to measure their performance, take decisions, and admit failure.

2.8.8 Design Thinking in EFL Classrooms

By applying the techniques of design to EFL education, Teachers encourage pupils to take on challenging problems from inside by loosening the strict, conventional learning process and utilizing their rich imaginations. They also stress the need of critical thinking in problem-solving. (Barseghian, 2009).

Rudresh & Varghese (2019) suggest using DT as a framework in ESL classrooms and indicates possible language enhancement opportunities in a more collaboratively and creatively way. Using a problem-solving strategy to address difficult issues that can best be solved through collaborative, human-centered activities, design thinking aims to promote innovation by enhancing the creative thinking abilities of the participants.

When using a design-thinking technique, students should illustrate rather than tell, focus on human principles, craft clarity, embrace experimentation, be aware of their process, and work with other innovators from various backgrounds to develop solutions, according to Stanford d.school DT Mindsets.

Being involved in a design-thinking process will provide students with an opportunity to gain unique abilities and knowledge, such as idea generation and prototyping, to become

creative thinkers. It is an effective way to help students, especially the secondary stage, develop a deep purpose for learning, and that makes them find significance to what they're learning in schools. When students engage in design thinking, they are tackling real-world issues that concern them, and the goal becomes clear. DT makes learning vibrant, engaging, authentic, enjoyable, and reflective. DT prepares students for 21st century professions, and provides students with abilities like problem-solving, collaboration, curiosity, visualization, and self-dependence. All the previous abilities and mindsets are essential for students in the secondary stage to prepare them for university and work.

In total, 17 semi-structured interviews with instructors at design schools in Stanford, California, and Potsdam, Germany, were done by Rauth et al. in 2010, their investigation found that design thinking education has resulted in a variety of competences, such as emotional intelligence and prototyping. The capacity for adopting diverse perspectives, empathy, and a particular mentality. The growth of these creative abilities results in the development of creative self-assurance, which supports pupils' capacity for imaginative behavior and thought.

2.8.9 Blended Learning, Design Thinking and Writing Performance

At all educational levels, the emergence of new technologies has created numerous chances for language learning, particularly through the usage of Web 2.0, which stands for "information is meant to be shared" (Pelet, 2014). Nowadays, technology is frequently used to enhance the educational system. It may promote and enhance teamwork.

Technology utilization has been shown to motivate students' interest in the subjects they are taught. (Mayora, 2006, as cited in Ilter, 2009 p. 136).

Technology helps students think critically, solve problems, and comprehend concepts at a high level. Additionally, Barani et al. (2010) ,add that by utilizing media, teachers have the chance to provide a variety of sources and can enhance their students' language-learning experiences rather than having them rely just on the dialect or idiom of their teacher. In DT teachers' using of electronic activities such as; E-mind mapping, photo story, and brainstorming apps can enhance students' motivation, attitude, organization of ideas and writing performance in general. Using blended learning with writing performance also has useful impacts as suggested by many studies:

- To stimulate, inspire, and urge students to write, to prod them to think of topics for their writing that will interest their peers and boost their confidence (Alshumaimeri, 2011; Zhang, 2009) .
- To give them the opportunity to share their experiences (Richardson, 2010; Solomon and Schrum, 2010).
- To give the students chances to provide each other with feedback on their writing (; Richardson, 2010; Solomon and Schrum, 2010).
- To foster informal communication, and interaction (Richardson, 2010; Solomon and Schrum, 2010).
- To provide additional ways for interaction, and collaboration opportunities (Richardson, 2010; Solomon and Schrum, 2010).
- For the teacher, it will change the concept of teacher-centered environment to a gradual dependence on students.
- It will provide additional time for teaching and learning.
- Teaching will be easier and more interactive.

2.8.10 Writing as a Design

According to Sharples (1999), writing and design in general are both forms of intentional and creative material communication intended to have an impact on others. Lawson (1990) lists the qualities of design; these qualities can also be shared by writers:

- Design problems are open-ended and cannot be fully specified, the same idea is applied for writing as the writer writes with endless goals in his mind such as convincing his audience, presenting his ideas, the style, and so on.
- The design process is endless, the writing process is also endless as the writer when revising his writing he adds more ideas and changes others.
- There is no correct design, writing is not bounded to a certain style or technique but it depends on the writer's purpose and audience.
- The two processes involve finding as well as solving problems , much time is spent in identifying, defining, redefining the problem , deciding the style, the ideas, their arrangement, and the words used in writing.
- Designers are motivated by the desire for action as they work, designers can change the environment, and also writers can change the world with their writings, and thoughts. All writings can act as a starting point for further writings in the future.

Watson (2017) asserts that writing is a type of design. He saw some connections between writing and design thinking. Similar to how designers use empathy to understand the audience they are writing for, authors frequently utilize it to try to understand and communicate with their readers. Writing is similar to creating in that it involves ideation, prototyping, brainstorming, and drafting. Both of them produce a finished product at the end. Both of them produce a finished product at the end

Design thinking and the writing process is shown by several composition theorists (e.g., Leverenz, 2014; Marback, 2009; Purdy, 2014). Because our universe is composed of individual structures, it is also possible to view the essay writing process as a structure. Students may not assess every aspect of the structure correctly without knowing its scope and holistic point of view.

2.8.11 Application of Design Thinking in EFL Writing Performance

According to (El Sakka,2020), teaching written texts as a design process can help students to create organized pieces of writing, develop their writing performance, and raise their knowledge of sustainability. The practices employed to teach writing may be a factor in this low performance. For instance, in the majority of writing programmes, professors only teach vocabulary and grammar; they do not assist students in writing; instead, they merely assign themes without assisting their students in creating ideas and paragraph structures (Rahmadhani, 2014).

The researcher will apply the steps of design thinking to the writing process as follows:

Figure 1: illustrates the design thinking processes

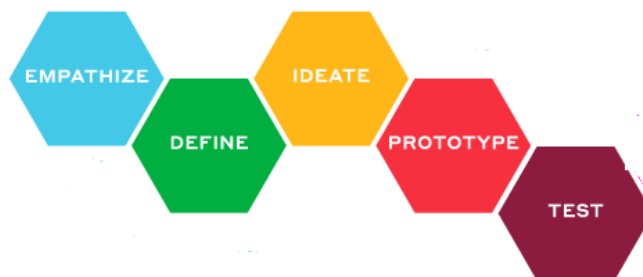


Figure 1: design thinking processes

<https://dschool.stanford.edu>

- In the empathize stage, students are asked to think about the problem, issue, or hypothesis they want to address in writing.
- In the define stage, they are asked to define the writing topic clearly.
- In the ideate stage, they are asked to write down as many ideas as they can. Then, to arrange them using mind maps, and abandon irrelevant ones.
- In the prototype stage, they start writing their topics depending on the ideas they collected and organized.
- In the test stage, they publish their writing to obtain feedback and modify their writings if needed (Alrehaili& Alhawsawi, 2020).

2.8.12 Critique of Design Thinking

Although DT is seen, by many scholars, as an innovative approach that fosters imagination, collaboration , creative problem-solving, reflection, divergent thinking, and decision making, it has some disadvantages as follows:

- Because it may be complex both in its history, origins, and structures. There are many models and phases .Cross (2011) describes it as "ineffable". However, these models give the writers opportunities to select /modify learning techniques.
- In addition, the terminology used to describe it is ambiguous, and the literature upon which it is founded is incoherent (Kimbell, 2009) .
- Collins (2013) makes the case that DT participants must establish a shared vocabulary and understanding.

To better understand the relationship between diverse discourses and to distinguish DT from non-design thinking approaches, Hassi and Laakso (2011) contend that additional empirical study on DT is required. However; teachers and learners would find the most appropriate DT model.

- Furthermore, DT is not a one – fit all methodology (D. Kelly & T .Kelly, 2013) and needs to be applied to be relevant situation or context .

Therefore, Badke-Schaub et al (2010) suggest that the different DT approaches could benefit from one another in different ways. There should be a connection between the different models to reach a better chance of creating solutions.

To comment on the above- mentioned studies, all the supporting studies agree that DT is an approach to deal with complex problems. It urges creativity, divergent thinking, collaboration, ideation, empathy, understanding, imagination, innovation, decision making, visualization, and reflection. However, the opposing studies see that it does not have a clear definition, phases, or techniques, it is not a one-fits- all methodology.

In the researcher's opinion, the nature of the DT approach as not a one –fits all methodology, especially in humanities, gives it a more realistic nature. In dealing with ideas, changing problems, and humans. One cannot expect to find the same ideas or behaviors. The difference is the nature of human beings. Creativity arises from differentiation. Teachers should not encourage students to think in the same way.

Commentary

DT is an approach that encourages divergent thinking, imagination, teamwork, interdisciplinarity, visualization Problem- solving, decision making, experimentation and reflection, bias towards actions which help EFL writing students to develop and enhance their writing performance .

As a new approach it encourages creativity and innovation which are important requirements for the 21st century education and the information age .Although there is criticism about it, DT should be taken into consideration that it is new especially in the educational field. However, the studies that related between DT

and writing performance did not deal with writing performance as this study did that makes it distinctive .

The application of DT approach will help students to think through disciplinary collaboration; it helps the teacher to expand their teaching beyond the classroom walls. The idea of presenting different solutions for the problem helps to improve self-confidence and decisional skills. Concerning writing performance, as the main aim of this study, it will encourage students to use different faculties of mind and addresses different learning styles, it encourages students to accept multiple views and write better essays.

Chapter Three

Methodology

Chapter Three

Method

This chapter deals with the method of the study. It shows the description of the study design, participants, instruments, and the program, its aim, performance objectives, content, online and offline language strategies, and assessment techniques. Finally, it presented the obtained results out of the administration of the instruments.

3.1 Study design

To achieve the aim of this study, the research employed a one group pretest-posttest quasi-experimental design along with a mixed research approach incorporating both quantitative and qualitative assessment.

3.2 Participants

The participants of the study were 14 pupils in the 1st secondary stage (N=14). They were selected at random from AL Borg School at Al Khanka city in Qalyubia governorate.

3.3 Settings of the Study

The current study was supposed to be at AL Borg School at Al Khanka city in Qalyubia governorate where most of the face to face interaction was supposed to take place, but after the COVID-19 circumstances, the researcher shifted the experiment to be online sessions using Whatsapp group discussions, and Zoom meetings. The researcher also arranged to meet the participants outside the school to achieve the face to face

interaction, after taking all the safety procedures to ensure their safety.

3.4 Instruments and Instructional Material of the Study

In order to achieve the study aims, the following instruments were designed:

- Pre/posttest of students' writing performance.
- Writing performance rubric.
- Students' satisfaction questionnaire.
- Proposed program that is based on the DT strategy.

3.4.1 Writing Performance Components List

3.4.1.1 Purpose of the list.

The list of writing performance components was developed after reviewing earlier research and writing-related literature. Based on the list, the researcher elaborated and developed the other instruments used in the study; including the writing performance rubric and the pre/post writing performance test. This list was also a guide in preparing the program's activities which aimed at developing the writing performance components.

The researcher determined the following components of WP to represent the base line of the test and rubric:

- Coherence
- Clarity of ideas
- Structure
- Visualization

- Reflection

3.4.2 The pre/posttest (Appendix B)

3.4.1.2 Purpose of the test.

The pre / posttest was prepared by the researcher to measure students 'writing performance. The test was conducted to determine the students' entry level before applying the program, and after the experimentation, to determine the program's effect on their writing performance.

3.4.1.3 Description of the pre/post test

The test consists of two parts. It was applied in two sessions. The first part consists of two questions, students are asked to write their responses in the form of writing. Part two consists of two questions; the respond to them is also in a written form. The total score of the test is 100. Table 1 points out the question number, the item number, the writing performance component it assesses, and the score given to each item.

Table 1

Test Specification (part 1&2)

Number of questions	The assessed components	Score for each question	Total
1	Coherence	20	
1	Clarity of ideas	20	
1	Visualization	20	
1	Reflection	20	
	Structure	20	
Total = 4			Total=100

Part one of the test consists of two questions .The first one asked students to choose the best sentence to complete a letter that measures their ability to connect sentences and ideas together smoothly. The second question is " **What are the biggest changes in your learning process because of Covid 19? How do you feel about that?**" Measures their ability to come up with clear and logical ideas. Both questions also measure their ability to build paragraphs and sentences correctly.

Part two of the test also consists of two questions. The first question is " **Look at the picture and imagine your life when The Pandemic of Covid 19 ends?**" that measures the students' ability to create mental images. The second question is" **Write an autobiography**", that measures the students' ability to reflect a self-image and interpret their experience. All questions also measure their ability to build paragraphs and sentences correctly, use correct structure and punctuation.

At the end of the program, the students' writing performance was measured through the same writing test. This time the test was also to be taken in three hours, but was used to measure students' WP at the end of the program. For the purposes of the current study, this test was considered as pretest and posttest, and both sets were analyzed for performance areas (indicated by the rubric) and rated for quality by the researcher herself depending on the rubric in order to compare results at the beginning and end of the program and to address the research questions.

3.4.1.4 Content.

The test was designed and edited considering the following:

- The final list of writing performance components.

- Previous studies and literature concerned with writing performance assessment.

3.4.1.5 Piloting the Test

The test was piloted on a group of 1st secondary stage students from Al Borg Secondary School in AL Khanka supervision. It was administered prior to teaching the WP program to a group of (30) participants. The purpose of that piloting procedure was to:

- Determine the appropriate time needed to answer the test.
- Establish the reliability of the test.
- Check the suitability of the test to the participants related to clarity of the questions.
- Ensure the validity of the test.

3.4.1.6 Determining the test time

After the test was piloted, the test's duration was calculated. This was done by calculating the time that each learner took to answer the test, and then calculating the average time for the whole group. Thus, the average time of the test was found to be (180) minutes, (90) minutes for each part.

3.4.1.7 Calculating test internal consistency validity

- **Calculating internal consistency**

To ascertain the internal consistency of the writing performance components which the test measures correlation coefficients were calculated between the score of each item and the total score of the test, after deleting the effect of this item from the total score.

The following table shows the values of the correlation coefficients between the score of each item and the corrected item-total correlation of the test.

Table 2*Corrected Item-Total Correlation for the test*

Part	Writing performance component	Its correlation coefficient to the total score
1	Coherence	**0.63
1	Clarity of ideas	**0.70
2	Visualization	**0.61
2	Reflection	**0.68

**Significant at 0, 01

**N=30

Table 2 reveals that every item is statistically significant. This indicates the internal consistency between the degree of each component and the total test score.

- **Internal consistency of test dimensions**

To ensure the internal consistency of the test dimensions, the correlation coefficients were calculated between the score of each dimension (a subcomponent) and the total score of the test, after deleting the dimension score from the total score.

The following table shows the values of the correlation coefficients between the score of each dimension (subcomponent) and the total score of the test.

Table (3)

Corrected Item-Total Correlation after deleting the score of the dimension from the total score of the test.

WP subcomponent	Correlation coefficient with the total score
Coherence	**0,63
Clarity of ideas	**0,67
Structure	**0,61
Visualization	**0,62
Reflection	**0,69

*Significant at 0, 01

Table 3 indicates that all dimensions of the test are statistically related to the total score, which indicates the internal consistency of the test.

- **Calculating the the overall test Reliability**

Calculating the the overall test reliability was calculated by:

- **Alpha Cronbach coefficient**

Stability of the WP Test was calculated using Cronbach's (1951). Reliability refers to internal consistency; that is how closely related a set of items are as a group, so as to measure a single, one-dimensional latent aspect of individuals. Cronbach's alpha coefficient was calculated for the test and its value was (0.85).

Table 4 shows the test stability coefficient.

Table 4

Alpha Cronbach coefficient

Cronbach's Alpha	N of Items
0.85	4

On analyzing the statistical value indicated in table 4, it was found that the alpha coefficient for the 4 items is (0.85), an appropriate coefficient alpha is higher than zero, and therefore the coefficient alpha suggests that the items have relatively high internal consistency. Therefore, the test is characterized by its high stability and consistency, and therefore it can be relied upon.

- **Test Retest**

The WP test was applied again on the same students after two weeks so that each student answered the same topic that s/he had answered at the first time, and the correlation coefficient was calculated between the scores of the two applications. The correlation coefficient was found to be (0.94), this high value indicates a very strong correlation, which confirms the accuracy and stability of the test and its reliability

as a means of measurement. Consequently, it is concluded that the test was highly reliable.

3.4.3 Writing Performance Rubric (Appendix C).

The WP Rubric is an analytic device designed to evaluate the participants' performance in the pre/post test.

3.4.3 .1 Purpose

To record the majority of what the participants might learn or acquire in their WP both before and after the program's implementation. The researcher used a three scale rubric to evaluate students' writing performance, and to measure the effect of the proposed program reflected by the pre-posttest. Then, to measure the development in their writing performance through the use of DT at the end of the experiment.

3.4.3 .2 Description.

The researcher agrees that no rubric can encompass all of the WP's components. The researcher in the current study picked five elements to evaluate the learners' WP. The researcher analyzed the WP components and constructed the WP rubric into five main categories (i.e., **coherence, clarity of ideas, structure, visualization, and reflection**). To determine the degree to which a student's performance met the criteria of the task, three levels of descriptors which differentiate several levels of WP were specified.

The first main category is "**Coherence**". In the first level, the students demonstrated flow, smooth, and logic ideas and paragraphs with strong connection between ideas using transition words. In the second level, the students demonstrated weak connection between ideas with weak and limited use of transition words. In the third level, the students demonstrated lack

of transition and/sequencing of ideas with no connection between ideas or use of transition words.

The second main category is "**Clarity of ideas**". In the first level, the students demonstrate a clear, specific, and engaging introduction with focused conclusion. Supported, fluent and variation transition of ideas, with precise word choice.

In the second level, the students demonstrate good introduction and conclusion with inaccurate or irrelevant details, general presentation of ideas. Illogic, uncontrolled, and moderate transition of ideas with limited word choice

In the third level, the students demonstrated lack of purpose with no ideas or details. Nonexistent or unfocused thesis statement with unclear and confusing ideas with general or imprecise word choice.

The third main category is "**Structure**". In the first level, the students utilized varied sentences with appropriate grammar, punctuation and spelling with few/no errors. In the second level, the students utilized varied sentences with inappropriate grammar, punctuation and spelling with some errors. In the third level, the students utilized simple sentences with lots of errors in grammar, punctuation and spelling.

The fourth main category is "**Visualization**". In the first level, the students utilized visualization of key elements before writing, and used different visualization strategies before, during and after writing. In the second level, the students utilized visualization of some elements before writing, and used limited visualization strategies before, during and after writing. In the third level, the students did not utilize visualization of elements before writing, or use visualization strategies before, during and after writing.

The fifth and last main category is "**Reflection**". In the first level, the students' writing strongly reflects their experience and personality, they use on/off line media to present writings and strongly able to evaluate resources /writing. In the second level, the students 'writing conveys limited reflection of their experience and personality with limited use on/off line media to present writings, and still able to evaluate resources /writing. In the third level, the students' writing merely presents facts and information with No use on/off line media to present writings.

3.4.3 .3Rating the Rubric

The rubric consists of five WP components, which were included according to the final form of the list of WP components. Each of the five components is rated according to a rating scale ranging from ' level 1' to level 3'. Thus, students could achieve a score starting from '1', (indicating the lowest performance) to '3', (indicating the highest performance).

3.4.4The Students' Satisfaction Questionnaire. (Appendix D)

3.4.4.1Purpose of the Questionnaire

It was conducted to measure students' attitudes towards the current study program, and thus to know its strengths and weaknesses for future application, to figure how well the instructional program reached its intended outcomes/goals. Furthermore, the results obtained would help the researcher and provide useful data in the qualitative assessment, and in comparing students' feedback with the study results in terms of the effectiveness of the program. Besides, it was used as a supplement to the other instruments in this study.

3.4.4.2Description of the Questionnaire

The questionnaire consists of 16 questions which cover all the aspects of the instructional program, as they give the learners the chance to reflect on the program, with its content, activities, collaborative techniques, what they liked/ disliked and how this educational experience has affected them and their writing performance.

3. 5 The Study Program

3. 5.1 The Outline of the Program (Appendix E)

By reviewing the literature and related studies, the program was designed and determined its characteristic in the outline of the program; (Appendix E).The tasks, materials and activities were designed with the purpose of increasing students' interest in learning English and, consequently promoting their English writing performance. The content of the program was ordered from simple to complex and the activities to help students enhance their English writing performance.

3. 5.2 Purpose of the program

The proposed program was designed to develop and enhance WP of 1st EFL Secondary stage students through adopting the design thinking approach.

3. 5.3 Performance objectives of the program (ILOs): The writing performance program focuses on the following performance components: Clarity of ideas, structure, coherence, visualization and reflection. By the end of the program, the students were expected to:

- Express their ideas meaningfully.
- Move ideas smoothly.
- Enhance their reflection ability, and reflect ideas precisely on the written essays.

- Provide expressive details to support their writings integrating prior knowledge with current events in writing.
- Use a variety of sentence types.
- Clearly address the topic and show correct language mechanics.
- Use visualization to support their mental images, think deeply, and reflect new relationships.
- Use on /off line media to improve, and present their writings, and share their ideas.
- Reflect awareness about themselves, and their world in their writing.
- Involve critical analysis to examine their understandings.

3. 5.4 Description of the program

The program is based on adopting DT to enhance the students' WP. The program is divided into three phases: **Explore and Ideate, Prototype, and Test**. It consists of 14 sessions including two orientation sessions. The first sessions explained the program components and aim. The second illustrated the meaning of the term DT; its usage, processes, application on writing, and its expected positive effect on enhancing WP. Furthermore, the targeted WP components were identified during the application of the 14 session activities. These 14 sessions contain various activities, which were used to elaborate and enhance the WP components. Some essential performance components should be acquired by the end of the program as follows:

- Identifying essay components.
- Expanding ideas through collaborative activities.
- Expanding students' ideas about brainstorming, Mi-Mind, and mind mapping.

- Finding relationships, and how to link them to their prior knowledge.
- Provoking students' thinking and learning abilities using DT.
- Enhancing students' writing performance through applying the DT processes on the writing process to integrate learning activities for EFL students.
- Helping students to increase their individual reflections using some online programs such as "Mi- mind", "WhatsApp", "Grammarly".
- Posing questions, brainstorming and exchanging ideas, through discussions.

3. 5.5 Duration of the Program

The proposed program lasted for 9 weeks; starting from the first of February 2021 to the 4th March 2021. Each week included four lessons of 45 minutes each with total number of hours equals 3 hours a week. Furthermore, the teacher will interact with students for 1 and half hour each week through the 9 weeks. The total number of hours will be (27 for face – to face interaction & 12 hours for online learning).

3. 5.6 Content of the Program

The researcher divided the program into three phases: **Explore and Ideate, Prototype, and Test**. The program consists **of two units**. The first unit consists of seven lessons of 45 minutes each; the second unit consists of three lessons of 45 minutes each. They aim at presenting DT approach to students, its definition, steps, values, activities, and its effective impact on writing. They also aim at presenting the general rules used for writing in this stage and how it can be achieved. Furthermore, the targeted WP components were

identified through the application of the lessons' activities. These activities contain pictures, picture story, videos, and E-mind mapping program, which used by the researcher to enhance the WP components.

Through the program, students are required to adopt the 21st century skills: critical thinking, creative problem solving, communication and collaboration.

The WP Program included the following:

- Two orientation sessions. The purpose of which was to present the program and its aim, and raise the students awareness of the various strategies of DT, its importance and application. The aim of this part was to make the concept of DT clear in the students' minds, to pave the way and to involve them in application.
- Twelve sessions, dealing with some activities and applications. Open-ended questions are aroused with the application of DT focusing on thinking, visualization, and reflection.
- Extra twelve hours were added to online interaction with students to improve their understanding, writing, and also to interact with students due to COVID- 19 procedures.

The content of the program included 14 sessions as the following:

Unit 1

- Session 1: Orientation (Introduction about the program)
- Session 2: Orientation (DT definition, processes, and strategies).
- Session3: Know the components of a good sentence.
- Session4: Know the components of a good sentence.
- Session5: Know the components of a good paragraph.
- Session6: Development of ideas.
- Session7: Development of ideas.

- Session8: logic and organization.
- Session9: Visualization and generating thinking.
- Session10: Stimulate visualization.
- Session11: Reflection on writing and evaluation.

Unit 2

- Session12: Application on essay writing.
- Session13: Application on essay writing.
- Session14: Sharing writing.
- The first phase (**Explore and Ideate**) contains sessions from 1 to 11
- The second phase (**Prototype**) contains sessions 12, 13
- The third phase (**Test**) contains session 14

The first phase (Explore and Ideate) aims at:

- Introducing the study program and its purpose.
- Writing performance components needed to be enhanced.
- The way the participants are going to deal with it.
- What are they expected to perform.
- Activities used in the program and how they evaluate the participants' performance.
- Enhancing clarity of thoughts.
- Using visualization to enhance writing.
- Enhancing reflection.
- Identifying the components of a good sentence.
- Identifying the ways of arranging words in a sentence.
- Identifying the components of a good paragraph.
- Identifying the ways of arranging words in a paragraph.
- Brainstorming and organizing ideas.
- Writing well-built paragraphs.
- Organizing ideas logically.
- Moving ideas smoothly.
- Considering the 3Cs (consistency, clarity, and coherence).
- Enhancing visual thinking.
- Creating better mental images.
- Giving interpretations.
- Reflecting on ideas.

The second phase (Prototype) aims at:

- Writing well- organized paragraphs.
- Writing coherent essays.
- Enhancing writing by more practice.

The third phase (Test) aims at:

- Sharing writing.
- Getting feedback to improve writing.

Each session lasted for 90 minutes, and is divided into three stages: warming up, procedures, and assessment.

- **Warming up stage**

In this stage, the researcher used materials and activities to lead into the topic highlight some useful ideas and words, brainstorm for **ideas**, provide a model, visualize some photos, watch some warm up videos, and make predictions and connections.

- **Procedures stage**

In this stage, the participants did the task in pairs or small groups while the researcher monitored them and the whole **process**. During this stage, students practiced the language while asking, and sharing ideas.

- **Assessment stage**

In this stage, the participants are asked to answer quizzes, identify some written components, write about some topics of interest, create e-mind maps, visualize ideas, and order sentences to complete a story, reflect on ideas, share ideas online and get feedback.

3. 5.7 Piloting the Program

For receiving feedback about the proposed program (its content, the suitability of the tasks and activities to participants' level and age, teaching aids, and methods of evaluation), one sample task was selected to be piloted and administered to the participants (N=14) who were randomly selected. The period of the piloting lasted for one week, three times, ninety minutes each. The participants showed their desire to learn how to enhance their writing performance.

The piloting application of the program resulted in the following notes:

- Some activities seemed a little bit difficult for some participants such as visualization; this might be because they were not usually accustomed to these activities and the time was short.
- Participants were excited by the visuals and the design thinking approach.
- Sometimes, the researcher had to use Arabic when she noticed that some activities were not understood by the participants.
- Participants at first were not active; this might be because they are not familiar with student-centered activities.
- The topics of the program aroused Participants' interest due to their variety and authenticity.

All these notes were taken into consideration during piloting the test.

3. 5.8 Online /Offline Learning and Teaching Strategies

The researcher utilized different strategies to develop WP to help students to reach a better understanding. They include:

3. 5.8.1 Mi Mind Program

- **Description**

It is a visual form used for demonstrating how concepts or other elements are related to a main idea and to one another.. They are used to generate, visualize, structure, and classify ideas to look for patterns and insights that provide key design criteria.

- **Purpose**

It helps students to generate and organize their ideas.

3. 5.8.2 Photo Game

- **Description**

It is a type of puzzle that depends on identifying a predetermined number of discrepancies between two otherwise comparable images, whether they are illustrations or photographs that have undergone photo manipulation. Other names for spot-the-difference games are " hunt games" games.

- **Purpose**

The aim of this activity is to activate students' knowledge and urge them to react to the activity in a written form.

3. 5.8.3 Brainstorming

- **Description**

- Brain storming, as defined by Merriam-Webster, is a technique for solving problems as a group that involves the spontaneous contributions of ideas from each member of the group. It also refers to the consideration of ideas by one or more people in an effort to come up with or find a solution to a problem.

Purpose

It helps students to come up with great ideas; it promotes creativity, and helps shy students to engage in the lesson.

3. 5.8.4 Visualization

- **Description**

The act of creating mental images is known as visualization.

These pictures frequently start with an event, whether real or imagined, that increases knowledge about a topic or circumstance.

However, it is about visual thinking, not sketching.

It makes our concepts seem and feel more vivid.

- **Purpose**

It facilitates the written language expression of participants', encouraging reflection, and helps in the creative process of writing.

In addition to the previously written strategies, learners' collaboration was reinforced using a variety of interactive methods, in groups (small group discussions), or the entire group (class discussion).

3. 5.9 Sources for the Program

Several resources were employed to develop the program's activities, including the internet to look for videos and images that would help with essay writing under the researcher's guidance. The internet is also used in helping students to write and present their essays such as the use of MiMind Program, Picture Story, Whats app, and Grammarly. They are also used for online meeting.

3.5.10 Assessment Techniques

(Appendix G)

Assessment in education is classified into three types: assessment for learning, assessment as learning, and assessment of learning (Earl, 2013). The present study tried to make use of, as long as possible, the three types of assessment.

As for assessment for learning, the researcher tried to use the data gathered from the proposed program and the applied activities to continually assess students' progress and support them with feedback. Regarding assessment as learning, it is used in explaining the analytic scoring rubric to students before writing. The researcher used an analytic rubric to assess the participants' progress throughout the program and assess their writing performance accurately in the pre/post writing performance test. The rubric consisted of five components namely: clarity of ideas, structure, coherence, refection, and visualization. In addition, self and peer assessments allowed students to discuss and reflect on their own writing, each strategy or activity aimed to assess the students' abilities. As for self-assessment, the researcher designed a check list to be part of the formative assessment of the program, and help students monitor their progress and correct their mistakes.

The last type of assessment of learning was used at the end the program to record students' progress and improvements in their writing performance through comparing the results of the Pre-post test before and after the application of the program. The final phase of the program also students and the researcher an opportunity to share their writings and get feedback.

3. 5.11 Writing Samples (Appendix F)

Examples of student essays made up the writing samples that were gathered.

They were gathered throughout the research and offered a glimpse into the progress certain students had made in their writing. The writing process stages were examined in these essays. For the students' writing samples, the researcher provided screenshots of their written production.

In the light of the advisers' revision of the program, some modifications were made as the following:

- 1- The number of sessions increased. Consequently, 4 sessions were added that dedicated much time for more activities.
- 2- The researcher devoted more sessions to forming sentences, paragraphs, and generating ideas.
- 3- Some activities included in the program were replaced by other engaging ones as the researcher found that they did not stimulate students' thinking and creation.
- 4- The researcher started with the components of a sentence in the second application of the program which proved that it was effective in achieving the research goals instead of forming a paragraph.

3. 6 Statistical methods used in the research

The following statistical methods and treatments were used:

- 1- Wilcoxon test to find out the differences between the pre and post applications in the scores of the the research group concerning their "overall WP".
- 2- Wilcoxon test to find out the differences between the pre and post applications in the scores of the the research group concerning their "WP subcomponents."
- 3- Calculating the correlation coefficient between the degree of each (component) and the total score of the test to find out the internal consistency of the test dimensions.
- 4- Calculating the reliability of the test using Cronbach's alpha lab.
- 5- Calculating the correlation coefficient between the scores of the pre and post applications of the test to know the stability of the test.

Conclusion

The methodology and procedures of the current study were covered in this chapter. The study's participants, settings, and design were all reported. The study's tools and its educational strategy were also discussed and explained. The research data are analyzed both quantitatively and qualitatively in the next chapter, which is followed by a general discussion of the results.

Chapter Four

Results and Discussion

Chapter Four

Results and Discussion

In this chapter, the findings obtained from the quantitative and qualitative analysis are presented, interpreted and discussed throughout. There are three sections in this chapter. The first section starts with detailed quantitative data analysis of the pre/posttests results through statistical treatment and the verification of the research hypotheses to assess the importance

of the outcomes' changes between the pre and posttests. Then, results are interpreted and discussed. The second section presents qualitative analysis of the data obtained from some of the students' writings. Then, the data obtained by the students' satisfaction questionnaire is analyzed. Finally, there is the researchers' conclusion on both the quantitative and qualitative findings.

4.1 Results of the Study

By responding to the major thesis question presented in the first chapter, the study's findings were met: "How can the design thinking approach develop EFL writing performance for the secondary stage students?" The answer of the previous question comes from the first hypothesis.

4.1.1 Testing the First Hypothesis

The H01 states that "There is no statistically significant difference at the between the mean scores of the study participants on the pre and post WP test administrations with regard to the development of their "**overall WP**" favoring the post test scores".

To prove this hypothesis, the researcher examined the hypothesis, and the results of both pre and posttest administrations were statistically analyzed and compared to determine the significance between the learners' "**overall WP**" mean scores in the pre and post administrations of the WP test using Wilcoxon Test for paired samples to obtain Z value score for related samples and both the positive and negative ranks in addition to the P-value. These results are clarified in Table 5:

Table 5:

Paired Samples Wilcoxon Test results comparing pre - post administrations mean Scores of students' grade ranks in the WP Regarding Their "Overall WP". (N.14)

Component	Ranks	N	M	S. R	mean		Std. Deviation		Z	Sig.	Effect size
					pre	post	pre	post			
Overall WP	Positive Ranks	14	7.50	105.00							1
	Negative Ranks	0	0.00	0.00	55.73	94.61	5.69	4	3.298	0.001	Very strong
	Ties	0	0.00	0.00							
	Total	14									

Table 5 shows that the positive ranks are 14 regarding the overall WP, the negative ranks are 0, ties are 0, this indicates that all the research group scores increased in the post test, and there are no students whose grades decreased or equaled.

Table 5 clarifies that the participants mean scores in the post administration of writing performance test as a whole were higher than their mean scores in the pre administration. This indicates that the study participants achieved progress in the writing performance components as a whole as a result of the proposed program. In addition, the standard deviation of participants' scores in the post administration of writing performance test as a whole was lower than the pre administration.

The table also reveals that the significance level (sig.) is (0.001) which is less than (0.01) this indicates that there is a statistically significant difference at the (0.01) level between the mean scores of the study participants on the pre and post writing performance test as a whole in favor of the posttest scores. This means that the H₀ should not be accepted.

Consequently, the null hypothesis was rejected and the alternative hypothesis was accepted which states that " There is a statistically significant difference between the mean scores of the study participants on the pre and post WP test administrations with regard to the development of their "Overall WP" favoring the post test scores". **Therefore the researcher**

has answered the fifth question that states " What is the effectiveness of the application of a program based on design thinking on the targeted students?

Figure 2: illustrates the difference between the students' mean scores on the pre and posttest with regard to "Overall WP".

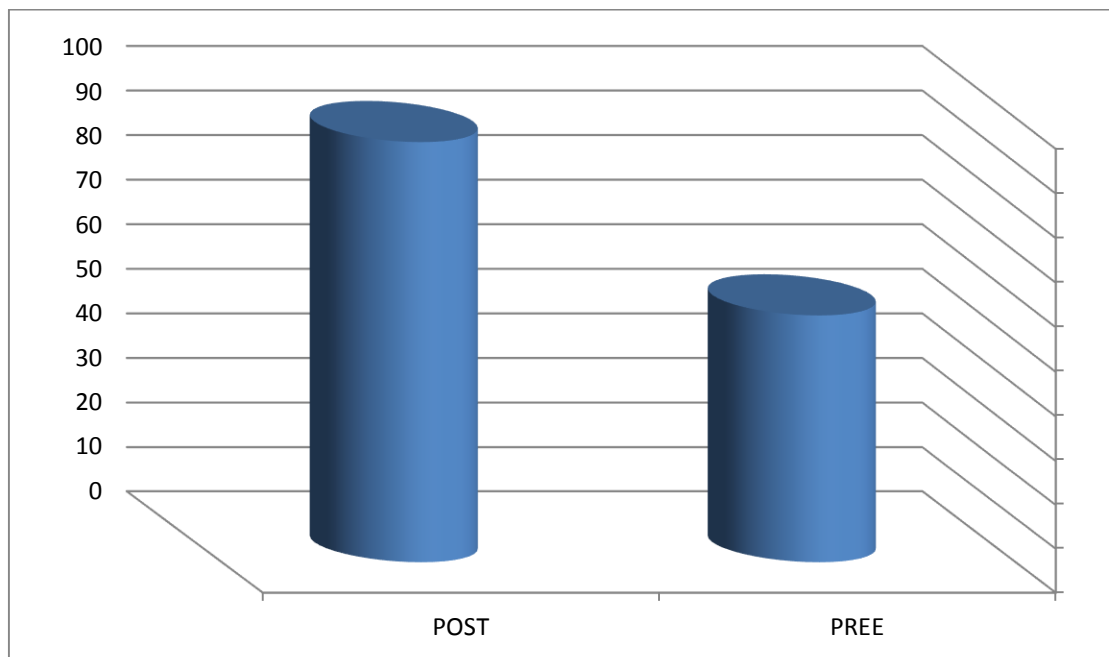


Figure 2. Differences between the students' mean scores on the pre and posttest regarding their " Overall WP".

To calculate the impact of the proposed program on the research group, the researcher relied in her calculation on what Hasan.E (2016, pp.280-279) indicated when using the Wilcoxon Test to calculate the difference between the mean ranks of the pairs of related degrees, and when the results prove a statistically difference between the ranks of the related pairs of degrees or between the ranks of the two measurements, before and after, it is possible to know the strength of the relationship between the independent and dependent variables by using the binary correlation coefficient for the ranks of the related pairs Matched-Pairs Rank Biserial Correlation ,which is calculated from the following mathematical formula:

$$r = (4(T1) / n(n+1)) - 1 \dots \dots (1)$$

Where:

r = strength of the relationship (the binomial correlation coefficient for the ranks of the related pairs).

$T1$ = sum of all positive sign ranks.

n = number of pairs of scores.

And (r) is interpreted as follows:

- If: $(r) < 0.4$ indicates a weak effect size.
- If: $0.4 \leq (r) < 0.7$, it indicates an average effect size.
- If: $0.7 \leq (r) < 0.9$, it indicates a strong effect size.
- If: $(r) \geq 0.9$ indicates a very strong effect size.

From table(5), it is clear that the effect size of the overall WP = 1. This indicates that the proposed program that based on design thinking approach is highly effective in developing the writing performance of the 1st secondary stage students as a whole.

4.1.2 Testing the second hypothesis.

The H02 states that "There is no statistically significant difference between the mean scores of the study participants on the pre and post WP test administrations with regard to the development of their " **WP subcomponents** " favoring the posttest scores".

To verify this hypothesis, the researcher examined the hypothesis, and the results of both pre and posttest administrations were statistically analyzed and compared to

determine the significance between the learners' " WP subcomponents " mean scores in the pre and post administration of the WP test using "Wilcoxon Test" for paired samples to obtain Z value score for related samples and both the positive and negative ranks in addition to the P-value. These results are presented in Table 6:

Table 6

Paired Samples Wilcoxon Test results comparing pre - post administrations mean Scores of students' grade ranks in the WP Regarding "WP subcomponents " (N.14)

Component	Ranks	N	Mean Rank	Sum of Ranks	Mean		Std. Deviation		Z	Sig.	Effect size
					Pre	Post	Pre	Post			
Coherence	Positive Ranks	14	7.50	105.00							
	Negative Ranks	0	0.00	0.00	10.21	19.80	0.40	2.29	3.309	0.001	1 Very strong
	Ties	0	0.00	0.00							
	Total	14	7.50	105.00							
Clarity of ideas	Positive Ranks	14	7.50	105.00	11.36	18.57	2.06	2.13	3.300	0.001	1 Very strong
	Negative Ranks	0	0.00	0.00							
	Ties	0	0.00	0.00							
	Total	14	7.50	105.00							
Structure	Positive Ranks	14	7.50	105.00	11.66	18.61	1.11	1.75	3.298	0.001	1 Very strong
	Negative Ranks	0	0.00	0.00							
	Ties	0	0.00	0.00							
	Total	14	7.50	105.00							
Visualization	Positive Ranks	14	7.50	105.00	11.57	18.43	2.17	2.34	3.304	0.001	1 Very strong
	Negative Ranks	0	0.00	0.00							
	Ties	0	0.00	0.00							

	Total	14	7.50	105.00							
Reflection	Positive Ranks	14	7.50	105.00	19.93	19.00	1.18	1.69	3.310	0.001	1 Very strong
	Negative Ranks	0	0.00	0.00							
	Ties	0	0.00	0.00							
	Total	14	7.50	105.00							

Table 6 clarifies that the participants mean scores in the post administration of writing performance test concerning their "**WP subcomponents**" were higher than their mean scores in the pre administration. The negative ranks are 0, ties are 0, this indicates that all the research group scores increased in the post test, and there are no students whose grades decreased or equaled.

This indicates that the study participants achieved progress in their "**WP subcomponents**" as a result of the proposed program. In addition, the standard deviation of participants' scores in the post administration of their "**WP subcomponents**" was higher than the pre administration.

The table also reveals that the significance level (sig.) is less than (0.01) this indicates that there is a statistically significant difference at the (0.01) level between the mean scores of the study participants on the pre and post writing performance test concerning their "**WP subcomponents**" in favor of the posttest scores. This means that the H₀ should not be accepted.

Consequently, the null hypothesis was rejected and the alternative hypothesis was accepted which states that " There is a statistically significant difference between the mean scores of

the study participants on the pre and post WP test administrations with regard to the development of their" **WP subcomponents** " favoring the post test scores".

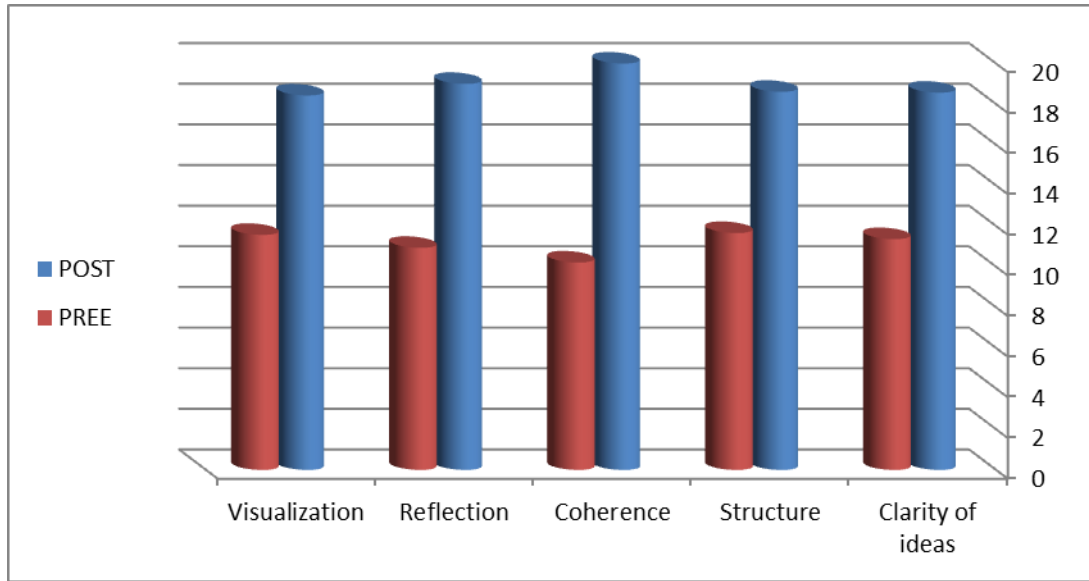
From table 6, it is clear that the calculated effect size regarding " **WP subcomponents** ", expressed by the Matched- Pairs Rank Biserial Correlation,=1.This indicates that the proposed program that based on design thinking approach is highly effective in developing the reflection of meaningful ideas of the 1st secondary stage students .

Figure (3)

The following figure shows the difference between the mean scores of the students in the pre and post applications of the (WP subcomponents).

Figure (3)

The difference between the mean scores of the students in the pre and post applications of the (WP subcomponents)



4.2 The Program Effect Size

Although the effect size is very large in the previous tables, and this indicates the effectiveness of the proposed program based on design thinking in enhancing the 1st secondary stage students' writing performance, the effectiveness of the proposed program has been also confirmed by calculating the modified gain ratio for (Hasan, 2013, p. 28) and it is given by the following mathematical formula:

$$CEG_{ratio} = \frac{M_2 - M_1}{P - M_1} + \frac{M_2 - M_1}{P} + \frac{M_2 - M_1}{M_2}$$

Where CEG = Modified gain ratio

M1= pre- test mean score

M2= post- test mean score

P = Test's total score

CEG is interpreted as follows:

If (CEG) < 1.5, the program is ineffective

If $1.5 \leq (CEG) < 1.8$, then the program is of average effectiveness.

If $1.8 \leq (\text{CEG})$, the program is acceptable or effective.

Table 7

The Study Participants' Mean Scores on the Pre and Post Writing Performance Test and Ezzat's Modified Gain Ratio

TEST	Total Score	Mean Scores		Ezzat's Modified Gain Ratio	significance
		pre	post		
WP	100	55.73	94.61	1.68	Average Significance

It is obvious from the table (7) that the calculated Abdel Hamid's Modified Gain Ratio regarding writing performance components as a whole equals (1.68), that is between (1.8 , 1.5). This indicates that the use of the proposed program based on design thinking is of moderate effectiveness in enhancing the 1st secondary stage students' writing performance. So, it can be concluded that the proposed program based on design thinking has a positive effect on enhancing the 1st secondary stage students' writing performance. Consequently, the main question of the research was answered, which states: **What is the effectiveness of the application of a program based on design thinking on enhancing the 1st secondary stage students' writing performance?**

4.3 Discussion of Results

The results of the study showed that the participants' writing performance was enhanced as a result of the treatment. Verifying the hypotheses of the study, the results of the statistical analysis showed that there was a significant difference between the participants' mean scores on the pre and post writing performance test as a whole and regarding each writing performance component in favor of the posttest mean scores. This indicated that the participants' writing performance was enhanced after being taught using the DT program. This

revealed a positive effect of using DT approach on enhancing the 1st year secondary stage students 'writing performance. This may be due to the following reasons:

DT approach was efficient in building an effective learning environment. The students themselves were an essential part of the learning environment. Students were not just seen as language users but also knowledge producers and decision makers. They started employ different thinking strategies to approach writing tasks. They could construct meaning, reflect on ideas, analyze, inquire and collaborate to solve complex writing problems.

Furthermore, all the program's materials selected that were, videos, pictures, cartoons, etc. were motivating and raised learners' interest. They helped learners to acquire the language faster, and made learners more confident. That helped students to deal with writing from a safe zone and expressed their ideas forgetting their past struggle with writing tasks. As a result, all their writings were expressive and increased their participation and motivation. Participants were able to build meaningful knowledge. These findings were consistent with the results of the studies by Charles (2022), Bason, (2013), Cross (2004).

The study focused more on **the ideate and explore phase** since it aims at providing learners with the tools necessary to generate and organize ideas to be able to write well- built paragraphs and achieve consistency, clarity, and coherence in writing paragraphs and essays. This idea agreed with the idea of Maun&Myhill (2005) writing texts as a design process.

Other various factors that might have raised the program effectiveness are: the combination of different technological tools, e.g., Mimind, Grammarly, and WhatsApp .Using technological applications (e.g., WhatsApp) made participants

feel confident and relaxed when approaching writing. They felt that they were writing for their own online space rather than doing a boring task in which they will be assessed. Feedback was received via WhatsApp rather than the traditional writing feedback in classrooms. This helped to reduce their anxiety level about making grammatical mistakes and about writing process in general. Students were exposed to different resources as a result of using technology and internet. This agreed with the results of other studies; such as Purdy (2014), (Carroll et al., 2010), Donar (2011).

Using technology within a Design Thinking program enhanced students' comprehension of the complex and creative process. It was noted that merging technology with design thinking help students to be more creative, confident and effective designers of texts. .These findings were consistent with the study of Smith et al. (2015).

The implementation of visualization tools, e.g. MiMind helped engage students in participation and interaction to come up with creative and unique ideas and organize them. These tools stimulated students' visual thinking which in turn enhanced their communication, critical thinking, cognitive and metacognitive abilities.

One of the primary strategies of Design Thinking is to consider different combinations using visual thinking. Using visual thinking with DT has many effects:

- By putting his ideas for the project into a visual form, the designer broadens the task's problem area, introduce or even uncover new elements.
- It is challenging to perform multiple perspectives thinking about a topic.

- Helps students become more creative and analytical thinkers.
- Increases concentration and perception.

These results were consistent with those of Roam (2008), Housen (2001), and (Hailey et al., 2015).

Furthermore, the effectiveness of DT in developing the students' WP as a whole may be due to the following reasons:

- DT activities encourage "multiliteracy" and maximize different perspectives within teams members.
- DT calls for profound empathy for others in order to design a text or an item.
- DT emphasizes complete immersion in the issue at hand as well as close attention to the target audience. DT helps students to accept and praise their failure and this is an important requirement of the writing process .
- DT facilitates students' involvement with writing process as a meaning making process
- DT could enhance the students' creativity.
- DT could stimulate several brain regions in kids and aid in the generation of fresh, original concepts that they would not have thought of on their own.
- The DT encourages students to practice cooperative problem solving that translates to various situations of classroom interaction.
- DT contributes to greatly enhance critical and thinking abilities.
- DT develops reasoning, and speculative abilities, and the ability to find multiple solutions to complex problems.
- DT makes use of divergent thinking which is a key to foster creativity.

- DT helps to activate students' background knowledge (linking of new ideas to previous knowledge).
- Through picturing, understanding, reflecting, and enhancing their awareness of a variety of knowledge, such as photographs, films, texts, and other media, DT enriches and strengthens students' thinking methods.
- DT encourages students to identify their points of strengths and weaknesses.
- DT performs a crucial function of helping students to generate endless number of ideas.
- DT urges EFL students to think for themselves, learn from their mistakes.

There are also additional factors that made the program effective, explaining the aims of the program to students, as well as giving them guidance throughout the treatment, explaining their role and the researcher's role which helped them to focus on the aim of each task and achieve the best benefit.

Finally, one last aspect that had a positive effect on students' written production is the use of collaborative work. Students helped each other and gave feedback on each other's work, which helped them to improve their writing and correct their mistakes. This result agreed with the findings of Doughty & Long (2003), Gass & Mackey (2006) as cited in Rahimi (2014), and Swain (2005).

4.3 Qualitative Analysis and Discussion

The researcher will focus on two aspects in this section. The discussion of qualitative data drawn from a few writing samples

submitted by the students makes up the first section. The second section looks at some of the responses to the students' satisfaction surveys. The remainder of this chapter will deal with qualitative evaluations of data taken from these sources in an effort to investigate the qualitative conclusions and provide additional justification for them.

There will be a discussion of a few examples of the participants' writing essays.

4.3.1. Analysis of the Students' Performance thorough the Program concerning the Targeted WP components.

WP is a wide area, which needs practice, support, and enhancement. First secondary stage students should be able to focus on higher - order abilities such as problem - solving, paragraph cohesion, coherence, better word choices, and developing meaning about the world around them. WP includes a number of elements that should be considered, including Clarity of ideas, the Use of correct structure, Coherence, Visualization, and Reflection. These components are tackled by the program in an attempt to enhance students' writing performance. Some samples of the students' writings are selected and analyzed quantitatively and qualitatively with regard to each component and how it was enhanced.

The first measured WP component is "Coherence"

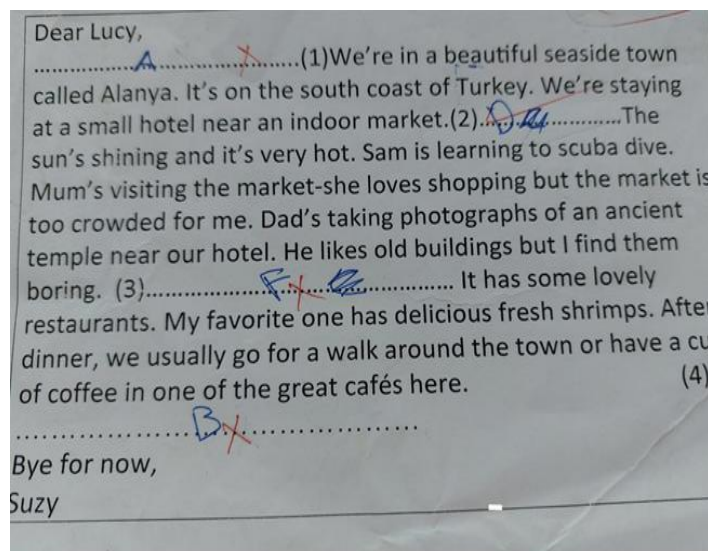
Coherence in writing refers to the reader's ease of comprehension. To achieve coherence, everything must flow

smoothly. Ideas should be connected logically, two key aspects of coherence:

- Cohesion: it refers to connecting sentences within a paragraph, connecting sentences within a sentence, and connecting sentences between paragraphs. It indicates the unity of structural elements.
- Unity: it refers to keeping the main idea of a single paragraph and the essay's body consistent.

The researcher asked the students to complete the spaces in a paragraph with the suitable sentence from a list to measure their "coherence"

Before applying the program: **Participant (A)**



After applying the program: **Participant (A)**

Dear Lucy,
 **F** (1) We're in a beautiful seaside town called Alanya. It's on the south coast of Turkey. We're staying at a small hotel near an indoor market. (2) **D** The sun's shining and it's very hot. Sam is learning to scuba dive. Mum's visiting the market-she loves shopping but the market is too crowded for me. Dad's taking photographs of an ancient temple near our hotel. He likes old buildings but I find them boring. (3) **B** It has some lovely restaurants. My favorite one has delicious fresh shrimps. After dinner, we usually go for a walk around the town or have a cup of coffee in one of the great cafés here. (4)
 **A**
 Bye for now,
 Suzy

Before applying the program: **Participant (B)**

Dear Lucy,
 ~~(C)~~ (1) We're in a beautiful seaside town called Alanya. It's on the south coast of Turkey. We're staying at a small hotel near an indoor market. (2) ~~(D)~~ The sun's shining and it's very hot. Sam is learning to scuba dive. Mum's visiting the market-she loves shopping but the market is too crowded for me. Dad's taking photographs of an ancient temple near our hotel. He likes old buildings but I find them boring. (3) ~~(B)~~ It has some lovely restaurants. My favorite one has delicious fresh shrimps. After dinner, we usually go for a walk around the town or have a cup of coffee in one of the great cafés here. (4)
 ~~(A)~~
 Bye for now,
 Suzy

After applying the program: **Participant (B)**

Dear Lucy,
 F (1) We're in a beautiful seaside town called Alanya. It's on the south coast of Turkey. We're staying at a small hotel near an indoor market. (2) D The sun's shining and it's very hot. Sam is learning to scuba dive. Mum's visiting the market-she loves shopping but the market is too crowded for me. Dad's taking photographs of an ancient temple near our hotel. He likes old buildings but I find them boring. (3) B It has some lovely restaurants. My favorite one has delicious fresh shrimps. After dinner, we usually go for a walk around the town or have a cup of coffee in one of the great cafés here. (4)
 A
 Bye for now,
 Suzy

Before applying the program (**Participant C**)

Duration: 90 mins

The test questions (part 1)

1 -Write an autobiography (25m) (reflection)

2- Suzy is on holiday in Alanya with her parents and brother. Read her letter to her friend Lucy and fill in the missing sentences.
 (Note: Two sentences do not fit.) (25m)
 (Coherence)

Dear Lucy,
 F (1) We're in a beautiful seaside town called Alanya. It's on the south coast of Turkey. We're staying at a small hotel near an indoor market. (2) C X. The sun's shining and it's very hot. Sam is learning to scuba dive. Mum's visiting the market-she loves shopping but the market is too crowded for me. Dad's taking photographs of an ancient temple near our hotel. He likes old buildings but I find them boring. (3) B It has some lovely restaurants. My favorite one has delicious fresh shrimps. After dinner, we usually go for a walk around the town or have a cup of coffee in one of the great cafés here. (4)
 A
 Bye for now,
 Suzy

A) I miss you! See you in two weeks.
 B) Alanya is a wonderful place for a holiday.

After applying the program (**Participant C**)

Write an autobiography
(20m) (reflection)(5) m structure

2- Suzy is on holiday in Alanya with her parents and brother.
Read her letter to her friend Lucy and fill in the missing sentences.

(Note: Two sentences do not fit.) (20m)
(Coherence) (5) m structure

Dear Lucy,
.....F.....(1)We're in a beautiful seaside town called Alanya. It's on the south coast of Turkey. We're staying at a small hotel near an indoor market.(2).....D.....The sun's shining and it's very hot. Sam is learning to scuba dive. Mum's visiting the market-she loves shopping but the market is too crowded for me. Dad's taking photographs of an ancient temple near our hotel. He likes old buildings but I find them boring. (3).....B..... It has some lovely restaurants. My favorite one has delicious fresh shrimps. After dinner, we usually go for a walk around the town or have a cup of coffee in one of the great cafés here. (4)
.....A.....
Bye for now,
Suzy

<https://en.islcollective.com>

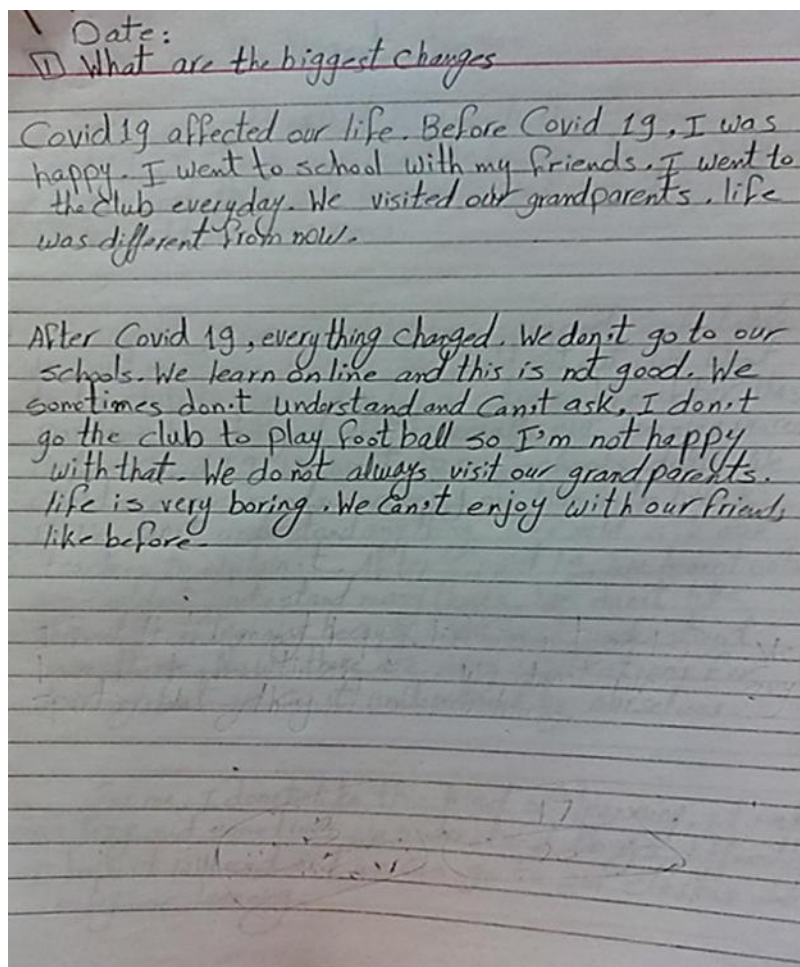
Commenting on the previous results, it could be concluded that before applying the treatment, participants showed poor ability to connect ideas, lack of using of cohesive devices, little or no understanding of relations and connections between ideas, sentences, and paragraphs. After the treatment, students' ability to connect ideas and paragraphs improved, their ability to realize the relations between sentences and paragraphs improved, their ability to use cohesive devices properly improved .

The second measured WP component is "Clarity of ideas".

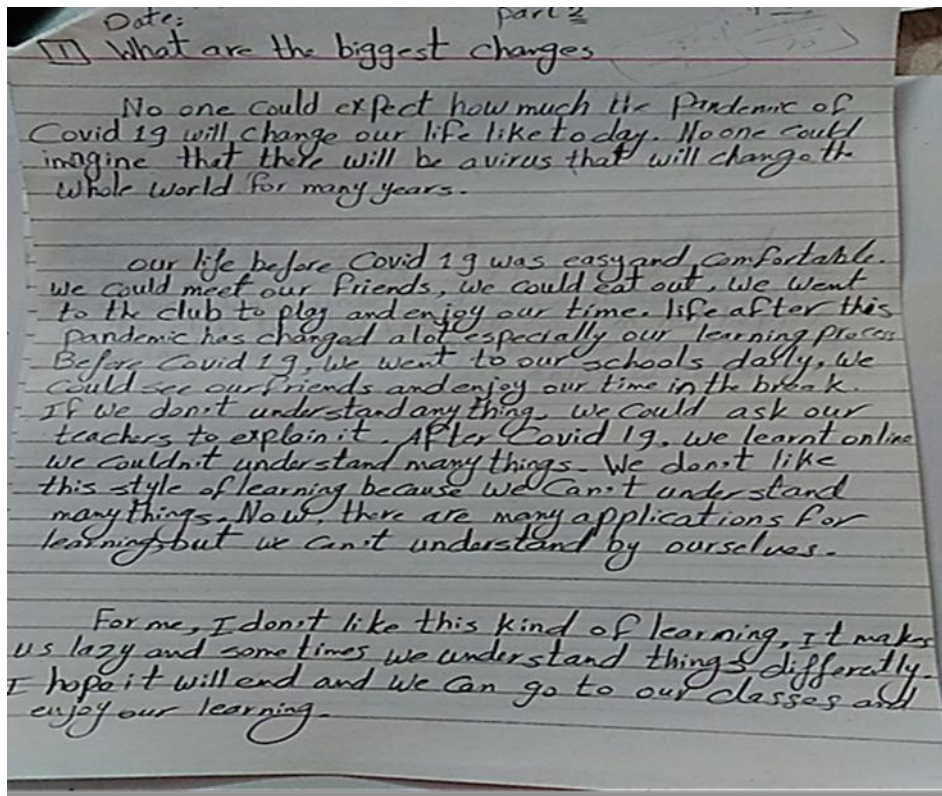
Clarity of ideas is about the students' ability to elaborate on ideas and thoughts. Outline sentences clearly avoiding phrases or ambiguous words or sentences. Outline the topic clearly, achieve internal coherence. Provide evidence to support main

ideas, and use vocabulary effectively. The researcher asked the students the following question to measure their clarity of ideas" **What are the biggest changes to your learning process because of Covid 19? How do you feel about that?** 'The participants' responses are as the following before and after the program.

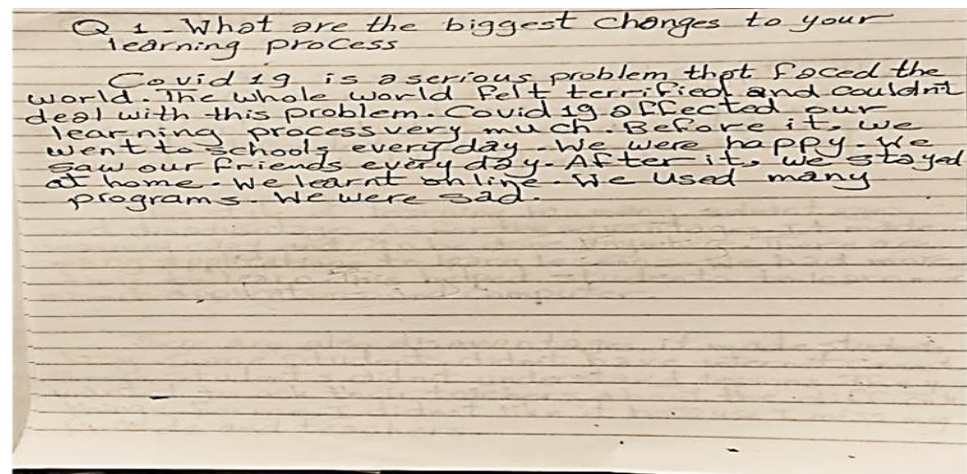
Before applying the program: **Participant (A)**



After applying the program: **Participant (A)**



Before applying the program: **Participant (B)**



After applying the program: **Participant (B)**

Date: _____ Page: _____

Q1 - What are the biggest changes to your learning process

When the Covid 19 virus hit Egypt, the Egyptian Government took many decisions as closing schools and universities. Learning became online. Students were divided during exams. Students depended mainly on online learning. Students are asked to do researches.

This style of learning has many advantages and disadvantages. As for the advantages. It made learning easy and can be done anywhere. There are many applications to learn lessons. We had more time to learn. This helped students to learn more about applications and Computer.

There are also disadvantages, it made students lazy. Some students didn't have internet connect. Some students didn't understand lessons. They wanted to ask their teachers about the difficult things. For me, I didn't like it because I miss my friends and teachers.

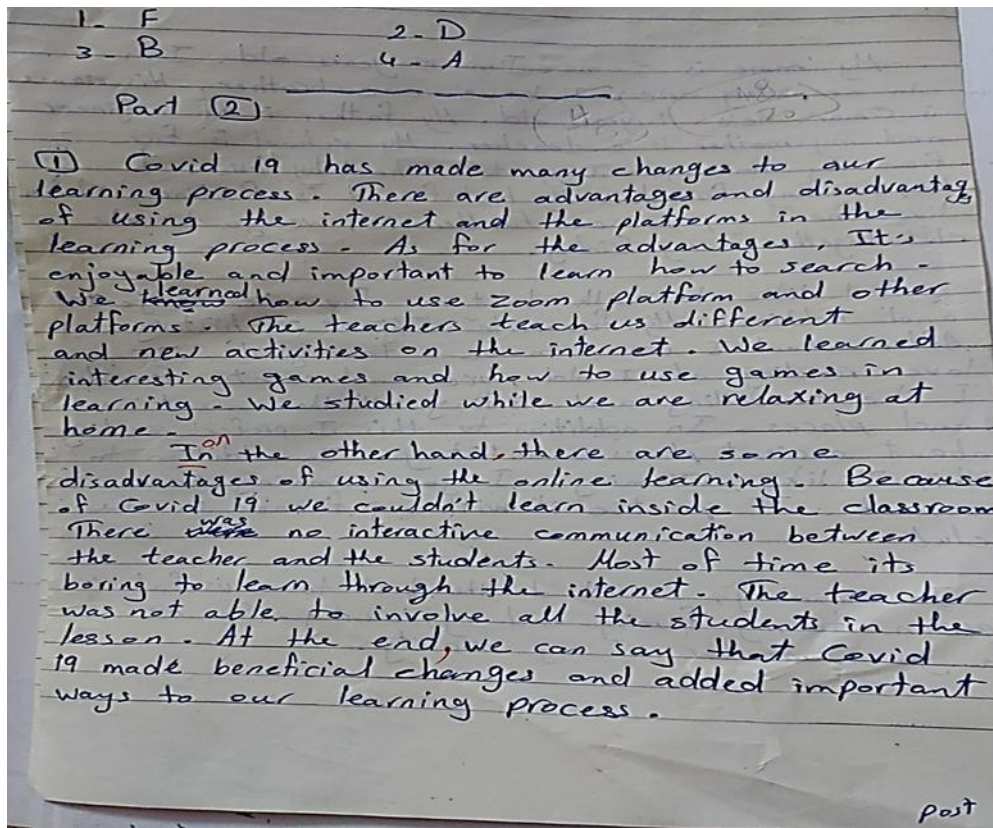
Before applying the program: **Participant (C)**

part 2

1 - What are the biggest changes to your learning process because of Covid 19? How do you feel about that?

Covid 19 made many changes to our learning process. Before Covid 19, we were studying at school. We got our lessons inside the classroom. We met our teachers and friends. There are many changes, some advantages and disadvantages. We learned how to use the platforms in learning. There aren't real interactions between us.

After applying the program: **Participant (C)**



Throughout the program, the participants' ability to achieve clarity in writing developed to a high extent during the treatment. This was evident throughout the program when they were able to formulate clear ideas, organize their ideas meaningfully, support their ideas, write clear and logic thesis statements, choose their words and phrases precisely, focus on the overall meaning.

Almost all the participants' responses revealed a great enhancement in their self-expression ability generating creative and unique ideas.

The third measured WP component is "Structure"

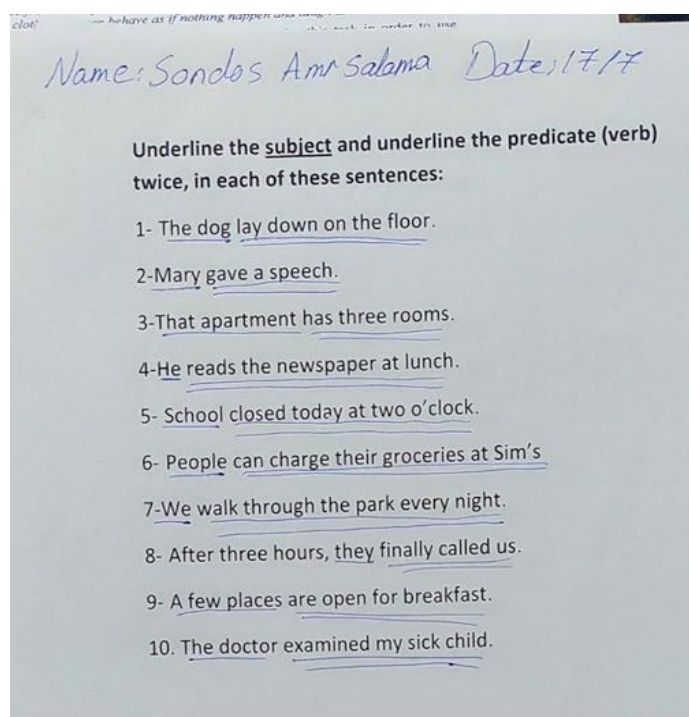
Using correct structure and mechanics is a fundamental component of communication. Students' ability to form different

types of sentences, use and write appropriate and correct grammar and punctuation was measured through out all their writings. Students have to achieve a good level of mastering grammar and structure to convey the meaning properly.

The researcher designed a graded program to assist participants to develop their writing performance components as determined in the rubric. To achieve this aim, the researcher started with helping participants to identify the components of a good sentence first, then a good paragraph, reaching to a complete essay.

These are the examples of the participants' performance in response to the three videos presented in sessions (three and four) of the program about the components of a good sentence and indentifying sentences and fragments.

Participant A



The image shows a student's handwritten work on a worksheet. At the top, the student has written their name 'Sondos Amr Salama' and the date '17/17'. Below this, the worksheet contains an instruction: 'Underline the subject and underline the predicate (verb) twice, in each of these sentences:'. There are ten numbered sentences listed, each with the subject and predicate underlined. The sentences are: 1- The dog lay down on the floor. 2- Mary gave a speech. 3- That apartment has three rooms. 4- He reads the newspaper at lunch. 5- School closed today at two o'clock. 6- People can charge their groceries at Sim's. 7- We walk through the park every night. 8- After three hours, they finally called us. 9- A few places are open for breakfast. 10- The doctor examined my sick child.

Participant B

Assessment:

Put an S next to each complete sentence. Put an F next to each fragment.

1. Neither the coach nor the players f
- 2-If you have a test f
- 3- When my father was a child, he spoke only English S
- 4- I have the day off tomorrow S
- 5-When the telephone rang f
- 6- Pick up those papers S
- 7- The girl threw the ball hard S
- 8- The whole class afterschool f
- 9-Of the three players, Kevin is the tallest S
10. Suddenly during the meeting f

Participant C

Assessment: 17/7

Put an S next to each complete sentence. Put an F next to each fragment.

1. Neither the coach nor the players f
- 2-If you have a test f
- 3- When my father was a child, he spoke only English S
- 4- I have the day off tomorrow S
- 5-When the telephone rang f
- 6- Pick up those papers S
- 7- The girl threw the ball hard S
- 8- The whole class afterschool f
- 9-Of the three players, Kevin is the tallest S
10. Suddenly during the meeting f

From the previous examples, it could be concluded that participants' ability to identify the components of a good sentence was developed after watching and interacting with the videos and after a group discussion about the difference between a sentence and a fragment. The participants could establish good knowledge now about the difference.

Session five dealt with (The components of a good paragraph), through this session participants could identify the best ways to arrange their ideas and sentences to formulate well written and coherent paragraphs .Almost all the participants' responses revealed improvement in their ability to determine the main and supporting ideas.

These are some participants' responses

Participant A

Assessment: 20-7-2022

Read the following paragraphs and circle the topic sentences and underline the supporting sentences.

1- Use of the internet has grown very quickly. In 1983, there were 562 computers connected to the Internet. By the turn of the century, there were 72.3 million computers in 247 countries on-line. Experts say that the Internet is now growing at a rate of nearly 40 % a year. As time goes on, the Internet is becoming more and more popular.

2- Vegetables and fruits are an important part of a healthy diet. First, fruits and vegetables contain vitamins and minerals you need to keep your body healthy. They give you the carbohydrates you need for energy. Fruits and vegetables have lots of fiber to help your digestive system work well. Finally, many scientists think that the nutrients in fruits and vegetables can help fight diseases. If you eat a diet rich in fruits and vegetables, you'll be healthy and fit.

Participant B

Assessment:

Read the following paragraphs and circle the topic sentences and underline the supporting sentences.

1. Use of the internet has grown very quickly. In 1983, there were 562 computers connected to the Internet. By the turn of the century, there were 72.3 million computers in 247 countries on-line. Experts say that the Internet is now growing at a rate of nearly 40 % a year. As time goes on, the Internet is becoming more and more popular.

2. Vegetables and fruits are an important part of a healthy diet. First, fruits and vegetables contain vitamins and minerals you need to keep your body healthy. They give you the carbohydrates you need for energy. Fruits and vegetables have lots of fiber to help your digestive system work well. Finally, many scientists think that the nutrients in fruits and vegetables can help fight diseases. If you eat a diet rich in fruits and vegetables, you'll be healthy and fit.

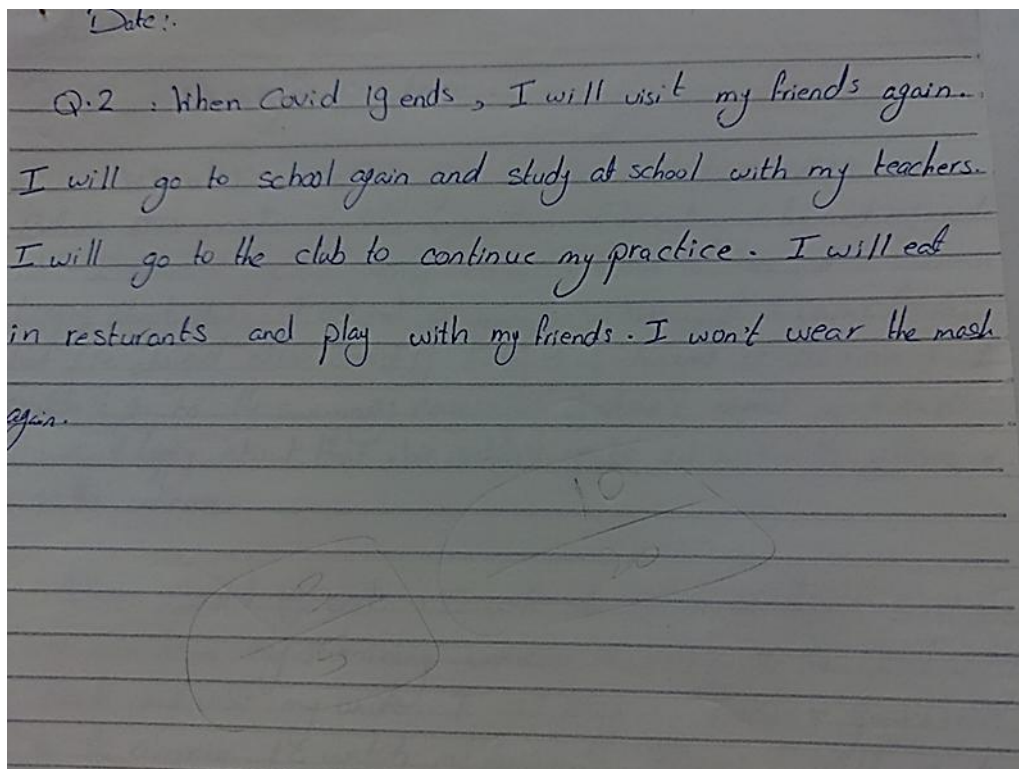
The fourth measured WP component is "Visualization"

Visualization, which is based on the five senses, can captivate learners and strengthen their students' WP. Visualization is the process of deducing the implicit messages from wordless images, videos, photos, even texts, or any other visual media. The teacher raised a question to measure the students' visual ability. The teacher taught the students how to consider themselves a part of the scene using their senses. The question is " **Look at the picture and imagine your life when the Pandemic of Covid 19 ends.** The participants' ability of visualization was greatly developed throughout the program. During the activities, they were trained to visualize pictures and videos either on paper or

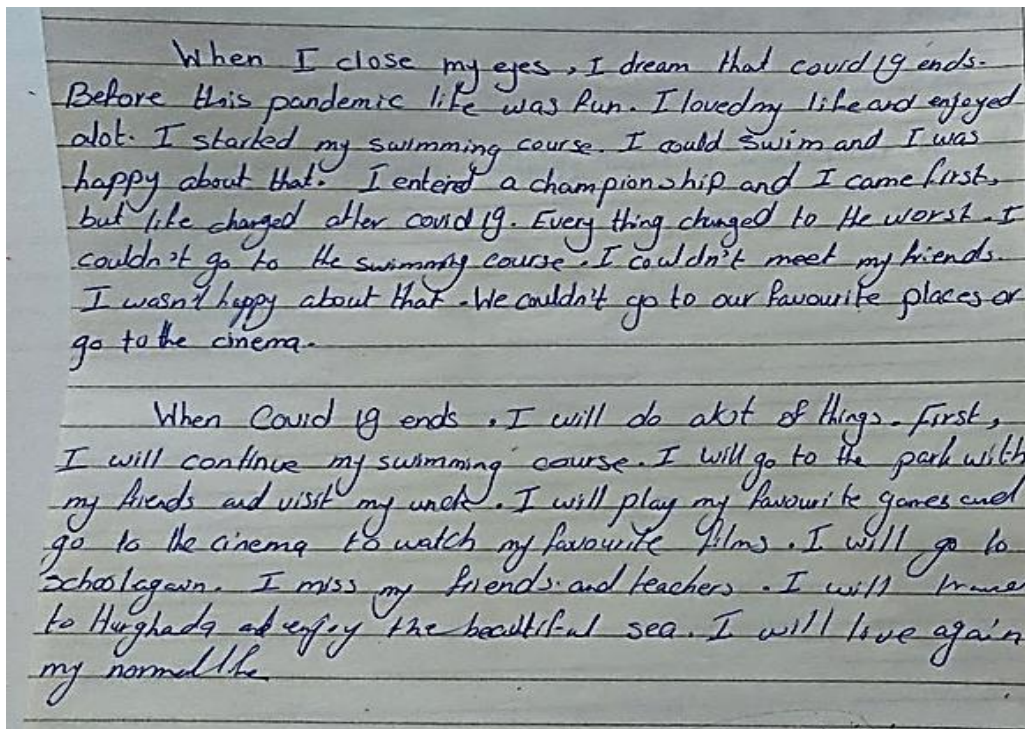
through some technological tools e.g. mimind. They could create better mental images regarding the visualized item. Students could produce written texts depending on sensory and emotional experiences. They deeply reflected a conscious understanding of texts .

At the beginning of the study, participants did not know how to deepen their thinking and visualize themselves as part of the situation. Moreover, they provided a limited or poor written description of their mental image.

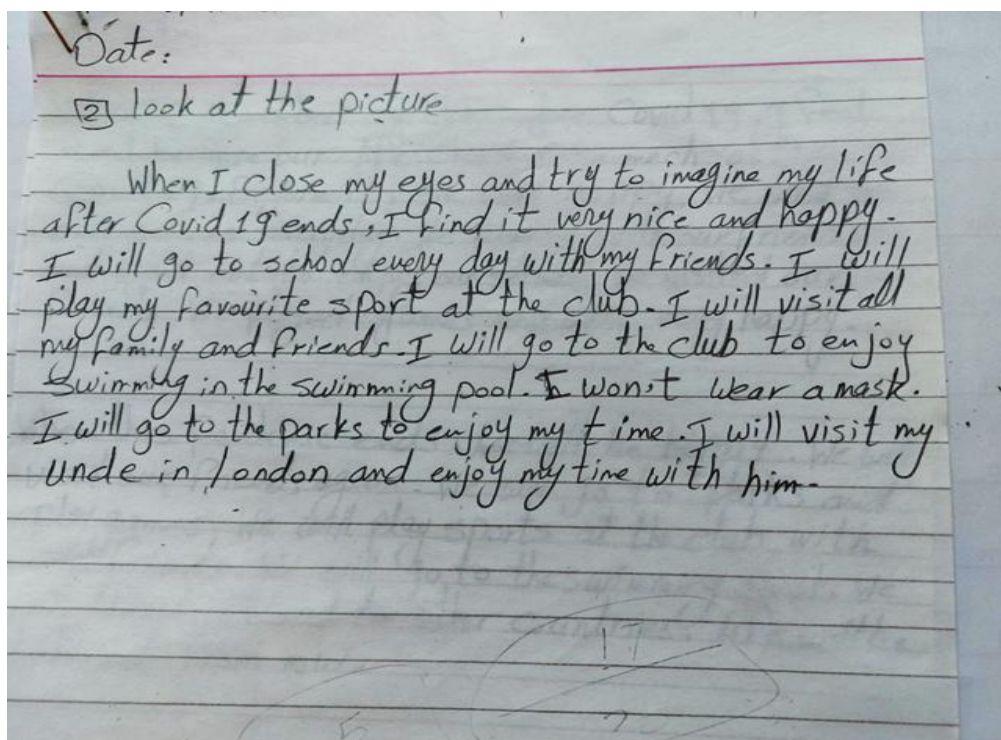
Before applying the program: **(Participant A)**



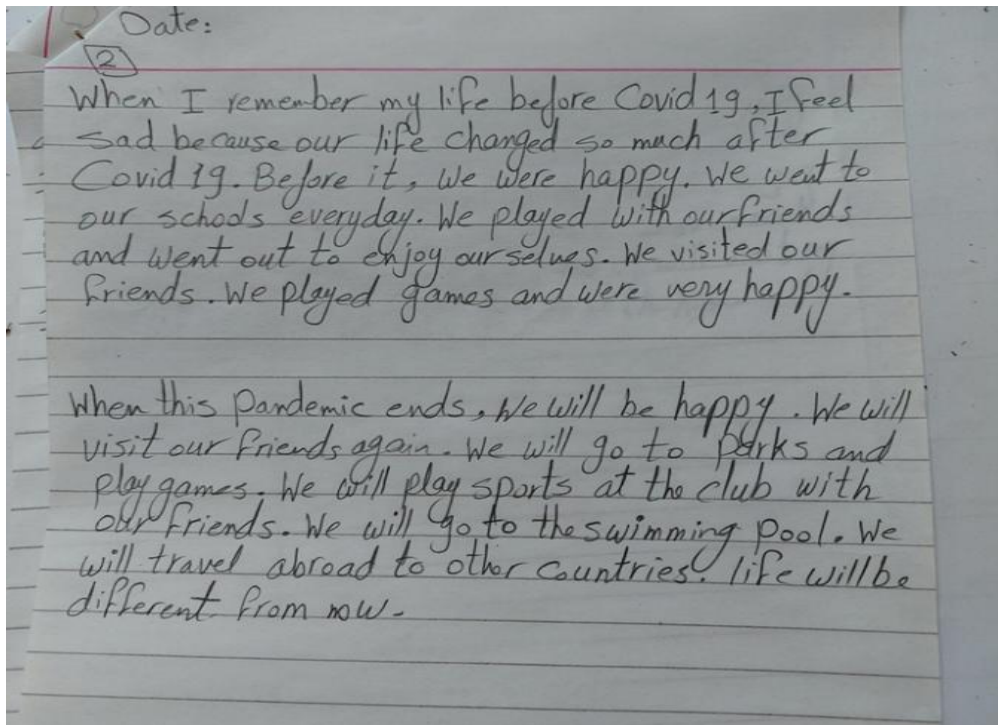
After applying the program: (Participant A)



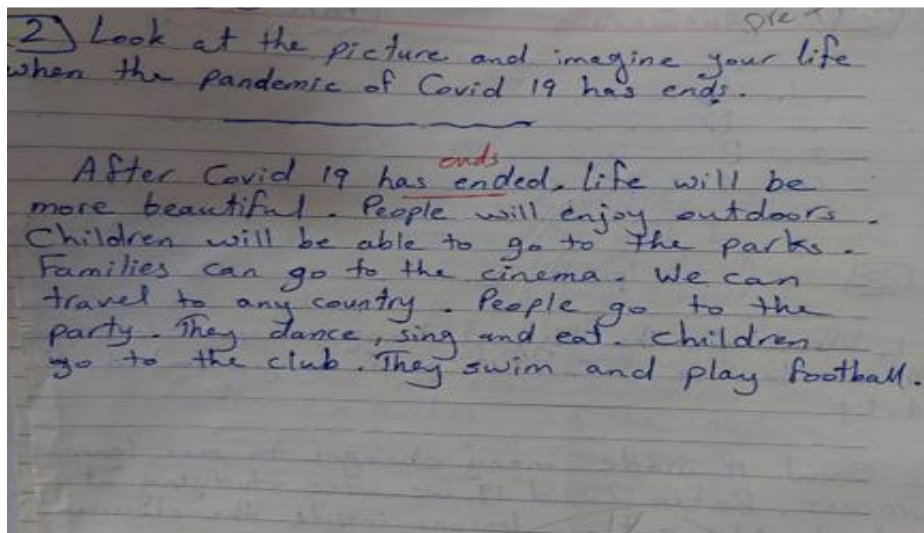
Before applying the program: (Participant B)



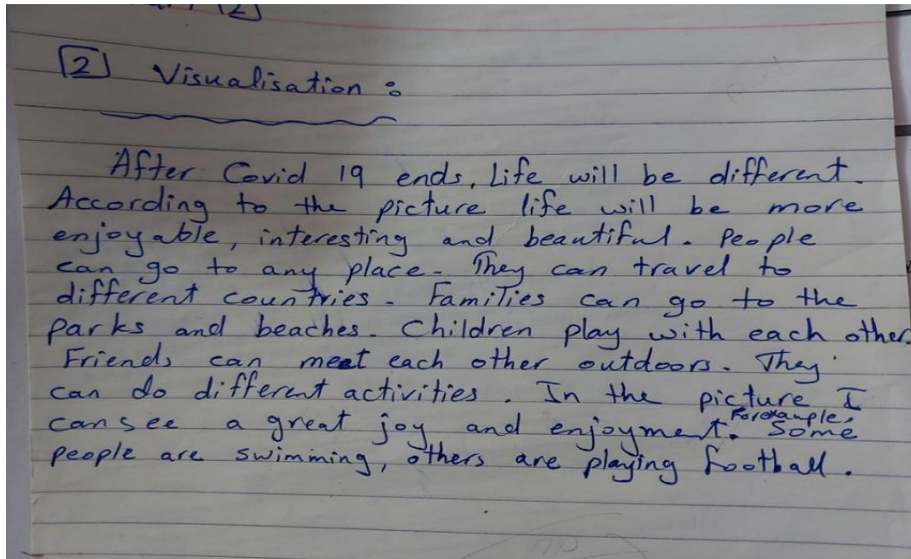
After applying the program: (Participant B)



Before applying the program: (Participant C)



After applying the program : (Participant C)



In the pre- test, it was noticed from the previous samples that the participants could not expand their ideas depending on a picture, they lacked the principles of visualizing an item. They did not depend on their senses to understand the item or interpret it.

Commenting on all the previous results, it could be concluded that before applying the treatment, participants' writings reflected nonexistent or unfocused use of thesis statements, nonexistent or poor use of supporting sentences, Lack of transition, or variation of ideas, inaccurate and imprecise word choice that spoils the overall meaning. After the treatment, students' performance was greatly different, their writing showed simplicity of ideas, elimination of unnecessary and repetitious words, redundant ideas, or inconvenient phrasing. Main idea is clear, supported, and enriched by relevant evidence, and details. Their thinking process behind the writing is well developed.

The researcher then started to explain what visualization means, and how to use it to support writing. She taught them how to consider themselves as part of the situation using their senses to deepen their thinking.

Through session (six and seven), participants' ability to brainstorm, generate and organize, and visualize their ideas to formulate well-established paragraphs enhanced. Participants' could formulate their own mind maps using MiMind Program.

These are some of the participants' mind maps presented in sessions (six and seven)

Figure 4. Shows a mind map a learner created about (my school) before applying the program.

Figure 4. Shows a mind map a learner created about (my school).

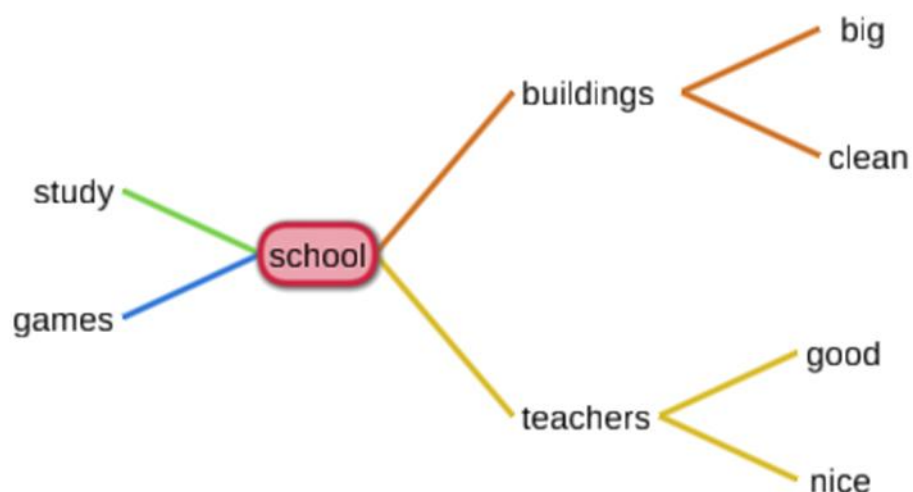


Figure 5. Shows a mind map a learner created about (my school) after applying the program.

Figure 5. Shows a mind map a learner created about (my school).

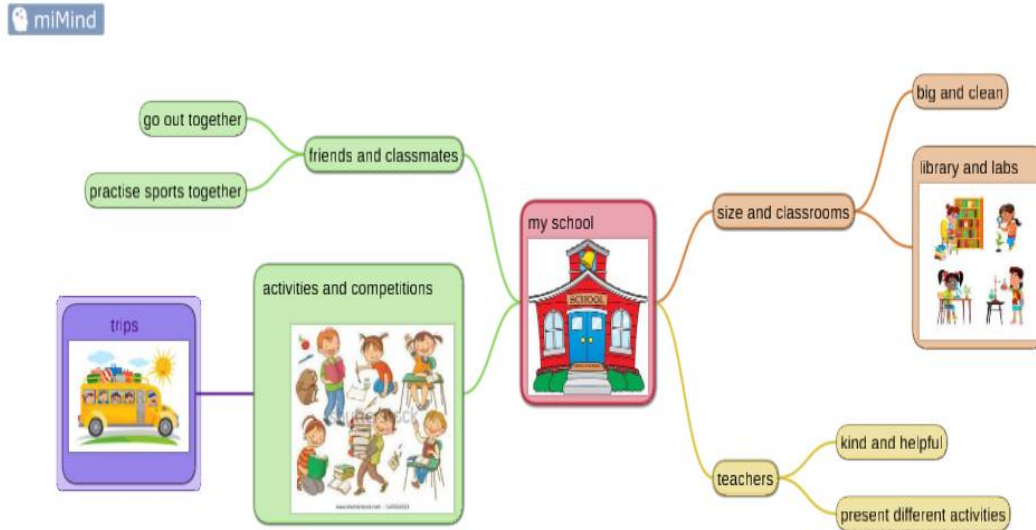


Figure 6. Shows a mind map a learner created about spending free time before applying the program.

Figure 6. Shows a mind map a learner created about spending free time



Figure 7. Shows a mind map a learner created about spending free time after applying the program.

Figure 7. Shows a mind map about spending free time .

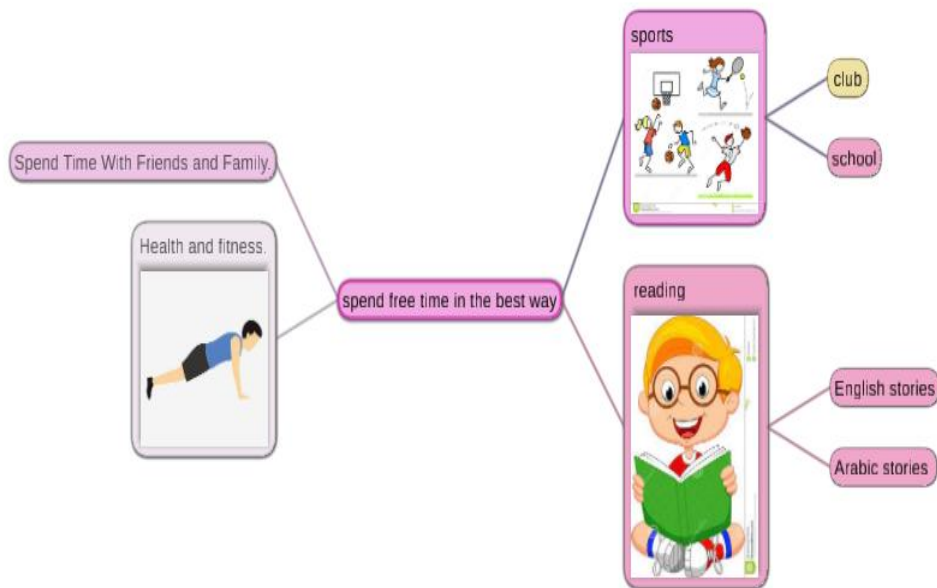


Figure 8. Shows a mind map a learner created about keeping healthy before applying the program

Figure 8. Shows a mind map a learner created about healthy life style

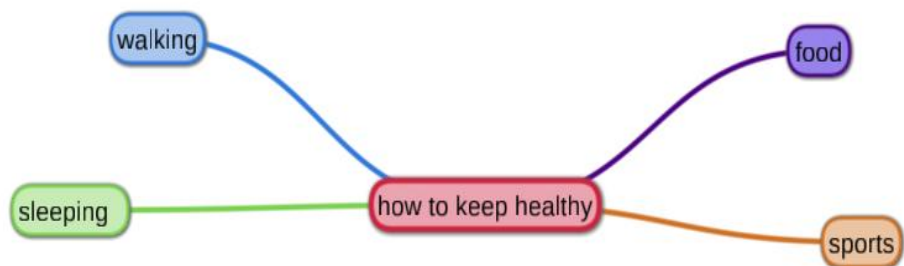
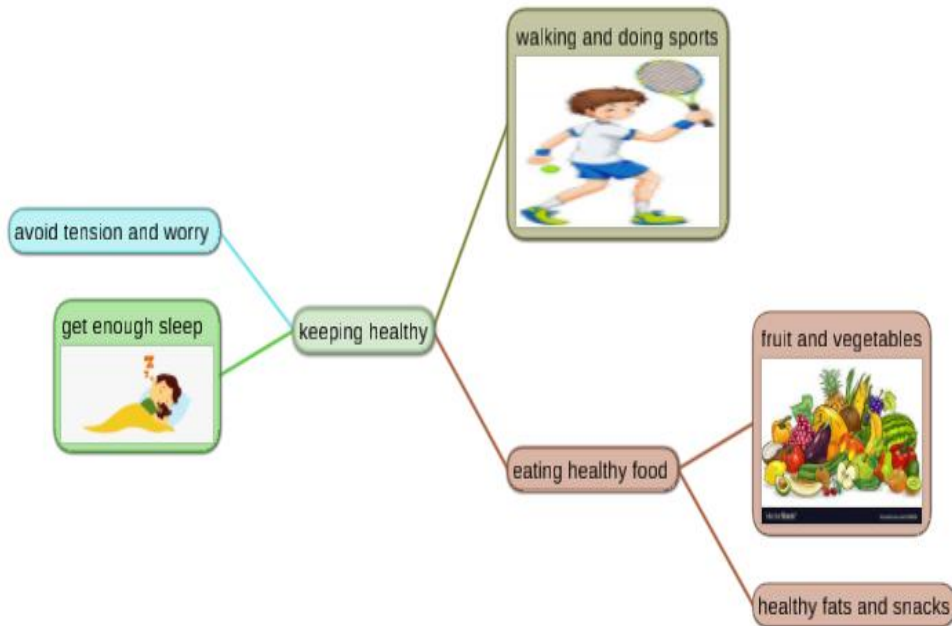


Figure 9. Shows a mind map a learner created about keeping healthy after applying the program.

Figure 9. Shows a mind map a learner created about healthy life style



From the previous samples, it could be concluded that most of the participants were not able to visualize and think deeply about a given topic. They could not employ deep thinking to interpret the visualized items. They did not benefit from using photos or pictures to facilitate understanding.

Before the treatment, none of the students used to know about visualization technique. It was totally new for them, they did not use any online programs to do it. After the treatment and due to the program graded activities, the majority of them were convinced of the potential benefits of using the technique to facilitate writing. Students could form deep thoughts and ideas which in turn enhanced their WP ability.

Referencing to the earlier findings, visualization is also known as mental imagery, mental pictures, or just creating images in

your head. It is very crucial in writing because of the following reasons:

- 1) It helps in thinking and recalling knowledge.
- 2) Engaging students in creating mental images and representations stimulates and increases brain activity.
- 3) Visualization can help students in every stage of the writing process, from connecting with prior knowledge to developing ideas.
- 4) It helps writing to become vivid.
- 5) Training in visualisation enhanced participants' exposure to a beneficial new teaching strategy.

The idea of using visualization before and through the writing process was new for students; they have never been taught using such a technique. For example, when students were asked to respond to the question "Look at the picture and imagine your life when The Pandemic of Covid 19 ends.", Their paragraphs were brief and vague. They lacked the knowledge necessary to expand their thinking and picture themselves taking part in the scene. After teaching them how to visualize ideas, the second paragraphs were much more detailed. Students whose writing demonstrates little or no change may need some additional help with visualization.

The fifth measured WP component is "Reflection"

The researcher stimulated the students to think reflectively in some presented questions such as:

- Write an autobiography

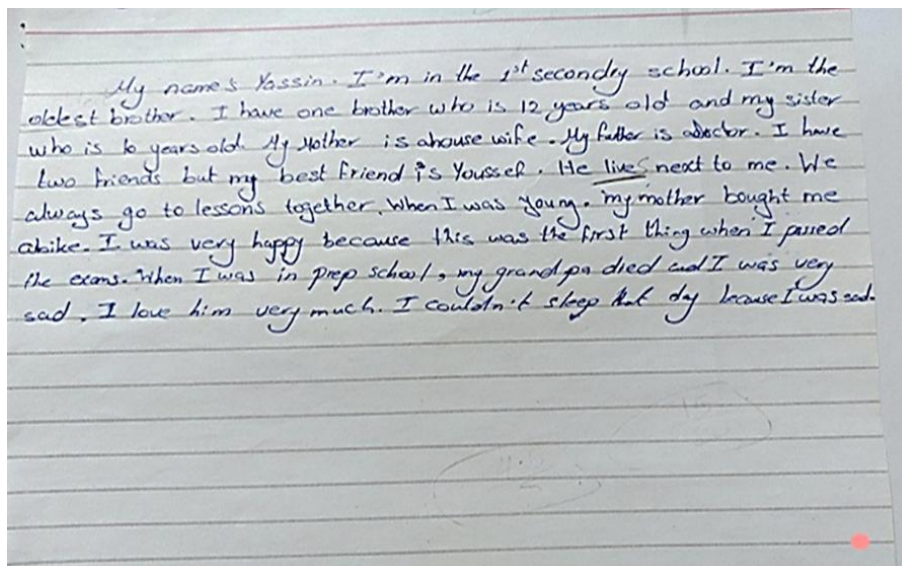
Through the program, the participants' ability to think reflectively developed to a high extent during the treatment. This was evident throughout the program when they were able to formulate a meaningful and significant ideas that reflect a profound understanding. Through their written products,

students were able to describe certain events, give detailed analysis and interpretation to the personal situations, practice self-discovery, and this is a very significant aspect resulted from the treatment regarding reflection. Students were able to discover themselves, interests, hopes and goals, and this in turn will help them with their future careers. They started to think .outside the box and employ their experience

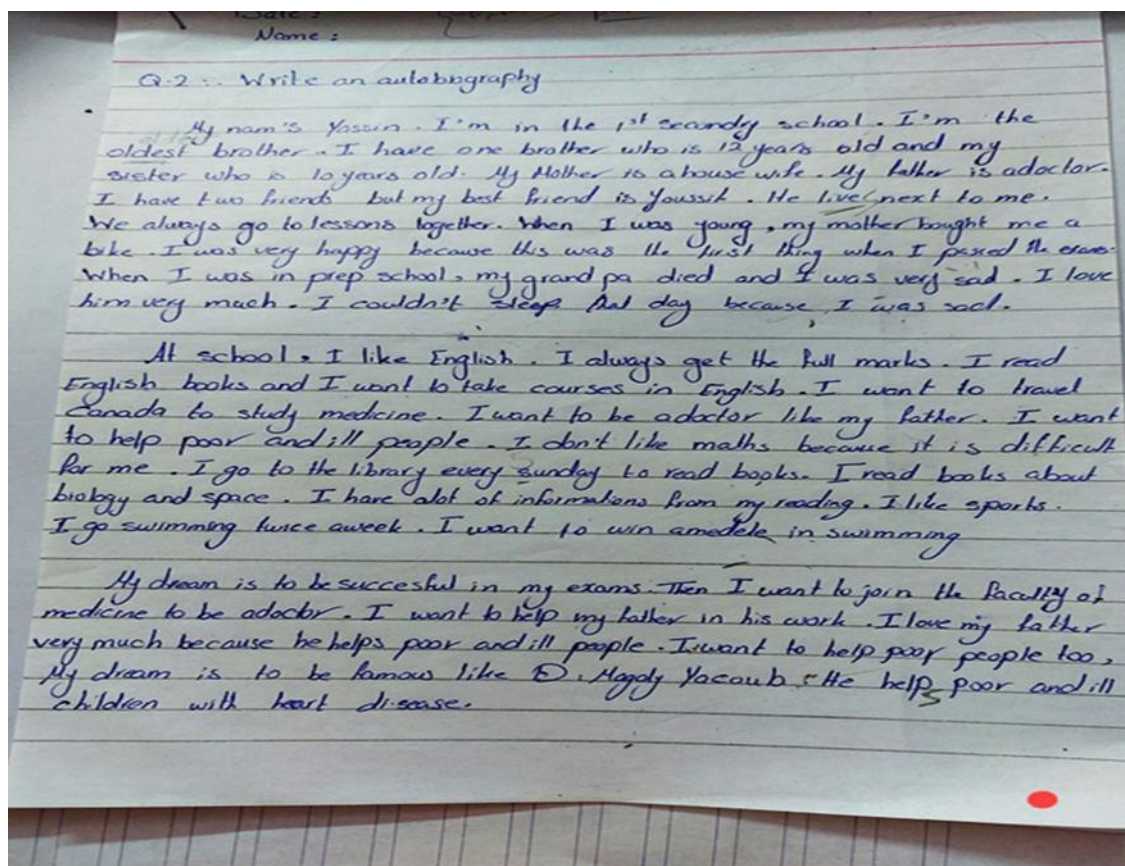
Following are some examples of the participants 'performance demonstrating their ability to reflect on ideas clearly and deeply in response to first, a pre-task activity:

To the first query, one student gave a response. "**Write an autobiography** ", both before and after the application of the program as follows:

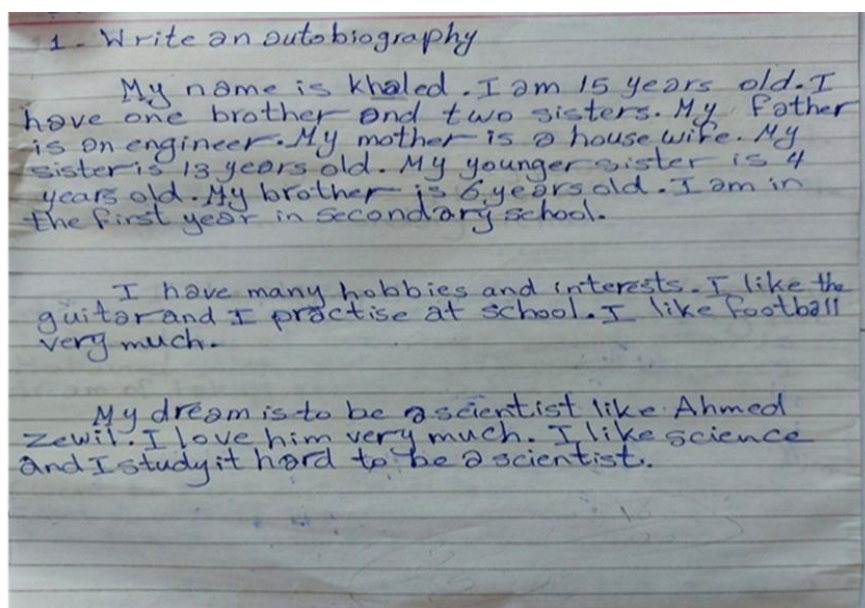
Before applying the program: **(ParticipantA)**



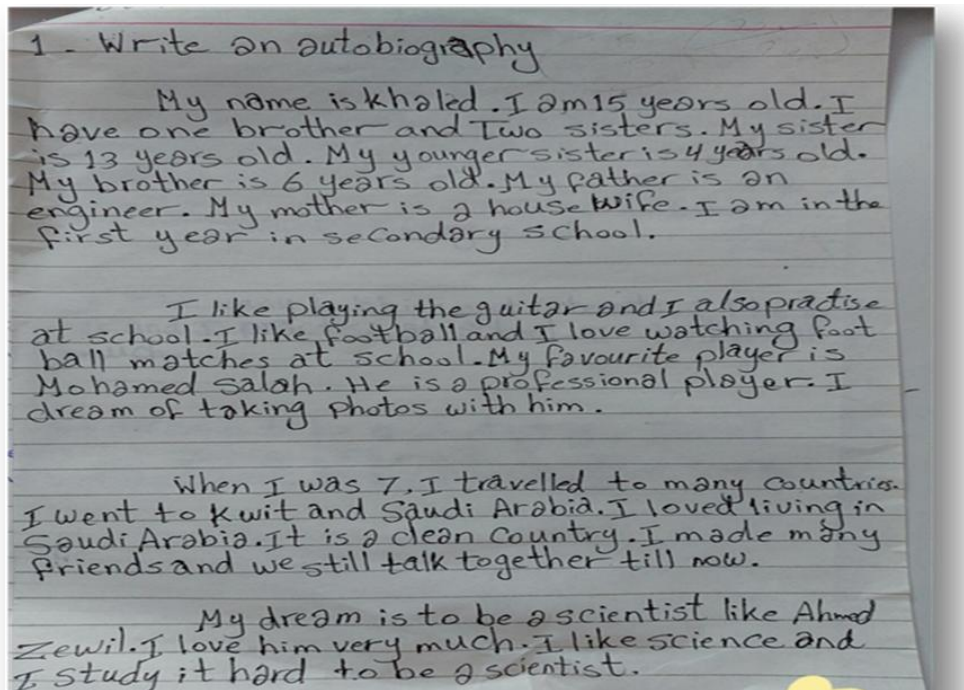
After applying the program :(Participant A)



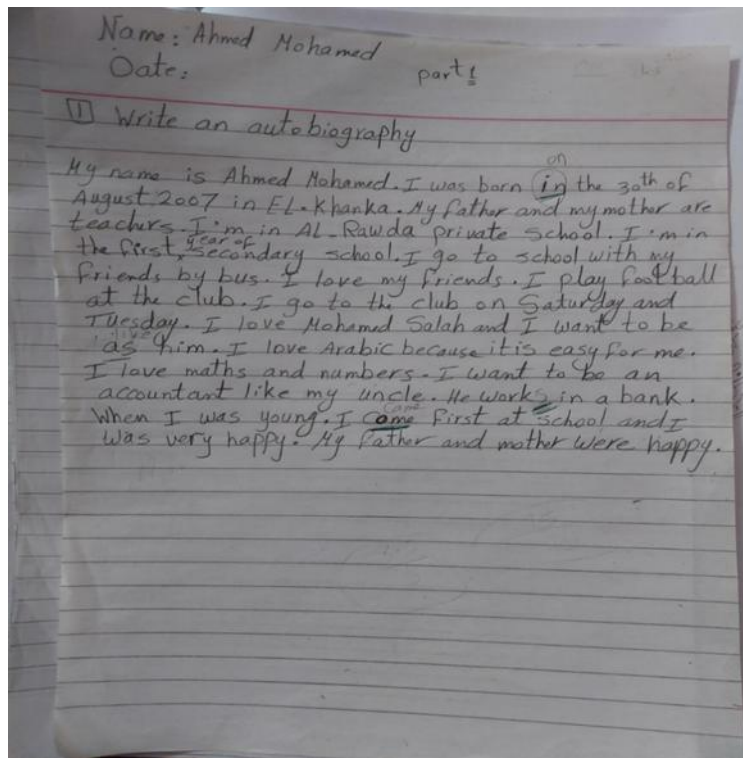
Before applying the program :(Participant B)



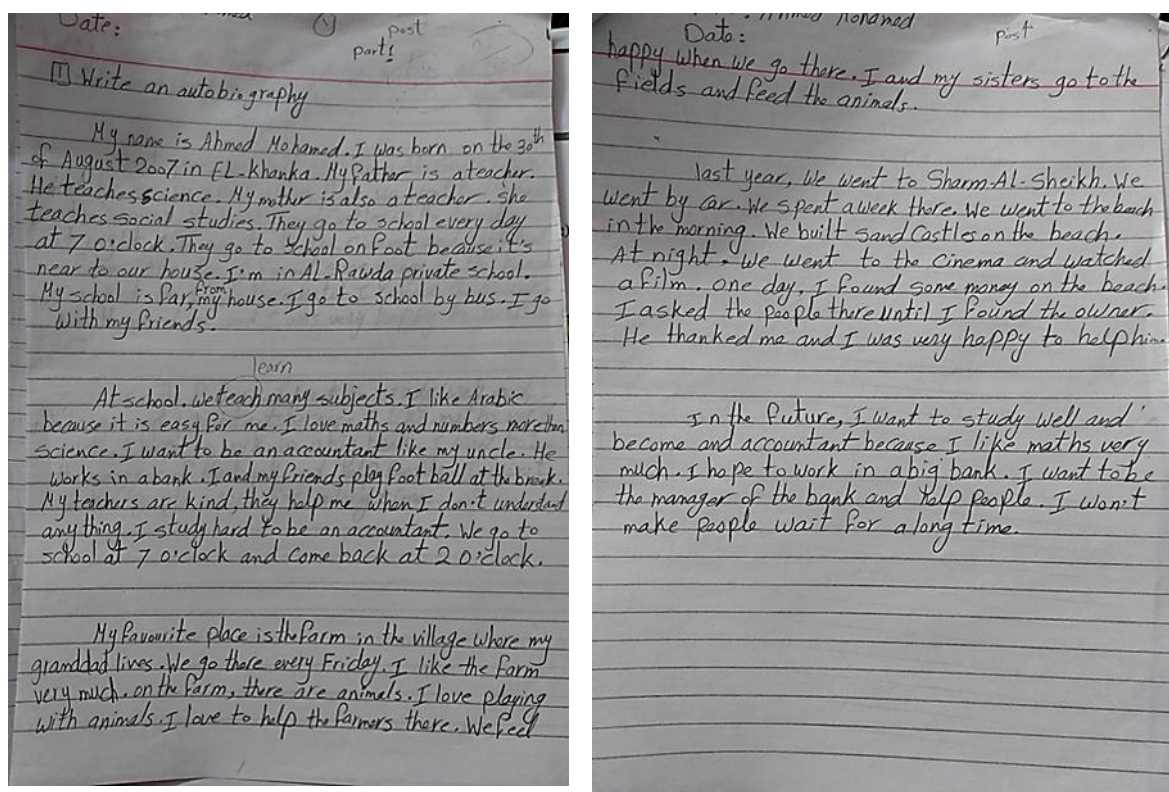
After applying the program :(Participant B)



Before applying the program :(**Participant C**)



After applying the program :(Participant C)



Commenting on the previous results, it could be concluded that after applying the program, although their answers contained few mistakes, a significant development was noticed when comparing their answers before and after the treatment, the majority of the students' reflections were brief and did not address the subject from many angles.

They showed only a minimal or nonexistent comprehension of the issue at hand. Clear organization of paragraphs' ideas, sufficient and relevant development of topic and content, and correct sentence structure, word usage, and mechanics.

4.3.2 A critical Analysis of the Participants' Production in the Written Performance Pre/Posttest through Adopting the Rubric Items.

In order to evaluate the participants' WP accurately; an analytic writing performance rubric was needed. Therefore, the researcher developed a writing performance rubric of three rating items used in assessing the 1st year secondary stage students' writing performance components in the pre/posttest. Using rubrics also helped the participants to improve themselves and to identify the quantitative and qualitative progress in their scores in the writing performance.

The production of three participants before and after the treatment was presented. The three participants were chosen according to the level and classified into three different instructional levels; the rubric items were adopted to analyze critically their production in the writing performance pre/posttest to find the differences.

After applying the treatment, the researcher made an analysis of the pre/posttest data to see to what extent the participants made benefit of the design thinking based program. The results of the rubric confirmed the results of the pre/posttest. A descriptive statistical analysis of the participants' scores in each component in the pre/posttest revealed a clear enhancement of the participants' writing performance components. The following is a critical analysis of three participants' production through adopting the rubric items:

Table 8

Referential framework for the rubric of writing performance pre/posttest

Each components' Grade	Excellent	Acceptable	Poor
20 Marks	15 to 20	8 to 14	1 to 7

4.3.2.1 Analysis of a Slow Level Participant's Rubric Items

A referential framework for the rubric of writing performance pre/posttest was used to determine the level of performance in each component. The scores distribution of a slow level participant revealed the following:

Table 9

Results of a slow level participant (participant A) in the writing performance pre/posttest

	Pre-test	Pre-test	Pre-test	Post-test	Post-test	Post-test
Items	Excellent	Acceptable	Poor	Excellent	Acceptable	Poor
- Coherence			√	√		
- Clarity			√	√		
- Structure			√		√	
- Visualization			√		√	
- Reflection			√		√	

Table 9 showed the analysis of a slow level participant's results in the writing performance pre/posttest, and indicated the participant's progress in each component. There were critical differences between the production of this slow level participant before and after the treatment. The analysis of the participant's answers in the pre-test revealed that he:

- Reflected a weak understanding of what he reads in writing.
- Items provided with partial visualisations.
- Random, vague, and careless reflection on concepts.
- Reflected on ideas imprecisely, unclearly and thoughtlessly.
- Showed little or no depth in their self-reflection.
- The natural flow of thoughts is absent.
- Using different sentence structures and incorrect spelling, grammar, and punctuation.
- Thoughts were stated incoherently.

- Limited sentence variety was used.

While analyzing the answers of the same participants in the post-test revealed that he:

- Had a less in-depth self-reflection on the issue and expressed opinions more generally, relatively clearly, and appropriately.
- Reflected little relationship to prior knowledge
- Provided a thorough written description of the mental image that demonstrated knowledge of and comprehension of the visualized item.
- Used less comprehensible language when expressing his thoughts, feelings, and ideas.
- Made a few grammatical and punctuation mistakes in a variety of sentences.
- Expressed unclear or weak thesis statement, illogic variation of ideas with limited word choice.
- Visualized of some elements before writing.
- Provided some or limited evidence to support main ideas.
- Used moderate or limited range of words and vocabulary.
- Conscious and thoughtful undersatding of the visualized items.

This highly noticed enhancement between the participant's performance in the writing performance pre-test and post-test indicated the effectiveness of using design thinking in enhancing the participants' WP.

4.3.2.2 Analysis of an Intermediate Level Participant's Rubric Items

A referential framework for the rubric of writing performance pre/posttest was used to determine the level of performance in each component. The scores distribution of an Intermediate level participant revealed the following:

Table 10

Results of an Intermediate level participant (participant B) in the writing performance pre/posttest

	Pre-test	Pre-test	Pre-test	Post-test	Post-test	Post-test
Items	Excellent	Acceptable	Poor	Excellent	Acceptable	Poor
- Coherence		√		√		
-Clarity		√		√		
-Structure			√		√	
-Visualization			√		√	
-Reflection			√		√	

Table 10 showed the analysis of an intermediate level participant's results in the writing performance pre/posttest, and indicated the participant's progress in each component. There were critical differences between the production of this intermediate level participant before and after the treatment. The analysis of the participant's answers in the pre-test revealed that he:

- Reflected a weak understanding of what he reads in writing.
- Items provided with partial visualisations.
- Random, vague, and careless reflection on concepts.
- Reflected on ideas imprecisely, unclearly and thoughtlessly.
- Showed little or no depth in their self-reflection.
- The natural flow of thoughts is absent.
- Using different sentence structures and incorrect spelling, grammar, and punctuation.
- Thoughts were stated incoherently.
- Limited sentence variety was used.

While analyzing the answers of the same participants in the post-test revealed that he:

- Had a less in-depth self-reflection on the issue and expressed opinions more generally, relatively clearly, and appropriately.
- Reflected little relationship to prior knowledge
- Provided a thorough written description of the mental image that demonstrated knowledge of and comprehension of the visualized item.
- Used less comprehensible language when expressing his thoughts, feelings, and ideas.
- Made a few grammatical and punctuation mistakes in a variety of sentences.
- Expressed unclear or weak thesis statement, illogic variation of ideas with limited word choice.
- Visualized of some elements before writing.
- Provided some or limited evidence to support main ideas.
- Used moderate or limited range of words and vocabulary.
- Conscious and thoughtful undersatding of the visualized items.

This highly noticed enhancement between the participant's performance in the writing performance pre-test and post-test indicated the effectiveness of using design thinking in enhancing the participants' WP.

4.3.2.3 Analysis of an Advanced Level Participant's Rubric Items

A referential framework for the rubric of writing performance pre/posttest was used to determine the level of performance in each component. The scores distribution of an Advanced level participant revealed the following:

Table 11

Results of an Advanced level participant (participant C) in the writing performance pre/posttest

	Pre-test	Pre-test	Pre-test	Post-test	Post-test	Post-test
Items	Excellent	Acceptable	Poor	Excellent	Acceptable	Poor
- Coherence		√		√		
- Clarity		√		√		
- Structure		√		√		
- Visualization			√	√		
- Reflection		√		√		

Table 11 showed the analysis of an Advanced level participant's results in the writing performance pre/posttest, and indicated the participant's progress in each component. There were critical differences between the production of this advanced level participant before and after the treatment. The analysis of the participant's answers in the pre-test revealed that he:

- Reflected a weak understanding of what he reads in writing.
- Items provided with partial visualisations.
- Random, vague, and careless reflection on concepts.
- Reflected on ideas imprecisely, unclearly and thoughtlessly.
- Showed little or no depth in their self-reflection.
- The natural flow of thoughts is absent.
- Using different sentence structures and incorrect spelling, grammar, and punctuation.
- Thoughts were stated incoherently.
- Limited sentence variety was used.

While analyzing the answers of the same participants in the post-test revealed that he:

- Had a less in-depth self-reflection on the issue and expressed opinions more generally, relatively clearly, and appropriately.
- Reflected little relationship to prior knowledge
- Provided a thorough written description of the mental image that demonstrated knowledge of and comprehension of the visualized item.
- Used less comprehensible language when expressing his thoughts, feelings, and ideas.
- Made a few grammatical and punctuation mistakes in a variety of sentences.
- Expressed unclear or weak thesis statement, illogic variation of ideas with limited word choice.
- Visualized of some elements before writing.
- Provided some or limited evidence to support main ideas.
- Used moderate or limited range of words and vocabulary.
- Conscious and thoughtful undersatding of the visualized items.

This highly noticed enhancement between the participant's performance in the writing performance pre-test and post-test indicated the effectiveness of using design thinking in enhancing the participants' WP.

4.3.3 Analysis of the Reacher's Field Notes and Observation

A descriptive analysis of the participants' performance and reflections revealed that, on a general level, there was a considerable rise in the participants' level of achievement after the treatment. After the implementation of the design thinking based program, participants showed a considerable progress in their writing performance abilities since they became more willing to write freely expressing their ideas and thoughts without being afraid of failure which gives them much confidence in themselves and enhanced their performance.

At the beginning of the implementation, it was seen that participants did not have a positive attitude about writing. They were not eager to write. They were afraid of making mistakes. Participants did not use to revise or edit their essays and thus, they produce low quality work. Moreover, they also prefer guided writing mood. These negative views had the following effects on the students' writing, according to the researchers' observation:

- They don't compose an in-depth essay or write in a critical manner.
- They frequently write boring and uninteresting essays.
- They submit writings that are full of mistakes or of poor quality.
- They generate poor writing and receive a poor mark as a result.
- They are unmotivated to write and unable to be critical of their writing process.
- They lack the ability to generate and produce ideas to form their writing.
- They lack the ability to present ideas in a clear and understandable way.
- They fail to connect their ideas and words in a way that serves the meaning.

Little by little and through the program various activities, they started to increase their participation and interaction. This was mainly because their needs and interests were taken into consideration. Moreover, help, clarifications, and guidance were provided from the researcher throughout the program that facilitated performance and enhanced it.

Using discussions and collaboration assisted the participants to take responsibility of their work. At the beginning of the study, participants were reluctant to write. During the program, they kept asking about some new words and phrases, they even did a

lot of grammatical mistakes and sentence building, however, this can not be seen as a problem because such mistakes are accepted as they are not native speakers and this also helped to improve their writing performance later on.

Participants were also motivated and they preferred the authentic course materials as videos, pictures. The use of technological devices as means for editing and publishing their work e.g. Mi mind ,Grammarly, and Whats App helped in engaging and increased their motivation.

Although there were some problems with certain grammatical structures such as subject- verb agreement, incomplete sentences, and the use of third person singular, they were not an obstacle as the program provided activities to enhance these problems. At the end of the study, an improvement in their written production was noticed.

Another important finding from the observation process was that participants' visualization ability enhanced during the program. Before applying the program, they did not have any idea about visualization. Through the program, they used mind maps to visualize their ideas and writings which helped them with their flow of ideas. Forming mental images helped them in writing and crafting ideas. Visualisations provided them with concentration on the desired results rather than on worries, self-doubt, or issues. It enhanced their ability to take actions, and come up with fresh ideas.

4.3.4 Analysis of the Participants' Opinions about the Study Program

The students expressed their support for the WP programme and the advantages of applying design thinking in their essays.

They thought back on how their use of DT improved both their overall English language development and their work product (WP.)

1) Most students said that the program helped them to write paragraphs and essays more neatly and accurately than before. It helped them to think more before writing and organizing their ideas Abdel Hamid, E. (2016). Psychological and educational statistics: applications using SPSS 18(Ed.). Publishing House. Arab Thought House.

Participant A

"Now I feel that I became better in writing"

Participant B

"I can write an essay well now and I enjoy writing."

Most students said that the most useful part of the program was "the use of e-mind map. It helped them greatly to" organize their ideas and helped them to generate more and more ideas."

Participant C commented on the activities:

"The activities were really helpful and interesting. I enjoyed writing stories using pictures."

All of the students showed great appreciation for the DT strategy.

They agreed that they did not expect to find such a strategy applied in teaching.

Some of the students were excited to have the opportunity to employ this strategy during the program. They planned to

incorporate it into their listening, speaking, and reading as well. More than half of the students gave the program a high grade. Nearly all the students agreed that collaboration was useful.

Participant D

"I really liked to work and think with my friends, that helped me to learn from the different opinions."

The students expressed their opinions about the program. They were asked to select one choice among three choices either "**very satisfied, somehow satisfied or unsatisfied**" as follows:

- Ten students chose the choice "**very satisfied**" about the inquiry "Were the program and activities useful?" and the other student marked "**somehow satisfied.**"
- Ten students marked the choice "**very satisfied**" about the inquiry "Do you think applying DT on developing writing is effective?" and the other student marked "**somehow satisfied**".
- Ten students marked the choice "**very satisfied**" about the inquiry "Did you learn new things?" and the other student marked "**somehow satisfied**".
- Ten students marked the choice "**very satisfied**" about the inquiry "Did you find collaboration useful?" and the other student marked "**somehow satisfied.**"
- Seven students marked the choice "**very satisfied**" about the inquiry "Are you satisfied with your writing

performance progress?" and the other four students marked **"somehow satisfied."**

- Nine students marked the choice **"very satisfied"** about the inquiry "The assessment was a good test of what I was taught?" and the other two students marked **"somehow satisfied."**

Students responded to the program by sharing their thoughts.

They were required to pick one option from four options. Either "strongly disagree, disagree, agree, or strongly agree" as follows:

- Six students chose the choice **"strongly agree"** about the statement "the program provided me with the instruction and support I needed to improve my writing performance." and the other five students marked **"agree"**.
- Five students chose the choice **"strongly agree"** about the statement "I would recommend this program to others." and the other six students marked **"agree"**.
- Five students chose the choice **"strongly agree"** about the statement "The program's instructor was helpful and supportive.". Four students marked **"agree"**. Whereas two students marked "disagree".
- Five students chose the choice **"strongly agree"** about the statement "I feel more confident in writing now.". Five students marked **"agree."** Whereas one student marked **"strongly disagree ."**

The previous viewpoints demonstrated the students' profound aspirations and commitment to learning through the use of novel techniques like DT

Additionally, it is seen that the students try to improve their WP by using fresh approaches. The students were eager to learn new techniques such as using the e –mind map and visualization. They appreciate the use of collaborative work in learning. The students also expressed their deep appreciation for the up- to -date activities which made them excited to write.

4.3.5 Some challenges that faced the application of the program based on The Design Thinking approach

- The DT concept is hard to understand and grasp due to its nature and different definitions and uses that depend on the field used.
- DT needs much time to be employed. Teachers must devote a significant amount of time to presenting concepts through concrete examples and hands-on learning experiences.
- Although the students' engagement was at a high level at the beginning of the program, they were less interested and engaged afterwards. They found the traditional way of thinking easier and does not consume as much time as the DT approach.
- DT needs students who can think from a different perspective, students who are willing to accept failure and use it to build new knowledge. However, not all students are able to do so.
- Students are accustomed to using readymade frames and this due to the competitive nature of the current educational system.
- DT requires students to reject the traditional way they used to employ and to adopt a new one depending on inquiry, imagination, generating ideas, and learning from mistakes.
- Selecting and presenting the right design thinking topics was a challenge as they should be appropriate to the students' level of knowledge and experience.

- The current educational system in Egypt helped to decontextualize writing due to the dependence on MCQ. It helped to make students feel that writing does not exist.

4.3.6 General benefits of applying DT on students' writing

- It increases students' flow of thinking, experience, and enhanced their motivation.
- They began to tackle writing from a new perspective as a matter of creation, not as a boring task.
- It helped to improve their creative confidence, and their ability to imagine, and reflect on ideas.
- It helped to reduce their feelings of failure and anxiety when they write.
- It helped to improve their visualization abilities and helped them to see concepts from diverse sides.
- It helped to improve their metacognition abilities. It encouraged them to spend more time thinking and planning before writing.
- It helped them in generating more ideas and organizing them correctly.
- DT helps students to master their learning process and possess the mechanism and strength to change the world.

Conclusion

This chapter presented the study's quantitative and qualitative findings as well as analyses of them. Challenges and the general benefits of applying DT on students' writing. It was also concluded that the application of DT has profound effects on developing the first secondary stage students' WP. The qualitative findings made this clear. A summary of the study and suggestions for additional research are included in the following chapter.

Chapter Five

Summary, Conclusions, and Recommendations

Chapter Five

Summary, Conclusions, and Recommendations

The current study's problem, objective, research questions, instruments, participants, primary processes, and outcomes are all briefly described in this chapter along with the study's key methods and findings.

The basic conclusion, suggestions for additional research, and recommendations are then illustrated in the chapter.

5.1 Summary

The spectrum of knowledge in the field of teaching and instructing has expanded in recent years. As a result, there is a huge demand for imaginative and creative brains to explore previously undiscovered and unexplored areas in various fields. The issue with this study is that some first-year secondary students struggle to write in an expressive manner, to understand, expand, and explain their ideas, as well as to relate those concepts to prior knowledge.

That came out of the pilot study. That was probably due to the lack of using varied teaching and learning strategies and the lack of adapting teaching to different ability levels.

The main aim of this study was to design a program based on DT that enables students to write correctly and effectively, by helping them to expand and organize their ideas, through

implementing DT activities designed by the teacher. The program was conducted on fourteen first secondary stage students. They were selected randomly. The program included twelve sessions and the duration of the program was 27 hours for face to face interaction & 12 for online learning. The instruments of the study included pre/post WP test, the WP rubric, and the students' satisfaction questionnaire.

5.2 Research Questions

The researcher had to answer the following main question "What is the effectiveness of the application of a program based on design thinking on developing writing performance for the 1st secondary stage students?"

By the end of the application of the program, the researcher conducted a post WP test to measure the students' WP progress. The researcher analyzed the statistical data, through the rubric, to determine the progress of the learners. The researcher also elicited qualitative data on the students' performance. Both quantitative and qualitative results and findings are presented in Chapter Four. As a result, the researcher has answered this question through her discussion.

This main question elicited the answer to the following sub - questions:

- **Research question one: "What is the status quo of writing performance level of the targeted students?"**
- **Research question two: "What are the successful WP indicators of the 1st secondary stage students?"**
- **Research question three: What are the writing performance components required for the 1st secondary stage students?**

The three previous questions were answered through reviewing the literature and previous studies on WP and EFL. The components were elicited and the WP components list was prepared.

- **Research question four: "What are the activities and components of a suggested program based on using the design thinking approach for writing performance for the 1st secondary stage students?"**

The researcher created 10 activities that address the WP components in light of the literature review, the outcomes of the pilot study, and the pre-test results.

The program's first two lessons served as theoretical introductions and examples of the tactic for the pupils.

The instructor gave the students homework that required them to collaborate and present their thoughts based on their prior knowledge and expertise.

The participants used a brainstorming application like the mi-Mind Program to learn how to create, arrange, and develop their ideas.

5.3 Results of the Study

Both quantitative and qualitative evaluations produced the findings of the current study.

The statistical comparisons between the participants' pre-test and post-test means were part of the quantitative component.

An examination of the participants' writing samples and questionnaire responses was done as part of the qualitative phase.

5.4 Hypotheses of the study

- The first hypothesis states that "There is a statistically significant difference between the mean scores of the study participants on the pre and post WP test administrations with regard to the development of their **"Overall WP"** favoring the posttest scores".
- The second hypothesis states that "There is a statistically significant difference between the mean scores of the study participants on the pre and post WP test administrations with regard to the development of their **"WP subcomponents"** favoring the posttest scores".

5.5 The qualitative section

A few of the pupils' writing samples were chosen by the researcher.

These examples demonstrated how well the students had mastered the WP. The chosen writing samples demonstrated how far the students had come in terms of structuring their thoughts, cooperating with others, supporting their arguments in the posed writing essays, and picturing the setting. The students' ideas were expanded, their ability to see and think deeply was deepened, and their ability to write expressively was all aided by the actual progress. The impact of the teacher's criticism was seen in the essays the pupils wrote. Through paraphrasing their thoughts, the teacher gave the students implicit instruction in new vocabulary and grammar norms. The impact of this tactic was seen in their writing essays. The questionnaire reflected the students' deep appreciation.

5.6 Conclusions

This study aimed at searching the effectiveness of using DT in developing the students' English language performance in general and on developing the first secondary stage students in particular. The following conclusions were drawn from the quantitative and qualitative assessments of the collected data:

The DT program proved to be effective in enhancing the participants' WP in general.

- The DT program proved to be effective in enhancing every single component of the students' WP.
- The DT program was also effective in developing the students' awareness of the basic WP concepts.

5.7 Implications

- The program highlighted the significance of DT as a teaching framework and a strategy.
 - The program's success in developing the students' WP was thoroughly assessed; it improved their collaborative work by allowing them to share their previous experiences, cultural viewpoints, and background knowledge. The activities employed deepened on the students' understanding and assisted them in making connections to the issues discussed.
 - The DT strategy, tools, and technique were adaptable enough to meet specific class objectives and assess challenging visual texts.
 - DT offers teachers rich knowledge through which they could facilitate these types of learning processes for all of their secondary stage students'.

As they stated in their satisfaction surveys, the students expressed their sincere gratitude for the teaching program's efficacy.

5.8 Recommendations

The following recommendations are evoked based on the prior outcomes and findings:

- There is a clear evidence to support WP using DT in the classroom to encourage EFL writing performance.
- Time and funding should be devoted to the instruction using DT for all teachers and in all educational platforms.
- There should be more chances for language learners to collaborate with one another.
- Teachers should use various types of DT based activities to strengthen the educational process in a positive learning environment.
- Teachers should use satisfaction questionnaires, to help students to reflect their impressions and thoughts towards the educational practices which helps to improve their learning.
- DT should be applied to develop other students' writing performance.
- Teaching writing as performance is more effective than teaching it as a skill. This will help to contextualize grammar rules and improve writing.

5.9 Suggestions for further research

- Investigating the effectiveness of using the DT approach on students in language schools.

- Investigating the effectiveness of using the DT approach on university students.
- Investigating the effectiveness of using the DT approach on a larger sample.
- Increasing the number of hours of actual learning based on meeting face to face with students.
- Diversification of the proposed activities in the program to appeal to all levels of students.
- Investigating the effectiveness of using the DT approach on developing other abilities rather than writing performance.
- Exploring the effect of other strategies on developing secondary stage students' WP.
- Exploring the effect of E- mind map programs on teaching and learning.
- Exploring the effect of collaborative learning on developing English language performance.
- Designing a training program to train teachers on using DT strategy which appeals to nontraditional students nowadays.
- Trying to find the best practices for integrating design thinking processes into classroom settings and curriculum.

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Appendices

Appendix (A)

The Pilot Study

The Pilot Study

Part 1: A Writing Test

Name:

Duration: 2

hours

Note (Duration could be extended)

Write an essay of about 150 words on the following topic:

1-Learning a foreign language becomes a must of today's global world. Discuss with reference to the advantages of learning foreign languages. **(Reflection)**

Part 2: Picture Description (Visualization)

1-Air pollution is considered a dangerous problem that threatens our planet. Discuss with reference to the following picture



Writing Performance Components List

Writing performance components list

Writing Performance Components	Description	Level 1	Level 2	Level 3
Visualization	<ul style="list-style-type: none"> • Create mental images using information and back ground knowledge. • Give interpretations of images. 			
Coherence	<ul style="list-style-type: none"> • Use paragraphs logically and accurately to promote communication. • Build Paragraphs and sentences upon each to enhance meaning. • Move smoothly from idea to 			

	the other.			
Structure	<ul style="list-style-type: none"> • Use discourse markers such as (but, however...) in a proper way. • Apply correct punctuations, spelling and correct usage of contextualized grammar rules in their writing. 			
Clarity of ideas	<ul style="list-style-type: none"> • Elaborate on ideas and thoughts • Outline the topic clearly, achieve internal coherence. • Provide evidence to support main ideas, to use vocabulary effectively. 			
Reflection	<ul style="list-style-type: none"> • Integrate prior knowledge with current events in writing. • Reflect awareness in writing. <p>Evaluate resources/ writing / learning</p>			

Appendix B

Pre-posttest writing for 1st secondary stage students

The Pre-Posttest writing for 1st secondary stage students

Covering page:

Introduction:

This test is designed to measure 1st secondary stage students' writing performance before and after applying the DT.

The researcher used the pre and posttest to measure the performance of the students. The researcher divided the test into two parts and asked the students to write essays for three hours (1 and half for each part) on some topics.

The test components:

The test contains four topics that help to measure the students' WP, in different fields.

Purpose of the test

This test is designed to assess the students' WP.

Duration of the test

The duration of the test is three hours (divided into two parts, one and half each).

Name:.....

Date:.....

Duration: 90 mins

The test questions (part 1)

1- Suzy is on holiday in Alanya with her parents and brother.

Read her letter to her friend Lucy and fill in the missing sentences.

(Note: Two sentences do not fit.) (20M)
(Coherence) (5M structure)

Dear Lucy, (1)We're in a beautiful seaside town called Alanya. It's on the south coast of Turkey.

We're staying at a small hotel near an indoor market.(2).....The sun's shining and it's very hot. Sam is learning to scuba dive. Mum's visiting the market- she loves shopping but the market is too crowded for me. Dad's taking photographs of an ancient temple near our hotel. He likes old buildings but I find them boring. (3)..... It has some lovely restaurants. My favorite one has delicious fresh shrimps. After dinner, we usually go for a walk around the town or have a cup of coffee in one of the great cafés here. (4)
.....
Bye for now,
Suzy

- A) I miss you! See you in two weeks.
- B) Alanya is a wonderful place for a holiday.
- C) I'm in the mountains .
- D) Right now, I'm sitting on a beautiful beach.
- E) It's raining all the time .
- F) I'm having a fantastic time here.

2- What are the biggest changes to your learning process because of Covid 19? How do you feel about that?
(Clarity of ideas) (20m) (5M structure)

The test questions (part 2)

Name.....

Date:.....

Duration: 90mins

1-Look at the picture and imagine your life when The Pandemic of Covid 19 ends.

(Visualization) (20m) (5M structure)



Source: <https://images.google.com/>

2- Write an autobiography (20M) (reflection) (5M Structure)

(Appendix C)

A Rubric for measuring Writing Performance

Appendix C

A Rubric for measuring Writing Performance

Writing performance area	Level 1	Level 2	Level 3
Coherence	- Lack of transition and/sequencing and/connection of ideas that makes understanding difficult.	-Needs to improve sequencing and/ connection of ideas to make understanding easy.	- Ideas and paragraphs flow smoothly and logically to assist understanding.
Clarity of ideas	- Demonstrating nonexistent or unfocused thesis statement, Lack of transition, or variation of ideas with general or imprecise word choice that destroys the overall meaning.	- Unclear or weak thesis statement with Illogic /moderate transition, or variation of ideas with limited word choice that helps the overall meaning.	-Clear, specific, and engaging introduction with focused/ clear thesis statement ,and Fluent variation and transition of ideas with Precise word choice that enhances the overall meaning.
Structure	-Using simple sentences with lots of errors in grammar, punctuation and spelling that destroys communication.	-Using varied sentences with inappropriate grammar, punctuation and spelling with some errors.	- Using varied sentences with appropriate grammar, punctuation and spelling with few/no errors.
Visualization	- No Visualization of elements before writing. - No use of visualization strategies before, during and after writing.	-Visualization of some elements before writing. -Using limited visualization strategies before, during and after writing.	-Visualization of key elements before writing. - Using different visualization strategies before, during and after writing.

<p>Reflection</p>	<p>-Writing merely presents facts and information with reflection of awareness in writing or use on/off line media with No use of elaboration techniques to present ideas.</p>	<p>-Writing conveys limited reflection of their experience, personality and awareness with limited use on/off line media with Limited Use of elaboration techniques to present ideas</p>	<p>- Writing Strongly reflects their experience, personality, and awareness with use of on/off line media with using of elaboration techniques to present their ideas.</p>
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(Appendix D)

**The Students'
Satisfaction
Questionnaire.**

Appendix D

The Students' Satisfaction Questionnaire

	Very satisfied	Somehow satisfied	unsatisfied	Comments
1- Were the program and activities useful?				
2-Do you think applying DT on developing writing is effective?				
3-Did you learn new things?				
4-Did you find collaboration useful?				
5-Are you satisfied with your writing performance progress?				
6-The assessment was a good test of what I was taught				
	Strongly Disagree	Disagree	Agree	Strongly Agree
7-The program gave me the training and assistance I needed to develop my writing performance				
8-I would recommend this program to others				
9-The program's instructor was helpful and supportive.				
10- I Feel more confident in writing now				

11- What are your suggestions to develop this program?

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12-Which part in the program did you find most useful?

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13-Which part in the program did you find least useful?

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14-Did you benefit from applying DT?

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15-How did your writing performance change throughout the program?

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16-If you are asked to give the program a grade from (1) to (10), what will it be?

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(Poor) 1..... 10 (Excellent)

Appendix (E)
A program based on
design thinking

Appendix (E)
The Study Program

Title: A program based on DT for developing Secondary Stage Students' Writing Performance

Overview: The current study investigated the effect of using the Design Thinking Approach on developing Secondary Stage Students' Writing Performance. The researcher used the quasi-experimental design to prove the relation between the two study variables. The researcher chose some Online /Offline Learning Strategies to apply on the Secondary Stage Students (i.e. Mimind, Story Picture, Brainstorming, and Visualization).

Aims of the program:

This program aims at developing the Secondary Stage Students' Writing Performance.

Performance Objectives:

According to the components of the program target, by the end of the program, the students were expected to:

- Express their ideas meaningfully in the written essays.
- Move ideas smoothly in the written essays.
- Enhance their reflection ability, and reflect ideas precisely on the written essays.
- Provide expressive details to support their writings integrating prior knowledge with current events in writing.

- Use a variety of sentence types in the written essays.
- Appreciate and accept alternative viewpoints.
- Clearly address the topic and show correct language mechanics in the written essays.
- Use visualization to support their mental images, think deeply, and reflect new relationships.
- Use on /off line media to improve, and present their writings, and share their ideas.
- Reflect awareness about themselves, and their world in their writing.
- Apply correct structure.

Content:

The program is based on using DT to develop Secondary Stage Students' WP. It consists of two units; the first unit consists of seven lessons of 90 minutes each. The second unit consists of three lessons. They aim at presenting the program, its aims, activities, and application. Furthermore; they present the design thinking approach, its definition, steps, values, activities, and its effective impact on writing. They also aim at presenting the general rules used for writing in this stage and how it can be achieved. In addition, the targeted WP components were identified during the application of the lessons' activities. These activities contain story pictures, videos, and different visualization techniques which used by the researcher to enhance the WP components.

- **Session 1: Orientation** (Introduction about the program).
- **Session2: Orientation** (DT definition, processes, strategies and application on essay writing).
- **Session3:** Know the components of a good sentence.
- **Session4:** Know the components of a good sentence.
- **Session5:** Know the components of a good paragraph.
- **Session6:** Development of ideas.
- **Session7:** Development of ideas.

- **Session8:** logic and organization.
- **Session9:** Visualization and generating thinking.
- **Session10:** Stimulate visualization.
- **Session11:** Reflection on writing and evaluation.
- **Session12:** Application on essay writing.
- **Session13:** Application on essay writing.
- **Session14:** Sharing writing.

The WP Program included the following:

- **Two orientation sessions.** The purpose of which was to present the program, its aims, activities, and application. They also aim at raising the students' awareness of the various strategies of DT, the strategies' importance and application. The point of this part was to make the concept of DT clear in the students' minds, to pave the way and to involve them in application.
- **Twelve sessions,** tackling some activities and applications. Open-ended questions are aroused with the application of DT focusing on thinking, visualization, and reflection.
- **Extra twelve hours** were added for online interaction with students to improve their understanding, writing, and also to interact with students due to **COVID 19 procedures.**

The Study Program

Session (One): (Orientation session)

Explore and Ideate phase

Introduction about the study program

Duration of the session: 90 minutes.

Performance Objectives:

By the end of this session, the students will be able to:

- Identify the objectives of the WP program.
- Identify the steps of applying activities used in the learning process.
- Identify websites for the WP instruments.

Warm up:

The first session is an introductory session that will pave the way for all the coming sessions. The teacher will start asking the students to brainstorm things they expect to achieve in this session. All their answers' will be highlighted. Then, the teacher will collect their answers. After that, the teacher will explain the objectives of the program to them. They should have a good idea about the program at this point.

Procedures:

The program will include some activities that will help students develop their writing performance. To achieve the program's objectives, some online/offline strategies will be

used as story picture, mind mapping, x-mind, video show accompanied by some other activities, Google classroom. The students will be briefed about the WP components measured through a PowerPoint presentation followed by an entire group discussion to check their understanding. The selected components are:

1-Clarity of ideas

2- Structure

3-Coherence

4-Reflection

5-Visualization

Teachers' and students' roles:

The teacher will be a facilitator trying to achieve the objectives of the program. She will motivate students to think and write. In addition, she will introduce students to several issues and problems using WP instruments. The students will play an active role throughout the whole program. They will discuss, interact, involved in the activities, and share ideas.

The teacher will show them the content of the program according to components:

Unit one:

-**Session 1:** Orientation (Introduction about the program)

-**Session 2:** Orientation (Definition of DT and its strategies)

-**Session 3:** Know the components of a good sentence.

- **Session 4:** Know the components of a good sentence.

- **Session 5:** Know the components of a good paragraph.

-**Session6:** Development of ideas

- **Session7:** Development of ideas

- Session8**: Logic and Organization
- Session9**: Visualization and Generating thinking
- **Session 10**: Stimulate visualization.
- Session11**: Reflection on writing.

Unit two

- **Session12**: Application on essay writing.
- **Session13**: Application on essay writing-
- **Session14**: Sharing writing and Getting feedback-

The first phase (Explore and Ideate) contains sessions from 1 to 11.

The second phase (Prototype) contains sessions 12, 13

The third phase (Test) contains session 14

The teacher gives a brief idea about them then talks with them about learning/teaching strategies for this program:

- Mimind
- Brainstorming
- Visualization

Sharing:

Can be online through WhatsApp (post on WhatsApp , Mi-mind)

The teacher will ask them to download these programs:

Grammarly

WhatsApp

MI Mind

In addition, the teacher will show them some videos explain how to download these programs and deal with them.

https://youtu.be/FJ_ZWAUO78s

The teacher will use WhatsApp to communicate with the students. Furthermore, the teacher will ask students to use Grammarly program to check their writing.

Assessment:

Through pre-posttest and each session has at its end additional activity to apply on what they had learnt.

Session (Two): (Orientation session)

Definition of Design Thinking and its strategies

Duration of the session: 90 minutes.

Performance Objectives:

By the end of this session, students should be able to:

- Identify DT and its components.
- Identify different Processes involved in DT.
- Identify the importance of DT in writing.
- Illustrate some main points such as:
 - Applying DT processes on the writing process.
 - Enhancing clarity of thoughts.
 - Enhancing reflection.
 - Using visualization to enhance writing.
 - Reflecting new ideas in relation to the students 'prior Knowledge .

Warm up:

The teacher will start by asking the students to brainstorm things they expect to achieve in this session. All their answers' will be highlighted. Then, the teacher will collect their answers. After that, the teacher will explain the DT approach, its processes, its importance, and application on essay writing. They should have a good idea about it at this point.

Procedures :

The teacher will show students a video about design thinking and another video about its application on essay writing. They are followed by an entire group discussion to check their understanding.

The link of the first video is:

https://www.youtube.com/watch?v=r0VX-aU_T8

The link of the second video is:

<https://youtu.be/GMJmM6gIe3Q>

Teachers' and students' roles

The teacher will be a facilitator trying to achieve the best understanding of the approach DT and its application on essay writing. He will motivate students to think and imagine how it can be applied. The students will play an active role through discussion, engagement, and reflection. They are expected to understand DT well, be able to apply its processes on their writing.

Assessment:

Design Thinking Quiz

Choose the correct answer

1-What is the first step in the Design Thinking Process?

- a) Empathize b) Define c) Ideate d) Prototype

2-After you empathize, the next step is to.....

- a) Prototype b) Test c) Define d) Ideate

3-After you define the problem, the next step is to.....

- a) Test b) Prototype c) Ideate d) Empathize

4-The final step in the Design Process is to

- a) Test b) Define c) Ideate d) Empathize

5-According to Design Thinking, the first step in writing is.....

- A) Write an essay
- b) Talk with native speakers
- c) Watch English videos and movies.
- d) b and c

6- According to Design Thinking, brainstorming aims at

- a) coming up with different ideas.
- b) writing in groups.
- C) stating the problem
- D) evaluating the topic

7-Which sentence has the correct punctuation

- a) Salah is a clever Egyptian player.
- b) Salah is a clever, Egyptian player.
- C) Salah is a clever Egyptian, player.
- D) Salah is a clever, Egyptian, player.

8-Which sentence has the correct negative form?

- a)This man doesn't sells vegetables.
- b) This man doesn't sell vegetables.
- c) This man don't sells vegetables.
- d) This man hasn't sell vegetables.

9-The first paragraph in an essay is called a /an.....

- a)conclusion
- b)introduction
- c)body
- d)topic

10-What is the final sentence of a paragraph called?

- a) The introduction sentence.
- b) The topic sentence.
- c) The first sentence.
- d) The closing sentence.

Session (Three)

(Know the components of a good sentence)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Identify the components of a good sentence.
- Identify the best ways to arrange words in a sentence.

Teaching Materials:

- Whats app

-Video show

Warm up:

The teacher will start asking the students the parts of a good sentence, they will try to give answers .After that, the teacher will explain these components. They should have a good idea about it at this point.

Procedures :

The teacher will show students two videos about the components of a good sentence. It is followed by an entire group discussion to check their understanding.

The link of the video is:

<https://youtu.be/Q4ixLaaB0-Q?t=69>

<https://youtu.be/av81dGGfclE?t=31>

Assessment:

Underline the Subject and underline the Predicate (verb) twice, in each of these sentences:

- 1- The dog lay down on the floor.
- 2- Mary gave a speech.
- 3- That apartment has three rooms.
- 4- He reads the newspaper at lunch.
- 5- School closed today at two o'clock.
- 6- People can charge their groceries at Sim's
- 7- We walk through the park every night.
- 8- After three hours, they finally called us.
- 9- A few places are open for breakfast.
10. The doctor examined my sick child.

Session (Four)

(Know the components of a good sentence)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Identify the components of a good sentence.
- Identify the best ways to arrange words in a sentence.

Teaching Materials:

- Whats app
- Video show

Warm up:

The teacher will start asking the students the parts of a good sentence, they will try to give answers .After that, the teacher will explain these components. They should have a good idea about it at this point.

Procedures :

The teacher will show students a video about the components of a good sentence. It is followed by an entire group discussion to check their understanding.

The link of the video is:

<https://youtu.be/E0GJ3X64NV0>

Assessment:

Put an S next to each complete sentence. Put an F next to each fragment.

- 1 .Neither the coach nor the players
- 2-If you have a test
- 3- When my father was a child, he spoke only English
- 4- I have the day off tomorrow
- 5-When the telephone rang
- 6- Pick up those papers
- 7- The girl threw the ball hard
- 8- The whole class afterschool
- 9-Of the three players, Kevin is the tallest
10. Suddenly during the meeting

Session (Five)

(Know the components of a good paragraph)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Identify the components of a good paragraph.
- Identify the best ways to arrange their ideas in a paragraph.

Teaching Materials:

- Whats app
- Video show

Warm up:

The teacher will start asking the students the parts of a good paragraph, they will try to give answers .After that, the teacher will explain these components. They should have a good idea about it at this point.

Procedures :

The teacher will show students a video about the components of a good paragraph. It is followed by an entire group discussion to check their understanding.

The link of the video is:

<https://youtu.be/IMRTtUrSFOc>

Assessment:

Read the following paragraphs and circle the topic sentences and underline the supporting sentences.

1- Use of the internet has grown very quickly. In 1983, there were 562 computers connected to the Internet. By the turn of the century, there were 72.3 million computers in 247 countries on-line. Experts say that the Internet is now growing at a rate of nearly 40 % a year. As time goes on, the Internet is becoming more and more popular.

2- Vegetables and fruits are an important part of a healthy diet. First, fruits and vegetables contain vitamins and minerals you need to keep your body healthy. They give you the carbohydrates you need for energy. Fruits and vegetables have lots of fiber to help your digestive system work well. Finally, many scientists think that the nutrients in fruits and vegetables can help fight diseases. If you eat a diet rich in fruits and vegetables, you'll be healthy and fit.

Session (Six)

(Development of ideas)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Help students to brainstorm ideas.
- Generate and Organize ideas.
- Write well- built paragraphs.

Warm up:

The teacher will start by asking students to try, in 5 minutes, to write as many uses of **toothpaste** as they can rather than cleaning teeth. When they finish writing their ideas, she then will ask them to present their usage of the item. Then, the teacher will present the idea of **brainstorming** to them; they should have a good idea about it at this point.

Procedures :

Activity 1: My School

Overview:

In this activity, the teacher will ask students to write a paragraph of ten sentences about their school. Finally, students are asked to share their topics on **WhatsApp**

Performance Objectives:

- Enhancing their ability to generate ideas and connect them.
- Enhancing reflection.
- Brainstorm ideas.

Assessment:

The teacher will ask students to submit their essays online on WhatsApp for discussion and getting feedback. Students will also use the (**Grammarly Program**) to check their writing.

Session (Seven)

(Development of ideas)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to generate ideas using MI Mind Program.

Performance Objectives:

- Help students to generate ideas, brainstorm, and design a map using MI Mind Program.

Procedures:

The teacher will show students how to draw a mind map contains their ideas about the following topic using MI Mind Program:

How to use your free time in the best way

Sharing:

Post a screenshot of your MI mind maps **on the WhatsApp group** and start discussing their ideas.

Assessment: Keeping healthy

The teacher will ask students to draw a mind map using MI Mind Program and then write a paragraph of ten sentences on **how to have a healthy lifestyle.**

Session (Eight)

(Logic and Organization)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Organize ideas logically.
- Move ideas smoothly.
- Consider the 3 Cs {consistency, clarity, and coherence} in writing paragraphs.

Warm up:

The teacher will start by asking students to watch a video about writing topic sentences. After that, the teacher will explain how sentences should be organized in paragraphs.

The link of the video is:

<https://youtu.be/LWFnpeimPfE>

Activity 1: Writing supporting sentences

Overview:

The teacher will give students some topic sentences and ask them to write 3 supporting sentences.

Performance Objectives:

- Understanding paragraph organization to build good structured essays.
- Organizing ideas logically.

Procedures:

The teacher will start by giving students an example of a topic sentence and help students to generate some supporting sentences for this one, and then students are asked to complete the exercise themselves.

Activity 1:

Write 3 supporting sentences for these topic sentences.

1- Having a hobby can be good for you.

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.....

2- Protecting the rainforest is important.

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.....

3- Life in the future can be different to today's life .

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4- Pollution is a dangerous problem that faces the world.

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Assessment:

The teacher will ask students to submit their sentences online for discussion and getting feedback. Students will also use (Grammarly Program) to check their writing.

Activity 2 :

Write the sentences in the correct order to make a good paragraph.

This is where he stayed and then went to university. For example, at the age of two the family moved to Hong Kong. Simon's early life was very interesting. Later, when he was a teenager, his family decided to stay in Australia. In summary, his life was full of interesting experinces. When he was very young, he lived in several different countries because his father travelled for business.

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Sharing:

Share your answers on WhatsApp.

Session (Nine)

(Visualization and generating thinking)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Find the differences between 2 pictures.
- Enhance their visual thinking.

Warm up:

The teacher will start by asking students to close their eyes for a moment and imagine their life after ten years. The, she will discuss with them their ideas.

Procedures :

The teacher will give students 2 pictures and ask them to find the differences between them in a written form.

Activity 1: Find the differences

Procedures:

The teacher will present the two pictures and ask students to write five differences between them.

Then, they will share their writing on **WhatsApp**



Assessment:

The teacher will ask students to submit their essays online for discussion and getting feedback .

Students will also use (Grammarly Program) to check their writing.

Session (Ten)

(Stimulate visualization)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Create better mental images about different topics.
- Give interpretations.

Warm up:

The teacher will start by asking students to close their eyes for a moment and imagine their life after ten years. The, she will discuss with them their ideas.

Procedures :

The teacher will ask students to describe one of their parents (a mother or a father)

Activity 1

Describe a parent (a mother or a father), write about how he /she like? His/her character?

Assessment:

The teacher will ask students to submit their essays online for discussion and getting feedback .

Students will also use (Grammarly Program) to check their writing.

Session (Eleven)

(Reflection on writing)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Reflect on ideas in writing.

Procedures:

The teacher will ask students what they should do to be successful persons in their life.

Activity1: (a successful person)

Write a paragraph not less than 110 words on **how to be a successful person**

Assessment:

Activity 2

1-Write a paragraph of ten sentences about **"What item of technology that you like most? Why?"**

The teacher will ask students to submit their essays online for discussion and getting feedback .

Students will also use (Grammarly Program) to check their writing.

Session (Twelve)

Prototype phase

(Application on essay writing)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Write well-organized paragraphs.
- Write coherent essays.

Procedures:

The teacher will ask students to follow the design thinking approach to write an essay:

Step 1: Learn natural English by watching videos, reading books, or watching news

Step 2: Revise the components of a good essay.

Step 3: Prototyping and talking to teachers online, or submit essays online to be corrected by teachers.

Step4: improve their essays based on the teachers' comments.

Activity1:

Write an essay not less than 150 words about this topic showing your opinion.

Advantages of having a computer, laptop, or a mobile phone.

Assessment:

Students will also use the (**Grammarly program**) to check their writing.

Session (Thirteen)

(Application on essay writing)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Enhance their writing by practicing more.
- Write coherent essays.

Procedures:

The teacher will ask students to follow the steps of design thinking tackled in the previous session to write an essay:

Activity1 :

Write an essay not less than 150 words to describe a place that you visited in your summer holidays .When describing your favorite place, the details that you should add are the weather of the place, the main place that you visited, the kind of feeling you had. Besides, you should also describe why you like the place.

The memorable events should be presented in proper order.

Assessment:

Students will also use the (**Grammarly Program**) to check their writing.

Session (Fourteen)

Test phase

(Sharing writing)

Duration of the session: 90 minutes

Performance Objectives:

By the end of this session, students should be able to:

- Share writing.
- Get feedback to improve writing.

Procedures:

The teacher will ask students to submit their topics from the two previous sessions online to get feedback and improve their writing.

Sharing:

Students submit their essays on **Grammarly**. Then, the teacher makes a group discussion after reading their peers' topics.

Assessment:

The teacher and students will have a group discussion on Whatsapp to discuss and get feedback.

Appendix (F)
Participant Consent
Form and information
sheet

Appendix (F)

Participant Consent Form and information sheet

Participant's name.....

Title of the research: Design Thinking: An Approach to Develop Writing Performance through EFL Context for Secondary Stage Students

Main investigator and contact details:

Amira Fawzy Abd Al Fattah

Al-Khanka – Qalyubia Governorate

Tel: 01062975759

I agree to take part in the above research. I have read the Participant Information Sheet which is attached to this form. I understand what my role will be in this research, and all my questions have been answered to my satisfaction.

I understand that I am free to withdraw from the research at any time, for any reason and without prejudice.

#I have been informed that the confidentiality of the information I provide will be safe guarded.

I am free to ask any questions at any time before and during the study. I have been provided with a copy of this form and the Participant Information Sheet.

Data Protection:

I agree to the University processing personal data which I have supplied. I agree to the processing of such data for any purposes connected with the Research Project as outlined to me. I give

permission for the researcher to use and publish any data gathered.

YOU WILL BE GIVEN A COPY OF THIS FORM TO KEEP

Name of participant.....

Signature.....

Date.....

PARTICIPANT INFORMATION SHEET

Section A: The Research Title

The title of this research is: Design Thinking: An Approach to Develop Writing Performance through EFL Context for Secondary Stage Students

The purpose of the study is to explore the influence of Design Thinking Approach to develop 1st Secondary Stage Students' Writing Performance

The researcher intends to research how design thinking will help students develop their writing performance.

For further information please contact:

Amira Fawzy Abd Al Fattah

Al-Khanka – Qalyubia Governorate

[Tel:01062975759](tel:01062975759)

Gamalgouda13@yahoo.com

Section B: Your Participation in the Research Project

You have been invited to take part because you are the target stage that the researcher wants to develop their writing performance.

If you agree to take part you will be involved in one or more of the following methods of data collection:

- 1. Email correspondence**
- 2. Completion of a satisfactory questionnaire**
- 3. Attendance as a participant in a validation group.**
- 4- Video/audio records.**

There are no significant risks involved .Data collected during the research will be kept securely, and will be only used in the research.

YOU WILL BE GIVEN A COPY OF THIS TO KEEP, TOGETHER WITH A COPY OF YOUR CONSENT FORM

Appendix (G)
INFORMED
PARENTAL
CONSENT FORM

Appendix (G)

INFORMED PARENTAL CONSENT FORM

We invite you and your child to take part in a research study being conducted by [Amira Fawzy Abd Al Fattah] who is a [researcher] at Ain Shams University- Faculty of Education as part of her research [Design Thinking: An Approach to Develop Writing Performance through EFL Context for Secondary Stage Students]. The study, as well as your rights as a participant, is described below.

Description: This study will examine the effect of using Design Thinking to develop writing performance. The study will be divided into sessions related to using design thinking to develop writing performance through using videos, activities, and other materials

Confidentiality: all the data gathered from your child will be used only in the research and will be secure.

I agree to have you audio/videotape my child during this study. I understand this audio/video will only be used for the purposes of research (e.g. Collecting and analyzing data etc.), and will not be available to anyone aside from the researcher.

Risks & Benefits: There are no risks to your child's safety. There are potential benefits to your child's ability to develop his/her writing performance.

Questions? Please feel free to ask the investigator any questions before signing the consent form or at any time during or after the study.

Signature

Date

.....

.....

Appendix (H)
Students' writing
samples

Students' writing samples

Date: _____

Q1 - What are the biggest changes to your learning process

When the Covid-19 virus hit Egypt, the Egyptian Government took many decisions as closing schools and universities. Learning became online. Students were divided during exams. Students depended mainly on online learning. Students are asked to do researches.

This style of learning has many advantages and disadvantages. As for the advantages, it made learning easy and can be done anywhere. There are many applications to learn lessons. We had more time to learn. This helped students to learn more about applications and computer.

There are also disadvantages, it made students lazy. Some students didn't have internet connection. Some students didn't understand lessons. They wanted to ask their teachers about the difficult things. For me, I didn't like it because I miss my friends and teachers.

Q1 - What are the biggest changes to your learning process

Covid-19 is a serious problem that forced the world. The whole world felt terrified and couldn't deal with this problem. Covid-19 affected our learning process very much. Before it, we went to schools every day. We were happy. We saw our friends every day. After it, we stayed at home. We learnt online. We used many programs. We were sad.

1. F 2. D
3. B 4. A

Part (2)

(1) Covid 19 has made many changes to our learning process. There are advantages and disadvantages of using the internet and the platforms in the learning process. As for the advantages, It's enjoyable and important to learn how to search. We ~~learned~~ ^{learned} how to use Zoom platform and other platforms. The teachers teach us different and new activities on the internet. We learned interesting games and how to use games in learning. We studied while we are relaxing at home.

^{On} the other hand, there are some disadvantages of using the online learning. Because of Covid 19 we couldn't learn inside the classroom. There ~~was~~ ^{was} no interactive communication between the teacher and the students. Most of time it's boring to learn through the internet. The teacher was not able to involve all the students in the lesson. At the end, we can say that Covid 19 made beneficial changes and added important ways to our learning process.

post

When I close my eyes, I dream that covid 19 ends. Before this pandemic life was fun. I loved my life and enjoyed alot. I started my swimming course. I could swim and I was happy about that. I entered a championship and I came first, but life changed after covid 19. Every thing changed to the worst. I couldn't go to the swimming course. I couldn't meet my friends. I wasn't happy about that. We couldn't go to our favourite places or go to the cinema.

When Covid 19 ends, I will do alot of things. First, I will continue my swimming course. I will go to the park with my friends and visit my uncle. I will play my favourite games and go to the cinema to watch my favourite films. I will go to school again. I miss my friends and teachers. I will travel to Hurgada and enjoy the beautiful sea. I will love again my normal life.

✓ Date:

② look at the picture

When I close my eyes and try to imagine my life after Covid 19 ends, I find it very nice and happy. I will go to school every day with my friends. I will play my favourite sport at the club. I will visit all my family and friends. I will go to the club to enjoy swimming in the swimming pool. I won't wear a mask. I will go to the parks to enjoy my time. I will visit my uncle in London and enjoy my time with him.

Dear Lucy,

.....(C) X.....(1) We're in a beautiful seaside town called Alanya. It's on the south coast of Turkey. We're staying at a small hotel near an indoor market. (2).....(D).....The sun's shining and it's very hot. Sam is learning to scuba dive. Mum's visiting the market-she loves shopping but the market is too crowded for me. Dad's taking photographs of an ancient temple near our hotel. He likes old buildings but I find them boring. (3).....(B)..... It has some lovely restaurants. My favorite one has delicious fresh shrimps. After dinner, we usually go for a walk around the town or have a cup of coffee in one of the great cafés here. (4)

.....(A).....

Bye for now,
Suzy

When I close my eyes, I dream that covid 19 ends. Before this pandemic life was fun. I loved my life and enjoyed alot. I started my swimming course. I could swim and I was happy about that. I entered a championship and I came first, but life changed after covid 19. Every thing changed to the worst. I couldn't go to the swimming course. I couldn't meet my friends. I wasn't happy about that. We couldn't go to our favourite places or go to the cinema.

When Covid 19 ends, I will do alot of things. First, I will continue my swimming course. I will go to the park with my friends and visit my uncle. I will play my favourite games and go to the cinema to watch my favourite films. I will go to school again. I miss my friends and teachers. I will travel to Hurgada and enjoy the beautiful sea. I will live again my normal life.

Q 1. What are the biggest changes to your learning process

Covid 19 is a serious problem that faced the world. The whole world felt terrified and couldn't deal with this problem. Covid 19 affected our learning process very much. Before it, we went to schools every day. We were happy. We saw our friends every day. After it, we stayed at home. We learnt online. We used many programs. We were sad.

Date:

Q1. What are the biggest changes to your learning process

When the Covid-19 virus hit Egypt, the Egyptian Government took many decisions as closing schools and universities. Learning became online. Students were divided during exams. Students depended mainly on online learning. Students are asked to do researches.

This style of learning has many advantages and disadvantages. As for the advantages, it made learning easy and can be done anywhere. There are many applications to learn lessons. We had more time to learn. This helped students to learn more about applications and computer.

There are also disadvantages, it made students lazy. Some students didn't have internet connect. Some students didn't understand lessons. They wanted to ask their teachers about the difficult things. For me, I didn't like it because I miss my friends and teachers.

Write an autobiography

(20m) (reflection)(5) m structure

2- Suzy is on holiday in Alanya with her parents and brother.

Read her letter to her friend Lucy and fill in the missing sentences.

(Note: Two sentences do not fit.) (20m)

(Coherence) (5) m structure

Dear Lucy,

.....F.....(1) We're in a beautiful seaside town called Alanya. It's on the south coast of Turkey. We're staying at a small hotel near an indoor market. (2).....D..... The sun's shining and it's very hot. Sam is learning to scuba dive. Mum's visiting the market-she loves shopping but the market is too crowded for me. Dad's taking photographs of an ancient temple near our hotel. He likes old buildings but I find them boring. (3).....B..... It has some lovely restaurants. My favorite one has delicious fresh shrimps. After dinner, we usually go for a walk around the town or have a cup of coffee in one of the great cafés here. (4)

.....A.....

Bye for now,
Suzy

✓ Date:
□ What are the biggest changes

Covid 19 affected our life. Before Covid 19, I was happy. I went to school with my friends. I went to the club everyday. We visited our grandparents, life was different from now.

After Covid 19, everything changed. We don't go to our schools. We learn online and this is not good. We sometimes don't understand and can't ask. I don't go to the club to play football so I'm not happy with that. We do not always visit our grandparents. Life is very boring. We can't enjoy with our friends like before.

Date: _____ part 2
Q 1 What are the biggest changes

No one could expect how much the pandemic of Covid 19 will change our life like today. No one could imagine that there will be a virus that will change the whole world for many years.

Our life before Covid 19 was easy and comfortable. We could meet our friends, we could eat out, we went to the club to play and enjoy our time. Life after this pandemic has changed a lot especially our learning process. Before Covid 19, we went to our schools daily, we could see our friends and enjoy our time in the break. If we don't understand anything, we could ask our teachers to explain it. After Covid 19, we learnt online we couldn't understand many things. We don't like this style of learning because we can't understand many things. Now, there are many applications for learning, but we can't understand by ourselves.

For me, I don't like this kind of learning, it makes us lazy and sometimes we understand things differently. I hope it will end and we can go to our classes and enjoy our learning.

Q 1 What are the biggest changes to your learning process

Covid 19 is a serious problem that faced the world. The whole world felt terrified and couldn't deal with this problem. Covid 19 affected our learning process very much. Before it, we went to schools every day. We were happy. We saw our friends every day. After it, we stayed at home. We learnt online. We used many programs. We were sad.

Date:

Q1. What are the biggest changes to your learning process

When the Covid-19 virus hit Egypt, the Egyptian Government took many decisions as closing schools and universities. Learning became online. Students were divided during exams. Students depended mainly on online learning. Students are asked to do researches.

This style of learning has many advantages and disadvantages. As for the advantages, it made learning easy and can be done anywhere. There are many applications to learn lessons. We had more time to learn. This helped students to learn more about applications and computer.

There are also disadvantages, it made students lazy. Some students didn't have internet connection. Some students didn't understand lessons. They wanted to ask their teachers about the difficult things. For me, I didn't like it because I miss my friends and teachers.

1/5

part 2

pre part 2

1. What are the biggest changes to your learning process because of Covid 19? How do you feel about that?

Covid 19 made many changes to our learning process. Before Covid 19, we were studying at school. We got our lessons inside the classroom. We met our teachers and friends. There are many changes, some advantages and disadvantages. We learned how to use the platforms in learning. There aren't real interactions between us.

1. F
3. B
2. D
4. A

Part (2)

① Covid 19 has made many changes to our learning process. There are advantages and disadvantages of using the internet and the platforms in the learning process. As for the advantages, It's enjoyable and important to learn how to search. We ~~learned~~ ^{learned} how to use Zoom platform and other platforms. The teachers teach us different and new activities on the internet. We learned interesting games and how to use games in learning. We studied while we are relaxing at home.

^{on} In the other hand, there are some disadvantages of using the online learning. Because of Covid 19 we couldn't learn inside the classroom. There ~~was~~ ^{was} no interactive communication between the teacher and the students. Most of time it's boring to learn through the internet. The teacher was not able to involve all the students in the lesson. At the end, we can say that Covid 19 made beneficial changes and added important ways to our learning process.

post

Date: .

Q.2 : When Covid 19 ends, I will visit my friends again. I will go to school again and study at school with my teachers. I will go to the club to continue my practice. I will eat in restaurants and play with my friends. I won't wear the mask

again.

When I close my eyes, I dream that covid 19 ends. Before this pandemic life was fun. I loved my life and enjoyed alot. I started my swimming course. I could swim and I was happy about that. I entered a championship and I came first, but life changed after covid 19. Every thing changed to the worst. I couldn't go to the swimming course, I couldn't meet my friends. I wasn't happy about that. We couldn't go to our favourite places or go to the cinema.

When Covid 19 ends, I will do alot of things. First, I will continue my swimming course. I will go to the park with my friends and visit my uncle. I will play my favourite games and go to the cinema to watch my favourite films. I will go to school again. I miss my friends and teachers. I will travel to Hurghada and enjoy the beautiful sea. I will live again my normal life.

Date:

② look at the picture

When I close my eyes and try to imagine my life after Covid 19 ends, I find it very nice and happy. I will go to school every day with my friends. I will play my favourite sport at the club. I will visit all my family and friends. I will go to the club to enjoy swimming in the swimming pool. I won't wear a mask. I will go to the parks to enjoy my time. I will visit my uncle in London and enjoy my time with him.

Date: _____

②

When I remember my life before Covid 19, I feel sad because our life changed so much after Covid 19. Before it, we were happy. We went to our schools everyday. We played with our friends and went out to enjoy ourselves. We visited our friends. We played games and were very happy.

When this pandemic ends, we will be happy. We will visit our friends again. We will go to parks and play games. We will play sports at the club with our friends. We will go to the swimming pool. We will travel abroad to other countries. Life will be different from now.

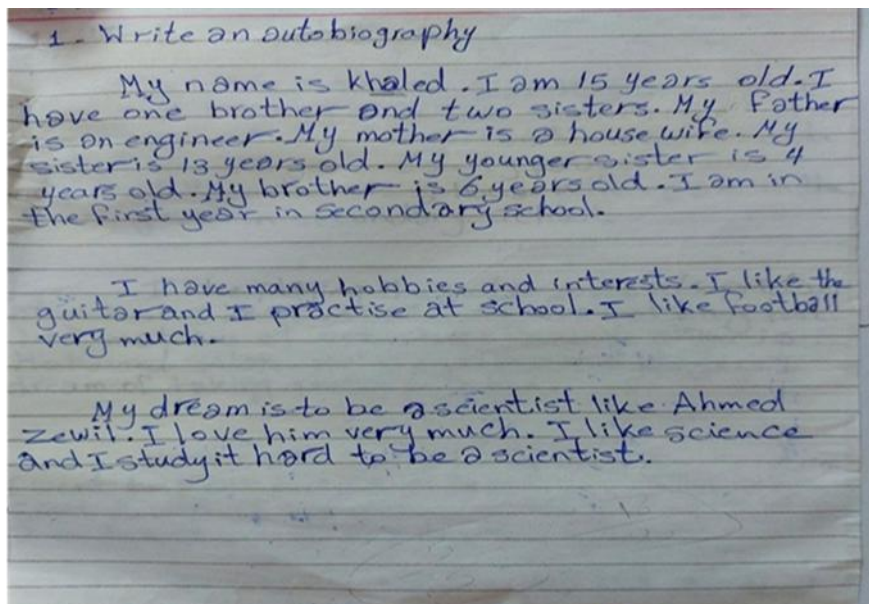
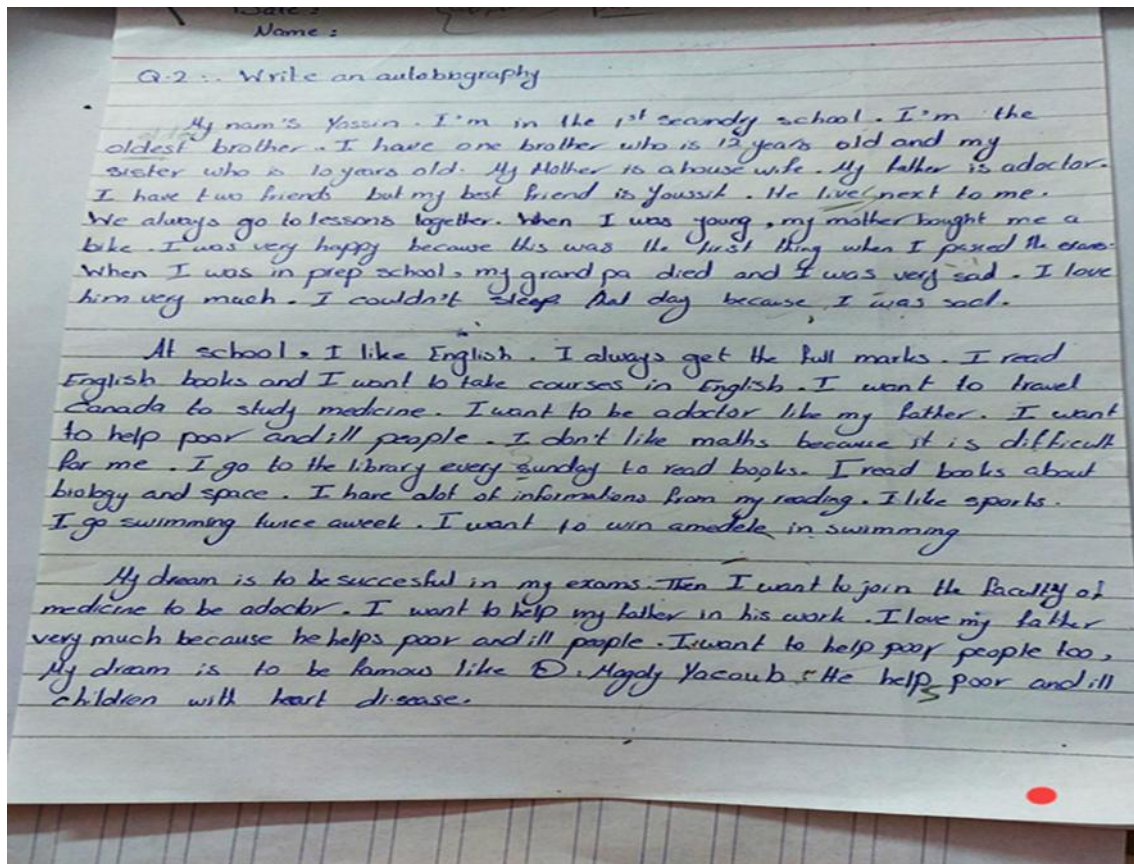
② Visualisation :

After Covid 19 ends, life will be different. According to the picture life will be more enjoyable, interesting and beautiful. People can go to any place. They can travel to different countries. Families can go to the parks and beaches. Children play with each other. Friends can meet each other outdoors. They can do different activities. In the picture I can see a great joy and enjoyment. ^{For example,} Some people are swimming, others are playing football.

2) Look at the picture and imagine your life when the pandemic of Covid 19 has ends.

After Covid 19 has ^{ends} ended, life will be more beautiful. People will enjoy outdoors. Children will be able to go to the parks. Families can go to the cinema. We can travel to any country. People go to the party. They dance, sing and eat. Children go to the club. They swim and play football.

My name's Yassin. I'm in the 1st secondary school. I'm the oldest brother. I have one brother who is 12 years old and my sister who is 6 years old. My mother is a house wife. My father is a doctor. I have two friends but my best friend is Youssif. He lives next to me. We always go to lessons together. When I was young, my mother bought me a bike. I was very happy because this was the first thing when I passed the exam. When I was in prep school, my grandpa died and I was very sad. I love him very much. I couldn't sleep that day because I was sad.



1. Write an autobiography

My name is Khalid. I am 15 years old. I have one brother and two sisters. My sister is 13 years old. My younger sister is 4 years old. My brother is 6 years old. My father is an engineer. My mother is a housewife. I am in the first year in secondary school.

I like playing the guitar and I also practise at school. I like football and I love watching football matches at school. My favourite player is Mohamed Salah. He is a professional player. I dream of taking photos with him.

When I was 7, I travelled to many countries. I went to Kuwait and Saudi Arabia. I loved living in Saudi Arabia. It is a clean country. I made many friends and we still talk together till now.

My dream is to be a scientist like Ahmed Zewil. I love him very much. I like science and I study it hard to be a scientist.

Name: Ahmed Mohamed

Date:

part 1

Write an autobiography

My name is Ahmed Mohamed. I was born ^{on} the 30th of August 2007 in EL-Khanka. My father and my mother are teachers. I'm in Al-Rawda private school. I'm in the first ^{year of} secondary school. I go to school with my friends by bus. I love my friends. I play football at the club. I go to the club on Saturday and Tuesday. I love Mohamed Salah and I want to be ^{as} him. I love Arabic because it is easy for me. I love maths and numbers. I want to be an accountant like my uncle. He works in a bank. When I was young, I ^{came} first at school and I was very happy. My father and mother were happy.

Date: _____ part 1

Write an autobiography

My name is Ahmed Mohamed. I was born on the 30th of August 2007 in EL-Khanka. My father is a teacher. He teaches science. My mother is also a teacher. She teaches social studies. They go to school every day at 7 o'clock. They go to school on foot because it's near to our house. I'm in AL-Rawda private school. My school is far from my house. I go to school by bus. I go with my friends.

learn

At school, we teach many subjects. I like Arabic because it is easy for me. I love maths and numbers more than science. I want to be an accountant like my uncle. He works in a bank. I and my friends play foot ball at the break. My teachers are kind, they help me when I don't understand anything. I study hard to be an accountant. We go to school at 7 o'clock and come back at 2 o'clock.

My favourite place is the farm in the village where my granddad lives. We go there every Friday. I like the farm very much. on the farm, there are animals. I love playing with animals. I love to help the farmers there. We feel

Date: _____ part

happy when we go there. I and my sisters go to the fields and feed the animals.

last year, we went to Sharm Al-Sheikh. We went by car. We spent a week there. We went to the beach in the morning. We built sand castles on the beach. At night, we went to the cinema and watched a film. one day, I found some money on the beach. I asked the people there until I found the owner. He thanked me and I was very happy to help him.

In the future, I want to study well and become an accountant because I like maths very much. I hope to work in a big bank. I want to be the manager of the bank and help people. I won't make people wait for a long time.



جامعة عين شمس
كلية التربية
قسم المناهج وطرق التدريس

التفكير التصميمي: مدخل لتنمية الأداء اللغوي في الكتابة باللغة
الانجليزية كلغه أجنبية للمرحلة الثانوية

بحث مقدم

للحصول على درجة الماجستير في التربية
قسم المناهج وطرق التدريس
(اللغة الإنجليزية)

اعداد

أميره فوزى عبد الفتاح عفيفى

إشراف

د. بدر عبد الفتاح عبدالكافى

أ. د. أسماء غانم غيث

مدرس المناهج وطرق التدريس - اللغة
الانجليزية

أستاذ المناهج وطرق التدريس - اللغة
الانجليزية

كلية التربية

كلية التربية

جامعه عين شمس

جامعه عين شمس

2022

عنوان البحث : التفكير التصميمي: مدخل لتنمية الأداء اللغوي في الكتابة باللغة الانجليزية كلغة أجنبية للمرحلة الثانوية

اسم الباحثة : أميره فوزى عبد الفتاح عفيفي.

اشراف : ا.د.اسماء غانم غيث . أستاذ المناهج وطرق التدريس-اللغة الانجليزية . كلية التربية. جامعة عين شمس.

د.بدر عبد الفتاح عبدالكافي. مدرس المناهج وطرق التدريس- اللغة الانجليزية. كلية التربية. جامعة عين شمس.

مستخلص البحث

هدفت الدراسة الى قياس فاعلية استخدام التفكير التصميمي في تنمية الأداء الكتابي في اللغة الانجليزية لدى طلاب المرحلة الثانوية كلغة أجنبية. تلقت مجموعة مختارة عشوائياً من طلاب المرحلة الثانوية (ن = 14) في مدرسة البرج الحكومية في الخانكة بمحافظة القليوبية في العام الدراسي 2021/2022 تدريباً من خلال برنامجاً مقترحاً يعتمد على استخدام التفكير التصميمي لتطوير الأداء الكتابي. استندت الدراسة الحالية إلى تصميم بحث مختلط من مجموعة واحدة. تم تصميم اختبار قبلي وبعدي وتطبيقه على المجموعة قبل وبعد تنفيذ البرنامج المقترح. يهدف الاختبار إلى تحديد إلى أي مدى ساعد التفكير التصميمي طلاب المرحلة الثانوية على إتقان أدائهم الكتابي. صممت الباحثة برنامج البحث وأدوات قياس تقدم الطلاب بما في ذلك قائمة مكونات الأداء الكتابي والاختبار القبلي / البعدي ونموذج التقييم واستبيان المشاركين. تلقى المشاركون تدريباً مكثفاً للغة الإنجليزية لمدة تسعة أسابيع، بمعدل ثلاث جلسات في الأسبوع ، لتعزيز أداء الطلاب في الكتابة. تم تحليل البيانات التي تم الحصول عليها إحصائياً باستخدام اختبار ويلكوكسون ، كما تم حساب حجم التأثير. كذلك تمت مناقشة النتائج في ضوء قائمة مكونات الأداء الكتابي و أظهر كلا من التحليل الكمي والنوعي أن التفكير التصميمي له تأثيراً فعالاً على تعزيز أداء الكتابة باللغة الإنجليزية كلغة أجنبية.

الكلمات المفتاحية : استخدام اللغة الإنجليزية كلغة أجنبية، مدخل التفكير التصميمي . دارسى اللغة الإنجليزية كلغة أجنبية من طلاب المرحلة الثانوية.

1- مقدمة:

تعتبر اللغة الإنجليزية هي اللغة الأكثر انتشارًا في العالم. حيث يتم تدريسها كلغة أجنبية في العديد من الدول كما تعد لغة تكنولوجيا التعليم. فهي تزيد من فرص الفرد في الحصول على وظيفة مناسبة وكما أنها تمنح الناس شعورًا بالرضا والإنجاز في حياتهم. اللغة الإنجليزية هي وسيلة للتواصل العالمي (Headly, 2006). لقد أصبح التواصل الكتابي أمرًا لا بد منه ، خاصة في العالم الرقمي الحالي 2013 (Skolverket). يستخدم الطلاب اليوم أجهزة الكمبيوتر لكتابة المقالات والتقارير والمشاريع المنزلية وأنواع أخرى من مهام الكتابة. الكتابة هي أداة تفكير وتفاعل في اللغة الإنجليزية كلغة أجنبية تساعد الطلاب في التعبير عن مشاعرهم وأفكارهم.

فرضت التكنولوجيا الجديدة تغييرات على ممارسات الكتابة مثل التركيز على التفكير النقدي واتخاذ القرار وحل المشكلات والقدرة على التعبير عن الآراء. يمكن التفكير النقدي والإبداعي المتعلمين من جمع المعارف والأفكار ذات الصلة إضافة الفهم الشخصي والقيم واختيار المعلومات المفيدة ودمجها (Lin, 2018). علاوة على ذلك ، دعمت التكنولوجيا المعلمين والطلاب بمصادر متنوعة مثل الكاميرات الرقمية وأجهزة العرض والكتب الإلكترونية وأجهزة الكمبيوتر والعروض التقديمية وأدوات التصور ثلاثية الأبعاد.

أصبح التفكير النقدي والإبداعي مطلبًا مهمًا في الوقت الحاضر في التدريس والتعلم بشكل عام وفي تعلم اللغة الإنجليزية كلغة أجنبية بشكل خاص حيث أن نجاح الطلاب في هذا العصر مرتبط بمعرفتهم الفكرية وقدرتهم على التفكير النقدي وحل المشكلات المعقدة. هناك علاقة قوية بين التفكير النقدي والكتابة لأن الكتابة

في المقام الأول هي عملية تفكير). تحتاج الكتابة إلى تفكير ثاقب (Brown, 2001). وفقاً لما ذكره Nunan (2008,33)، فإن الكتابة هي العمل الذهني الناتج عن الأفكار المبدعة والتفكير في كيفية التعبير عنها وتنظيمها في عبارات وفقرات تكون واضحة للقارئ، فالكتابة هي أداة للتعبير عن أفكار الطلاب و مشاعرهم والتواصل الجيد مع الآخرين.

تعد الكتابة نشاطاً تعليمياً مهماً لجميع المستويات والتخصصات التعليمية. ويعتبرها البعض نشاطاً صعباً ومهمة معقدة (Graham, Harris & Mason, 2005). ومع ذلك، فإنها تساعد على تحقيق الغرض الرئيسي من تعلم اللغة الانجليزية كلغة أجنبية. إنها وسيلة للطلاب للتفكير في المعرفة التي يمتلكونها والتفاعل مع العالم الخارجي. يستخدم الطلاب الكتابة أكثر هذه الأيام بطريقه لا اراديه من ذي قبل في إرسال رسائل نصية إلى أصدقائهم أو معلمهم عبر رسائل البريد الإلكتروني أو رسائل تطبيق الواتس اب (Camp, 2014).

تكن صعوبة أنشطة الكتابة من العديد من الأسباب المتعلقة بطبيعة عملية الكتابة نفسها، أو الطلاب أنفسهم، أو من المعلمين أو غيرهم من القائمين عليها. فيما يتعلق بطبيعة عملية الكتابة، لا يقتصر الأمر على إتقان مهارات القواعد النحوية والإملائية لتكون الكتابة صحيحة. ترتبط الكتابة بالمشاعر والعواطف والتعبير عن الذات؛ ومع ذلك، لا يراها الطلاب عادةً بهذه الطريقة. علاوة على ذلك، تؤكد العديد من الأبحاث عدم قدرة الطلاب على كتابة موضوعات مترابطة (Ghasmi, 2013; Meisuo, 2000). علاوة على ذلك، ينظر بعض المعلمين إلى الكتابة على أنها جزء غير مهم ويستغرق وقتاً طويلاً في تعلم اللغة الإنجليزية.

الكتابة هي عمل انعكاسي يهدف إلى توصيل الأفكار ونقلها. يتطلب نوعاً مختلفاً من العمليات العقلية مع مزيد من الوقت للتفكير في الموضوع وتخليق الأفكار وتدوينها ومراجعتها لتصحيح الأخطاء وتغيير الأفكار أو التعبيرات. ومن ثم، لتحقيق التواصل الناجح، يجب تشكيل وصلات كتابات الطلاب لمساعدتهم على

إخراج أفضل ما في أذهانهم بدقة ومهارة أكبر. هي عملية إبداعية وديناميكية قادرة على تذكر الأحداث والمشاعر بطرق مبتكرة وتفاعلية (Richardson 2003).

بناءً على ما ذكر ، فإن مفهوم تدريس الكتابة كأداء يختلف عن تدريسها كمهارة. حيث تشير الكتابة كمهارة إلى الجانب الميكانيكي أثناء الكتابة أما الأداء فيشير إلى عملية متعددة الأبعاد تستخدم للتواصل والتفكير والنقد ووضع السياق والتأمل والتخيل والتصميم. وفقاً لـ (ACTFL ، 2012) يشير الأداء إلى القدرة اللغوية التي تم ممارستها ضمن محتوى وسياقات مألوفة.

التفكير التصميمي هو مدخل لحل المشكلات ، والذي بدوره يساعد الطلاب على إيجاد بدائل واتخاذ قرارات أفضل في المستقبل. ربما يكون نهجاً تربوياً جديداً في سياقات اللغة الإنجليزية كلغة أجنبية. فهو يستخدم أساساً في عالم الأعمال ، ويتم استخدامه الآن في العملية التعليمية. التفكير التصميمي هو عملية إبداعية متعددة التخصصات لحل المشكلات تجمع بين التفكير التحليلي والتفكير الإبداعي والمهارات العملية (Vanda, 2011). إنه طريقة لحل المشكلات تعتمد على العمليات المعقدة والعقليات التي تساعد الناس على إيجاد حلول جديدة وابتكارية للمشكلات.

يركز التفكير التصميمي على الاستفسار وحل المشكلات والتخطيط والنماذج الأولية والتعاون والتغذية الراجعة. وصف Martin (2009) التفكير التصميمي بأنه طريقة تفكير توازن بين استكشاف المعرفة الجديدة واستخدام المعرفة الحالية. وفقاً لما ذكره (Pink, 2006) ، بأن القرن الحادي والعشرين سيتطلب طريقة مختلفة من المعرفة والوجود والعمل. سيتطلب هذا بالضرورة أن يكون الطلاب قادرين على استخدام الكتابة كأداة للتعبير عن الذات والتعبير عن الذات والتأمل والنقد واتخاذ القرار بشكل فعال.

التفكير التصميمي هو عملية يمكن استخدامها لتحسين أداء الكتابة داخل وخارج الفصل الدراسي. يمكن أن يستفيد أداء الكتابة كثيراً من تطبيق عمليات وتقنيات التفكير التصميمي، يمكن تشجيع الطلاب على التفكير في المشكلات ،

وتطوير فهم عميق للمستخدمين ، وإدراك قيمة مساهمات الآخرين (Dunne & Martin 2006). يمكن النظر إلى عملية الكتابة على أنها عملية تصميم ، حيث يكون الكتاب مصممين ويكون النص تصميمًا. (Maun & Myhill, 2005).

عندما يصبح الطلاب قادرين على توجيه المسار في تعلمهم ، فإنهم يطورون أيضًا من قدراتهم على إنجاز المهام (Absolum et al. ، 2009). من خلال عمليات وعقليات التفكير التصميمي ، يمكن للطلاب تطوير قدرات الثقة بالنفس والتوصل إلى أفكار ، واختبار الحلول (Razzouk & Shute, 2012). فمن خلال التفكير التصميمي يمكن للطلاب ان يصبحوا مواطنين يبتكرون حلولًا تحدث فرقًا في مجتمعاتهم الآن وفي المستقبل. وهذا بدوره يجعلهم يبدأون في رؤية أنفسهم كصناع تغيير.

هناك العديد من أوجه التشابه بين الكتابة والتفكير التصميمي تتعكس في تطبيق مراحلها من خلال عملية الكتابة: في مرحلة التعاطف ، يتعلم الطلاب التعاطف مع الموضوع المراد الكتابة عنه ، وخلق قيمة ، والبحث عن إجابات و حلول للقضايا (Osterwalder ، 2010). في مرحلة التعريف ، يتعلم الطلاب كتابة تعريفات متفائلة للمشكلات من خلال النظر إلى الجوانب الإيجابية للمشكلات. في مرحلة الأفكار ، يبدأ الطلاب في توليد الأفكار باستخدام العصف الذهني واختيار الأفكار الواعدة ؛ ثم يقومون برسم خريطة ذهنية للأفكار المختارة. في مرحلة النموذج الأولي ، يبدأ الطلاب في كتابة مقالاتهم مسترشدين بالخريطة الذهنية التي اعدوها مسبقا ، وفي مرحلة المراجعة ، يتوقع المعلمون من الطلاب مراجعة وتقييم مقالاتهم باستخدام قائمة مراجعة الكتابة ونماذج الكتابة المحددة. في المرحلة النهائية من الاختبار ، يتم تشجيع الطلاب على نشر كتاباتهم على لوحات الإعلانات المدرسية أو عبر منصة على الإنترنت. يسمح النشر والمشاركة للطلاب بتلقي تعليقات ذات مغزى على كتاباتهم من الجمهور الحقيقي ، وتنمية الثقة كمؤلفين ، وتعزيز التواصل الحقيقي من خلال بيئة تعاونية ، مما يؤدي إلى تحسين كتاباتهم (Glaser & Brunstein ، 2007؛ Johnson ، 2008).

هناك مداخل تقليدية تناولت الكتابة. هذه المداخل اثبتت فاعليتها وثبت أنها تساعد الطلاب على النجاح في كتاباتهم. ومع ذلك ، فهي غير صالحة لمواكبه طبيعه الكتابة اللازمه للقرن الحادي والعشرين. فقد اصبح من الضروري تغيير مفهوم الكتابة لتمكين الطلاب من النجاح في العالم الفعلي للقرن الحادي والعشرين. فطلاب القرن الحاي والعشرين يستخدمون الكتابة لاثبات نجاحهم فى الأوساط الأكاديمية والمهنية (Leverenz, 2014; Alrehaili, 2019). هناك حاجة لتقييم قدرات الطلاب في الكتابة باللغة الإنجليزية كلغة أجنبية بأساليب أكثر إفادة ودقة وفعالية. هنا يأتى دور التفكير التصميمى فى تعزيز قدرات طلاب اللغة الإنجليزية كلغة أجنبية على توصيل آرائهم واستخدام الموارد بطرق جديدة ، مما يمكنهم من ابتكار الأفكار والتغلب على عقبات الكتابة وحل المشكلات (Leverenz, 2014).

2- مشكله الدراسه

تعد الكتابة مشكلة للعديد من طلاب اللغة الإنجليزية كلغة أجنبية. يشير Rao (2007) إلى أن الطلاب يجدون أن الكتابة باللغة الإنجليزية مهمة صعبة لأن مراحل الكتابة تتطلب العديد من الاستراتيجيات المعرفية واللغوية التي لا يعرفها هؤلاء المتعلمون.

بالنسبة للسياق التعليمي المصري ، فيتم تشجيع الطلاب على الكتابة بدءاً من الصف الثالث عندما يُطلب منهم كتابة جملة تصف الصورة ويتم تطويرها حتى يُطلب منهم كتابة موضوع كامل في المرحلة الثانوية. ومع ذلك ، يتم تجاهل هذا الجزء دائماً ويعتمد الطلاب على قوالب كتابية جاهزة ، لذلك يعتبر هذا نوعاً من الحفظ. حيث يتم توجيه الطلاب نحو الحفظ والتعلم عن ظهر قلب (Loveluck, 2012) ، الكتابة كعملية إبداعية وعقلية تتطلب طرح الأسئلة والتفكير والتحليل والتفكير والتخيل مهمة في مدارسنا. ذكر Ahmed (2011) أن العديد من الطلاب في كلية التربية في مصر يجدون صعوبة في الكتابة باللغة الإنجليزية كلغة أجنبية ، وقد أفاد El-Den (2014) أن مقالات طلاب الصف الثاني الثانوي

تعكس كفاءة ضعيفة للأداء الكتابي في العديد من القدرات بما في ذلك تكامل ووحدة الفقرات والتكامل والتناسق للموضوع ككل.

معظم المدارس المصرية تقوم بتدريس الكتابه إما من خلال تبني مدخل المنتج او العمليات ، وقد انتقد (Yan, 2005)، مدخل المنتج لأنه يتجاهل العمليات الحقيقية التي يستخدمها الطلاب أو أي كاتب للكتابه ،لأنه يركز على التقليد مما قد يؤثر على دافعية الطلاب وتقديرهم لذاتهم نتيجة التصحيح المستمر للخطأ. من ناحية أخرى ، انتقد (Badger and White (2000) مدخل العملية لأنه يتعامل مع الكتابة على أنها نسقا واحدا بالنسبة لجميع الكتاب. ومع ذلك ، فهو مقبول ومستخدم على نطاق واسع.

هناك حاجة ملحة لتحسين الأداء الكتابي لطلاب الصف الأول الثانوي ليكونوا قادرين على مواجهة تحديات العصر الرقمي الذي يعيشون فيه. أوصى كلا من (Razzouk and Shute (2012) باختبار أثر التفكير التصميمي على مخرجات التعلم المختلفة بسبب قدرة التفكير التصميمي على دعم مجموعة متنوعة من المحتوى الأكاديمي متعدد التخصصات وتعزيز إبداع الطلاب وقدرات القرن الحادي والعشرين. حيث أن إحدى قدرات القرن الحادي والعشرين هي التواصل الفعال من خلال الكتابة على النحو الموصى به من قبل الباحثين مثل (Marback (2009)، (Leverenz (2014)، (Purdy (2014).

وفقاً لما تم ذكره سابقاً ، يتم تطوير أداء الكتابة عندما يحاول الطلاب إنشاء أفكار منظمة ، وتوسيع أفكارهم ، والتفكير في الكتابة ، وتصور ما هو الفكر ، والتفكير بأنفسهم ، والتعاون ، ومناقشة مشاكل الحياة الواقعية ، وربط تفكيرهم مع البيئة المحيطة ، واستخدام موارد مختلفة ، وتنشيط معارفهم السابقة ، واتخاذ قرار بشأن أفعالهم ، وتقبلهم لفكره الفشل. وبالتالي ،تقترح الباحثة استراتيجية التكرير التصميمي لتطوير الأداء الكتابي باللغه الانجليزيه لطلاب الصف الأول الثانوى.

• الدراره الاستطلاعيه

أجرت الباحثة دراسة استطلاعية في مدرسة البرج الثانوية بالخانكة. تم إجراء الدراسة الاستطلاعية على ثلاثين طالباً في المرحلة الثانوية. استندت الدراسة على إجراء اختباراً تشخيصياً للاداء الكتابي لتقف الباحثة على قدره الطلاب على الاداء الكتابي باللغه الانجليزيه وكذلك تضمن الاختبار صورة لمحاولة تصور وتخليق بعض الأفكار حولها . أثبتت النتائج أن معظم هؤلاء الطلاب يفتقرون إلى مكونات الاداء الكتابي الأساسية .

وقد كشفت نتائج الدراسة الاستطلاعية عن الآتي:

1- 20% من الطلاب قاموا بكتابه مقدمات جيدة ولكنهم افتقدوا القدره على إتقان مكونات الأداء الكتابي الاساسيه ؛ لم يقسموا كتاباتهم إلى فقرات ، عدم القده على الانتقال من فكره لآخرى، تمت كتابة الأفكار والجمل بشكل عشوائي دون تحضير ، وكانت هناك أخطاء في التوافق بين الفاعل والفعل ، والإشارة إلى الضمير ، وأزمنة الأفعال ، وحروف الجر. كانت معظم جملهم بسيطة دون استخدام للكلمات الانتقاليه.

• 60% من الطلاب لم يكتبوا مقدمة. و ارتكبوا الكثير من الأخطاء فيما يتعلق بالقواعد وعلامات الترقيم، لم يطوروا أفكارهم بشكل منطقي، و ارتكبوا العديد من الأخطاء الإملائية.

• 10% من الطلاب لم يفهموا الموضوع. وقاموا بكتابه أفكاراً بعيدة عن الموضوع. كتبوا تحتوى على العديد من الأخطاء في القواعد وعلامات الترقيم، واجهوا صعوبة في التعبير عن أفكارهم رغم أنهم درسوا القواعد لمدة ثماني سنوات.

• اعتمد 10% من الطلاب على مقدمة أو خاتمة محفوظه لا تتعلق بالموضوع. لم يطوروا أفكارهم. كتبوا أفكاراً سطحية دون استخدام التفصيل كذلك ارتكبوا أخطاء تتعلق بالقواعد وعلامات الترقيم وكتابة جمل واضحة وآليات الكتابة.

أما بخصوص الجزء الثاني من الاختبار (وصف الصورة):

تم إعطاء الطلاب صورة وطلب منهم وصف ما يمكنهم الاستدلال عليه من خلال الكتابة ، وتلخصت أهم النتائج في:

- 80% من الطلاب لم يتمكنوا من إقامة علاقات عميقة من الصورة. لم يستخدموا معرفتهم الخلفية لمعالجة المشكلة في الصورة.
- لم يكونوا قادرين على تكوين تصور ذهني للصورة وربطها بخلفياتهم المعرفية.
- ارتكبوا أخطاء كثيرة في القواعد النحوية.
- 20% لم يتمكنوا من توليد أفكار مختلفة حول الصورة.
- جميع الطلاب لم يقسموا كتاباته إلى فقرات تتناول أفكاراً كاملة. لم يحققوا التماسك أو التناسق في كتاباتهم.
- يمكن تلخيص أهم أوجه القصور في الآتي:
- أفكار وترابطات غير واضحة.
- عدم القدرة على التعبير عن المعنى الواضح.
- أفكار غير مكتملة.
- عدم القدرة على استخدام الأسماء والصفات والظروف.
- عدم التماسك والتناسق بين الأجزاء المختلفه للكتابة .
- عدم وجود أفكار كافية لدعم كتاباتهم.
- قلة المعرفة المتعلقة بالموضوع.

بناءً على ما سبق من نتائج الدراسة الاستطلاعية ، لوحظ أن الطلاب يفتقرون إلى المكونات الأساسية للأداء الكتابي باللغه الانجليزية ، وقد يكون ذلك بسبب القصور في بعض طرق التدريس التقليدية التي يستخدمها المعلمون. فبدلاً من استخدام الأساليب التقليدية في الكتابة ، يجب أن يكون هناك تحول نحو استراتيجيه جديده لتطوير المفاهيم الوصفية ، والتفكير ، والتصور ، والتفكير النقدي والإبداعي ، ومن هنا تنشأ الحاجة إلى الدراسة الحالية ، التي تتبنى استراتيجيه التفكير التصميمي لتطوير الأداء الكتابي لدى طلاب المرحلة الثانوية.

3- تحديد المشكله

طلاب الصف الأول الثانوى لديهم ضعفا واضحا في الأداء الكتابى باللغة الانجليزية. يمكن اعتبار الكتابة مهمة صعبة بالنسبه لهم. ويحتاجون إلى إتقان جيد للكتابة لكي تساعدهم على إكمال حياتهم الأكاديمية. تقترح الباحثة استخدام مدخل التفكير التصميمي لمساعدة الطلاب على تطوير أدائهم الكتابي.

4- أسئلة الدراسة

لمعالجة هذه المشكله ، سعت الدراسة الحالية إلى البحث لاجابة عن

الأسئلة التالية:

"كيف يمكن لمدخل التفكير التصميمي تطوير أداء الكتابة باللغة الإنجليزية كلغة أجنبية لطلاب المرحلة الثانوية؟"

في محاولة للإجابة على السؤال السابق ، لابد من الإجابة على

الأسئلة الفرعية التالية:

- 1) ما هو الوضع الراهن لمستوى أداء الكتابة لدى الطلاب المستهدفين؟
- 2) ما هي مؤشرات نجاح طلاب الصف الأول الثانوى فى الأداء الكتابى؟
- 3) ما هي مكونات الأداء اللغوى فى الكتابة المطلوبة لطلاب المرحلة الثانوية ؟
- 4) ما هي أنشطة ومكونات البرنامج المقترح القائم على مدخل التفكير التصميمي لتطوير الأداء اللغوى فى الكتابة باللغة الانجليزية لطلاب الصف الاول الثانوى ؟
- 5) ما فاعلية تطبيق البرنامج المقترح القائم على مدخل التفكير التصميمي في تطوير الأداء اللغوى فى الكتابة باللغة الانجليزية لطلاب الصف الاول الثانوى ؟

5- فروض الدراسة

تحاول الدراسة الحالية التحقق من الفرضيات التالية:

1- يوجد فرق ذو دلالة إحصائية بين متوسطى درجات الطلاب المشاركين في الدراسة في التطبيق القبلي والبعدي لاختبار الأداء اللغوى فى الكتابة باللغه الانجليزيه "كدرجه كليه" لصالح درجات الاختبار البعدي.

2- يوجد فرق ذو دلالة إحصائية بين متوسطى درجات الطلاب المشاركين في الدراسة في التطبيق القبلي والبعدي لاختبار الأداء اللغوى فى الكتابة باللغه الانجليزيه "مكونات فرعية" لصالح درجات الاختبار البعدي.

6- منهج البحث

لتحقيق هدف هذه الدراسة ، استخدمت الباحثة تصميمً المجموعه الواحده مع وجود اختبار قبلي وبعدي جنباً إلى جنب مع منهج البحث المختلط والذي يشتمل على التقييم الكمي والنوعي.

7- أدوات ومواد الدراسه

لتحقيق أهداف الدراسة ، تم تصميم الأدوات التالية:

- الاختبار القبلي / البعدي لتقييم الأداء الكتابي للطلاب باللغه الانجليزيه.
- نموذج تقييم أداء الكتابة.
- استبيان لقياس مدى رضا الطلاب عن البرنامج المقترح.
- البرنامج المقترح الذي يعتمد على استراتيجيه التفكير التصميمي.

8- حدود الدراسة

تقتصر هذه الدراسة على ما يلي:

- تقتصر الدراسة على طلاب الصف الأول الثانوى .
- المشاركون هم مجموعه واحدة من طلاب المرحلة الثانويه في مدرسة البرج

(عدد = 14)

- مدة التجربة 9 أسابيع (أربع جلسات أسبوعياً ، الجلسة 45 دقيقة ، إجمالي 3 ساعات أسبوعياً) باجمالي ساعات (27 ساعة).
- سيتم استخدام استراتيجية التعلم المدمج في بعض الأحيان للتفاعل مع الطلاب من خلال استخدام Whats App و Grammarly و Mi Mind Program .
- ستجتمع الباحثة مع الطلاب عبر الإنترنت لمدة ساعة واحدة كل أسبوع.
- السياق الذي سيتم من خلاله تقييم الطلاب هو الأداء الكتابي فقط .

9- أهمية الدراسة

هناك نقص في الدراسات المقدمة حول التفكير التصميمي كمنهج تعليمي في مجال اللغة الإنجليزية كلغة أجنبية. فقد تناولت دراسات تجريبية قليلة مزايا وفوائد تطبيق التفكير التصميمي في مختلف التخصصات ، ومن هذه المزايا: زيادة دافعيه الطلاب للمناقشة وحل المشكلات ، وتشجيع الطلاب على تخليق المزيد من الأفكار، وتشجيعهم على الابتكار والإبداع. على حد علم الباحثة، لم تنطرق أي دراسة تجريبية لمزايا استخدام التفكير التصميمي لتحسين الكتابة باللغة الإنجليزية كلغة أجنبية للطلاب في المرحلة الثانوية.

و تتبع أهمية الدراسة الحالية أيضًا من الاعتبارات التالية:

- بالنسبة لطلاب اللغة الإنجليزية كلغة أجنبية: تعمل الدراسة على تطوير أداء الكتابة لدى الطلاب.
- لمعلمي اللغة الإنجليزية كلغة أجنبية: قد تساعدهم نتائج الدراسة على تطوير أداء الكتابة لطلابهم.
- بالنسبة لمشرفي اللغة الإنجليزية كلغة أجنبية: يمكنهم استخدام نتائج الدراسة ونتائجها في خلق فرص التطوير المهني للمعلمين لتدريبهم على استخدام التفكير التصميمي في تدريس الكتابة.
- قد تساعد الدراسة معلمي اللغة الإنجليزية كلغة أجنبية على زيادة فرص التعاون والتعلم الموجه ذاتياً داخل الفصل الدراسي. قد يفتح الباب لاستخدام هذا المدخل في تدريس اللغة الإنجليزية كلغة أجنبية. علاوة على ذلك ، قد

تملاً الدراسة فجوة في الأدبيات ، فلا توجد دراسات محلية سابقة ، على حد علم الباحثه ، استخدمت التفكير التصميمي لتطوير أداء كتابة باللغة الإنجليزية كلغة أجنبية.

10- إجراءات الدراسة

تم البحث في ضوء الاجراءات التاليه:

- 1- مراجعه الأدبيات والدراسات السابقه المرتبطه ب:
 - الأداء الكتابي ومكوناته.
 - التفكير التصميمي ومراحله والعمليات المرتبطة به .
 - العلاقة بين الأداء الكتابي باللغه الانجليزيه كلغة أجنبية ومدخل التفكير التصميمي.
 - 2- إعداد قائمة بمكونات الأداء الكتابي باللغة الانجليزية كلغة أجنبيه المناسبة لطلاب الصف الأول الثانوى.
 - 3- تصميم الاختبار القبلى / البعدى لقياس قدرات الطلاب على الأداء الكتابي باللغة الانجليزية كلغه أجنبيه.
 - 4- تصميم برنامج لتطوير الأداء الكتابي للطلاب قائم على إستخدام مدخل التفكير التصميمي وشرح أهمية و خطوات لتفكير التصميمي.
 - 5- اختيار مجموعة عشوائيا من طلاب الصف الأول الثانوى لتكوين مجموعة البحث.
 - 6- تطبيق الاختبار القبلى على مجموعة البحث التى تم إختيارها.
 - 7- تطبيق البرنامج الذى تم اعداده على مجموعة الدراسة.
 - 8- تطبيق الاختبار البعدى فى نهايه الدراسه.
 - 9- المعالجة الاحصائية للنتائج التى تم الحصول عليها.
 - 10- تفسير ومناقشة النتائج كميًا وكيفيًا.
 - 11- وضع التوصيات والمقترحات لدراسات أخرى.
- ## 11- نتائج الدراسة

تم تحليل نتائج الطلاب في الاختبار القبلي والاختبار البعدي إحصائياً للتحقق من صحة الفروض وتوصلت الدراسة إلى النتائج التالية:

(1) يوجد فرق ذو دلالة إحصائية بين متوسطى درجات الطلاب المشاركين في الدراسة في التطبيق القبلي والبعدي لاختبار الأداء الكتابي باللغة الانجليزية "كدرجه كليه" لصالح درجات الاختبار البعدي.

(2) يوجد فرق ذو دلالة إحصائية بين متوسطى درجات الطلاب المشاركين في الدراسة في التطبيق القبلي والبعدي لاختبار الأداء الكتابي باللغة الانجليزية "كمكونات فرعية" لصالح درجات الاختبار البعدي.