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Learning history by composing synthesis texts: Effects of an instructional programme on learning, reading and writing processes, and text quality

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Abstract:

It's possible that reading and writing are two of the most effective ways to learn about a subject. The incorporation of these procedures into what are now commonly known as "hybrid activities" has been shown in earlier research to have significant educational benefits. Instead of reading first and then writing, these activities demand interaction between reading and writing on the part of the individual. These assignments' reader and writer roles can be utilized to show how they have epistemic potential. By adopting techniques that teach students to analyze and synthesize texts, the current study aimed to encourage text-based learning. To do this, students were instructed to finish the two of the duties that were specified above. Such writings demand interaction between reading and writing with a purpose in mind, and in order to be digested, this interaction must take place. There were 62 students who took part in the study during the sixth grade. Of those students, 33 were given roles in the experimental group, while 29 were given roles in the control group. The results of an experiment-l program were analyzed by employing a pretest-

posttest design with a control group in order to evaluate (a) the amount of learning that was reached, (b) the quality of the written texts that were produced, and (c) the synthesis text-processing activities (in a sub- sample of 32 participants). The experimental group was given instruction in the techniques required in writing a synthesis using two expository texts about the narrative via a strategy-oriented software. In contrast, the control group worked on the same material using the more conventional assignments in their normal text book. Both groups were given the same amount of time to complete their work. The students were provided with two separate pieces of expository writing on the topic as part of the curriculum so that they could learn how to put together a synthesis. According to the results of the study, the experimental group fared significantly better than the control group on a test of deep learning content processing. Additionally, the experimental group created better written sentences and demonstrated habits of processing material in a more complicated manner.

Keywords: Synthesis text; text quality; writing processes; reading processes; strategy training.

1. Introduction

Students nowadays may easily access a wide range of information drawn from several sources, the majority of which frequently provide information that is in conflict with one another. To handle this flood of fresh information, students must develop their critical thinking skills. Teaching pupils to start, lead, and make decisions on their own in order to reach one's own self-determined learning objective is one of the most difficult problems confronting education today (Goldman, 1997; Martn & Moreno, 2008; Mateos, 2001; Swartz, Costa, Beyer, Reagan, & Kallick, 2008). One of the biggest problems in the realm of education right now is this.

Specific learning techniques, like reading and writing, have the ability to promote critical thinking when used within this framework. Due to their significance from an epistemological standpoint, these acts have the potential to alter knowledge (Bereiter & Scardamalia, 1987; Olson, 1994). Metacognitive control—reflection on the current process—directs and regulates this information transformation. However, research at various academic levels has shown that reading and writing are frequently used primarily

for the purpose of reproducing knowledge (Castelló, 1999; Goldman, 1997; Langer & Applebee, 1987; Mateos, Villalón, de Dios, & Martn, 2007; Solé et al., 2005; Mateos et al., 2005; Mateos, Villalón, de Dios, & Martn, 2007; Solé

As stated by The three acts of reading, writing, and research together offer a greater chance for additional epistemic development (Moran & Billen, 2014; Tierney & Shanahan, 1996; Tynjala, 2001). Jobs requiring both reading and writing are referred to as "hybrid" vocations by Spivey (1997) because they necessitate intricate interaction between the duties of reader and writer rather than sequential reading followed by sequential writing. This is due to the complex interactions between the duties of the reader and writer that hybrid vocations need. According to Anmarkrud, Brten, and Strms (2014), Langer and Flihan (2000), O'Hara, Taylor, Newman, and Sellen, as well as other authors, an internal discussion is crucial. (2002). Students are able to achieve their full academic potential since they alternate between reading and writing in these kinds of tasks. This type of internal debate is present in both outstanding writing and enjoyable reading (Morrow, 1997). (Klein, 2014). The mental dialogue between the reader and writer roles usually starts in a way that is quite natural while working on a task that requires reading in order to be finished. Contrarily, not all hybrid activities result in the same levels of complexity in corporate learning and operations. As a result, integrating information from several sources requires more mental effort than, say, summarizing information from a single document. It is possible to make the process of creating a basic summary of a single textual item significantly easier by using a "knowledge-telling method." Prior to putting together a synthesis, it is important to compare, arrange, and order the concepts taken from the many source materials around a main topic. The creation of a unique, original work requires the fusion of this information with knowledge that has already been obtained. To create a synthesis from a range of source texts, this is done (Mateos et al., 2014; Segev-Miller, 2004). Additionally, Spivey (1997) claims that the three interrelated subprocesses of choosing, organizing, and connecting are what contribute to a synthesis work's epistemic potential. These supporting procedures, which are cyclical in nature and geared toward accomplishing a certain goal, can be led and governed by the learner. During the selection process, the students assess the content of the sources and, based on their assessments, choose the ideas they think are most important to incorporate in their own work. The way

the students organize their material is by looking for hints in the sources that will help them link the ideas. When people write their ideas down, they create their own categories as well as previously unidentified clusters of ideas and logical sequences. They may change the content as a result of connecting the various information tidbits they have learned from the source texts with one another and with knowledge they already know. They build connections between the numerous facts they have learned from the source texts at this level by connecting them to one another. Three main high-level steps must be carried out while composing a synthesis text based on several sources: The reader must compare, contrast, and abstract the presented information in order to: (1) read the sources integratively, which necessitates switching between texts and developing semantic relationships between them; (2) constantly switch between the source texts and the developing synthesis while writing the written text; and (3) compare, contrast, and abstract the information presented. The results of Flower et al. (1990) show that a simplified representation aids students in choosing certain material and including it in their work in a way that is consistent with the logic of the sources. In other words, this kind of representation is advantageous to pupils. They do not seek to use a special framework to incorporate ideas that originate from many sources. A excellent example of this diminished task representation may be seen in the works that were directly generated as a result of it. There are two distinct categories of low-quality works, according to Mateos and Solé (2009): those that juxtapose summaries of the sources and single texts that switch between many sources without integrating the topics offered in each source. The great majority of studies on these synthesis techniques have focused on students as their subjects (Flower et al., 1990; Gil, Brten, Vidal-Abarca, & Strms, 2010; Mateos). Fewer parents have children in lower grades (Lenski & Johns, 1997; Spivey & King, 1989). The results of all of these research show that large numbers of students at all levels find synthesis exercises difficult. The results of a 1989 study by Spivey and King show that more experienced reader-writers are more prepared before writing, think through what they will say and how they will say it, and spend more time creating a synthesis. These results are the result of study that was done with sixth-graders, eighth-graders, and tenth-graders, respectively. Conversely, students in lower grades don't make plans and devote less time to their work. They have less accountability, which explains this. When six eighth-graders were asked to write a report using the materials for a multiple case study, Lenski and Johns looked at the reading-

to-writing strategies they used (1997). No matter how the material was given in the study—sequentially, spiraling, or recursively—reading and writing happened later in the process. Depending on the order in which the treatments were applied, these patterns were influenced in various ways (Lenski & Johns, 1997, p. 25). The great majority of research participants followed a spiral pattern that can be summed up as "search-read-write," and they kept doing so until the intended outcome was achieved. One out of the six trial participants showed no symptoms that may be linked to a repeated pattern. Others didn't, though. The authors also discovered that the only person who generated an integrated synthesis was the one who displayed a recursive pattern, in contrast to the spiral-based synthesises, which were essentially copies or paraphrases of the original texts. This was true since this person's integrated synthesis was the only one that was created. Only this one individual was capable of creating an integrated synthesis. With a total of nine 15-year-olds in their sample, Mateos, Martn, Villalón, and Luna (2008) conducted their investigation and came to very similar conclusions. Only one of the nine articles made sense; the other eight either verbatim copied the content or paraphrased it, and only a small portion of the key points raised in the sources were covered in the articles. When all nine pieces were combined, just one made sense. Participants also tended to blend data from different sources sparingly or combine data from many sources into a single source. The most typical kind of integration was this one. The following describes one of the most often used uses of the participants' data. Before proceeding to the next phase, they went over the text they had completed up to this point and made a few changes. Even when they did make changes, they never in any way organized what they had written. The vast majority of students failed to keep any drafts of their assignments or any notes for their study. The students that displayed a pattern of reading and writing activities that was a little more flexible and recursive, according to the findings of the study that Mateos and her colleagues conducted, were the ones who produced the most successful syntheses. This demonstrates that the subprocess activation does not occur in a random manner, but rather adheres to some kind of internal order. The subprocess demonstrates that random processes are not followed. The degree of success that will be attained with the text and the order in which the process' steps are completed are clearly correlated (Flower et al., 1990; Rijlaarsdam & van den Bergh, 1996; 2006). It would seem that adopting synthesis writing that draws from a variety of sources and adhering to a cyclical pattern of actions directed and controlled by

metacognition are two ways to achieve great knowledge acquisition. One might effectively broaden their knowledge base in this way.

The study on how to build a synthesis didn't assess how much was learned about the subject; instead, it made assumptions about how much was learned about the material based on the techniques used and the caliber of the texts produced. On the other hand, in a recent research by Solé, Miras, Castells, Espino, and Minguela with children aged 15, the level of learning was added as a final measure. This study was conducted in Spain (2013). In order to assess the participants' capacity to (1) retrieve information from the sources, which corresponds to low-level learning, and (2) interpret and integrate ideas from the sources (one or more texts), which corresponds to high-level learning, they used a test that was created to gauge the participants' level of content reading comprehension. These two skills are correlated with various learning levels. The written synthesis texts' degree of structure, along with the texts' selection, elaboration, and integration, were all elements that were considered and graded (including coherence and cohesion). Both a linear and recursive dimension as well as a direct and mediated dimension were used to examine the processes. Additionally, direct and mediated dimensions were used. Following a planned sequence of tasks and using a variety of activity orders that were based on the demands of the work are two examples of what are considered to be within the "dimension of linear/recursive" in the context of the linear/recursive dimension. Based on whether certain tasks, such revising or drafting a rough draft to create the final synthesis, are completed, it is possible to distinguish between the direct and the mediated components. These tasks have to be finished in order to build the final synthesis. This study demonstrated a relationship between learning performance, text quality, and activity patterns generated from individual audio-video registrations made during the task completion. The parameters that affected the caliber of the final text and the learner's level of accomplishment were the degree of mediation and recursion in the process, as well as the volume of mediation that occurred.

The study's findings imply that individuals with a variety of intrinsic talents encounter challenges in their academic endeavors. This has been demonstrated to be true. They encounter problems and are unable to adequately carry out either of those tasks when they attempt to engage these processes in a recursive manner or when they attempt to synthesize information employing the complex mechanisms required in doing so. One way to

overcome these challenges is to start assisting with reading and writing teaching at the youngest possible grade level, with the main goal of fostering knowledge integration. In the event that this occurs, they could be able to translate information more quickly.

The effectiveness of interventions designed to help students enrolled in higher levels of education acquire the abilities necessary to build syntheses has only been the subject of a small number of research. Boscolo, Arfé, and Quarisa devised and assessed their intervention in 2007, which involved using academics to revise the synthesis papers that undergraduate students had produced. Researchers Boscolo, Arfé, and Quarisa were responsible for this study. The participants' ability to synthesize, according to the authors, was strengthened by both the intervention itself and their active participation in it—discussing the various instances and thinking back on their own experiences. In other words, the authors think that the intervention improved the participants' capacity for synthesizing. Despite the absence of a control group, the authors of this study assert that the intervention and the participants' active participation in it increased their ability to synthesize. Similar to this, Segev-Miller (2004) focused on educating university students on the crucial techniques that would help them with their synthesis (presentation and explanation, demonstration, and practice). She assigned them the responsibilities of creating process logs of the execution of two distinct synthesis tasks, contrasting the processes and results of the two logs, and creating process logs for the two various synthesis tasks. Segev-Miller came to the conclusion that the post-intervention synthesis had significantly improved based on the results of the content analysis that was carried out on both the process log and the products. The findings led to the conclusion that was made.

Only a small number of intervention studies have been conducted thus far. Kirkpatrick and Klein (2009) gave students instructions on how to construct their writings in a compare-and-contrast format before they began writing their own texts. This was done so that the structure of compare-and-contrast texts would be more clear to the pupils. They were mostly concentrating on the sixth and seventh graders. These authors claim that as a result of the intervention, the quality of the texts that were created was enhanced both in terms of their general quality and their structural quality. By combining a variety of instructional methodologies, Wray and Lewis (1997) created an intervention for teaching upper primary school kids how to read and write information texts. By instructing students on how to read

and write information texts, this intervention was able to meet its aim of achieving strategic learning of reading and writing as learning tools. The intervention's main goal was to teach pupils how to read and write a variety of instructive texts. The curriculum was assessed using a variety of methods, and the results were generally encouraging; students used explanatory texts effectively to understand the subject matter.

The outcomes of several interventions that were intended to improve the fluid integration of reading and writing in order to acquire knowledge reveal the benefits of encouraging young people to study strategically. On the other hand, the reported therapies haven't really addressed the implications of the knowledge that was taught, focusing more on how to make reading and writing better as learning tools. We believe that reading and writing should be taught within the context of domain-specific learning tasks in order to give students the chance to experience reading and writing as a means of supporting the learning of particular subject matter and promoting the learning that occurs within the respective domains. This will provide students the chance to see how reading and writing may help their understanding of particular subject matter and advance their learning within their individual areas (Bazerman, 1992; Bean, 2000; Vacca & Vacca, 1996). The learning of reading and writing is approached holistically in this study, with a focus on synthesis processes, products, and content-based instruction.

The students who take part in our Strategies for Writing Syntheses to Learn (SWSL) program will learn how to effectively employ the abilities they have already attained in the fifth and final year of elementary school. The two methods of reading and writing may be applied to the goal of learning about a number of topics. One of the course's main objectives is the integration of the many techniques needed to create a synthesis work that is based on a variety of source sources. The technique is based on the integrated use of both of those tactics in addition to strategy training in reading and writing, claim Graham and Harris (2005), Graham, Harris, and McKeown (2013), Mateos (2001), Sánchez, Garca, and Rosales (2010), Torrance, Fidalgo, and Garca (2007), and Zimmerman. Mateos and (Wray & Lewis, 1997; Raphael & Englert, 1990).

The main goal of the SWSL curriculum is for students to develop their reading and writing abilities by choosing, extending, linking, and integrating content from a range of

books in order to have a thorough comprehension of the issues that are covered in each book. As a direct result, in order to create the intervention, we were compelled to modify concepts from earlier studies on reading and writing abilities. The final product was a curriculum with instructions for the four main reading-writing activities and a strategy-focused teaching method. In this context, the program constitutes a whole new area of study within the study of instructional approaches. The main goal of this study was to assess how the SWSL program affected three crucial areas: (1) the depth of information obtained about a topic; (2) the caliber of the writing produced; and (3) the organization of reading and writing assignments.

2. Method

2.1 Design

A quasi-experimental design with a pre-test, a post-test, and a control group was created in order to conduct research on the subjects that are the focus of our investigation. In this study, the educational program served as the independent variable since it was designed to help students develop their epistemic reading and writing processes. It has two distinct levels of implementation, either yes or no. The study that was done looked into both of these levels. The dependent variables for this study were the results of the participants' topic learning, their task-process patterns, including the reading and writing assignments they were assigned, and the caliber of their syntheses. We looked at prior historical knowledge as well as reading comprehension to assess the initial differences between groups that were allocated to different conditions on important parameters and to be able to test for generalization of the effects across learner characteristics. As a result, we were able to assess the early variations between the groups that were allocated to diverse circumstances. This allowed us to analyze any early differences that appeared across groups that were exposed to various circumstances.

2.2 Participants

62 students in the sixth grade who attended elementary schools participated in the research. Four classes made comprised each of the experimental and control groups, with two full classes coming from each of the two schools. Classes were divided into the

experimental and control groups at random. There were 33 volunteers in the group conducting the experiment, compared to 29 in the control group. Each of the 58 kids was 10 years and 8 months old on average. There was a total of 28 men and 34 women present.

A subsample of 32 people allowed us to get information on the students' thought processes as well. Two groups of eight students each were formed from the entire sample, and on the two pre-test components of prior knowledge and reading comprehension, 16 students from each group performed badly while 16 students from each group performed well. Students who did well on the test were assigned to the experimental group, while those who did badly were placed in the control group (the same number of students from each school). Only the students who were part of the subsample actually completed individual assessments before and after the treatments, despite the fact that every student in the class participated in the interventions.

Participants in the study received no compensation or benefits in exchange for taking part in the study. We made the choice to enroll our kids there because of their accessibility to our houses. There was absolutely no proof that the research participants were following any criterion.

2.3 Instruments and materials

2.3.1 Intervention programmed

There are twelve sessions in the program, each of which lasts for 60 minutes and occurs three times a week. Each of the three portions that made up these sessions had four different lessons. One learning topic, two source texts, and one synthesis task made up the bulk of each part.

These educational institutions' regular history curricula served as the basis for the courses, which focused on issues including the Industrial Revolution, capitalism, and rural and urban life in the 19th century. Table 1 lists the key elements of the intervention program in order of importance. For each of the three different types of learning activities that were part of the experimental program, the same five techniques of instruction were used. These techniques included highlighting key ideas from the original writings, adding details, rearranging the text, merging old and new content, and incorporating information from both

of the original works' sources. Both integrated and recursive teaching tactics were used to transmit the strategies. We only went over previously covered material when it was absolutely necessary; otherwise, both sets of information were provided at the same time. The techniques were taught through a variety of instructional approaches, including: (1) instructor modeling; (2) collaborative activities; (3) guided activities; (4) individual student activities; and (5) the assistance of a printed guide, according to the study's findings (Wray and Lewis, 1997). (For further details, see Table 1.) This has been demonstrated and tested in research that, for the most part, focuses on self-regulation and is strategy-oriented (Fidalgo, Garca, Torrance, & Robledo, 2009; Graham & Harris, 2005; Graham, Harris, & McKeown, 2013; Zimmerman, 2000). The idea was to progressively give the students greater decision-making authority rather than the teacher. The creation of a written guide that was intended to help with the procedure was one of the most crucial components of this program and a direct result of the earlier work done by Gárate and Melero (2004). This software is made to benefit kids both now and, in the future, when they will be able to complete tasks on their own and without adult supervision. We work together with the kids to create a road map for them that has each step presented as a question. The students feel more in charge of their own learning process as a result, which strengthens their sense of empowerment. What direction do we want this to take? What for? and other such questions and sentences may be found throughout this book. What other situations does this take place in? These are instances of questions that are more explicitly along the lines of, "How can I build a map or scheme linking the themes in the texts?" It is important to stress that the directions in the manual are not intended to be followed in the precise sequence that they are given at any particular moment. This handbook wouldn't be given to the students all at once; instead, it would gradually cover each level over the course of the sessions before being put together into a manual at the end. It was initially planned to present it to the pupils all at once. After that, the synthesis exercises gave students the chance to apply this knowledge and use it as a resource.

The initial training phase placed a lot of emphasis on modeling as well as learning from scenarios that were seen and imitated. The lecturer led the students through each stage of the crucial processes in the right sequence throughout these sessions. In order to promote group learning and writing during the second period, students spent the entire time with the

lecturer in groups of four. During the third and last session of the block, students finally worked independently under the guidance of the instructor and the printed guide.

The educational program provided by SWSL, including its goals, tactics, class schedule, social organization, and curriculum, is succinctly summarized in Table 1.

General aim	Specific aims	Strategies and techniques	Session, social organisation and material
To perform a first synthesis task composing a text based on two expository source texts --through researcher modelling of the processes employed	To perform a first synthesis task --composing a text based on two expository source texts --through researcher modelling of the processes employed	Joint reflection Negotiation of aims Modelling Guided collaborative activity Guided questions	Sessions 1-4 Whole class Pair of texts about the industrial revolution
To perform a second synthesis task in which the students have a little more autonomy than in the previous one through group	Prior knowledge activation Global/local comprehension of texts Selection of main ideas Link between prior knowledge and text information	Guided collaborative activity in small groups and with the whole class Joint reflection with whole	Sessions 5-8 Whole class and small groups (4 students) Pair of texts about social
work	Organisation of ideas from texts Elaboration of the information from texts linked to prior knowledge and aims Integration of prior knowledge with new knowledge Integration of the information within and between the two texts Writing of final text	Class Individual activity	and political organisation under capitalism
To perform a third synthesis task in which the students do the activities	Prior knowledge activation Global/local comprehension of texts Selection of main ideas Link between prior knowledge and text	Guided individual activity Joint reflection with whole class	Sessions 9-12 Whole class and individual Pair of texts about rural

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individually, with aids	information Organisation of ideas from texts Elaboration of the information from texts linked to prior knowledge and aims Integration of prior knowledge with new knowledge Integration of the information within and between the two texts Writing of final text Elaboration of a written guide of the process		and urban life in the 19th century

2.3.2. Assessment of reading comprehension

IDEA, or "Instituto de Evaluación y Asesoramiento Educativo," was responsible for developing and endorsing the reading comprehension test that was used to determine reading scores (González Nieto, 2002). This test was meant to gauge how effectively the pupils had comprehended the material. The test's dependability score was 0.60 and it was made up of multiple-choice questions. There were a total of 35 questions. A variety of readings, including a tale, an explanatory text, an instructive text, and a newspaper piece, were provided to the pupils. After reading through each chapter, the participants were given tasks to complete that addressed text structures, general understanding, language issues, and comprehension strategies.

2.3.3 Evaluation of the educational material

The three separate synthesis activities' respective discussion topics, which have not yet been raised by the instructor of the class group leading the class group at this moment, are not yet known. The degree to which the students had understood the historical concepts offered throughout the study project, in addition to those presented both before and after the program's launch, was assessed using a test that was developed (Martnez, 2012). This directly led to the use of the same tool throughout the whole operation to achieve two distinct objectives that were wholly unrelated to one another. Using the test that was administered before to the start of the intervention, we were able to assess the students' prior knowledge on each of the areas that would be covered throughout the intervention.

Prior to the start of the intervention, this test was given. As a result, we were able to establish whether or not there were any notable variations in the situations. Second, the amount of learning that the participants obtained as well as the degree of success that the intervention had in respect to this particular area were evaluated using the scores that the participants earned on a test of their prior knowledge. The goods included all three of the components, each of which was a component of a professionally created instructional program with a historical theme. There were a total of 17 questions on the test where students had to decide whether or not a specific proposition that was given to them was true. In addition, there were five questions that asked students to complete incomplete phrases by choosing the proper second half of a phrase after being provided the first half of the phrase. To aid the pupils in this identifying process, the first half of a sentence was presented to them. None of the weights varied even little from one another (1 point for a correct answer). This survey's test-retest reliability index scored 0.62, indicating that it satisfied the standards for being considered excellent.

This exam was created to allow for the simultaneous evaluation of two distinct learning and comprehension phases. It simultaneously embraced previous paradigms that prioritized understanding and learning from a single book in addition to a variety of readings. In other words, it gave the one book precedence over the other reads (Kintsch, 1998). (Perfetti et al., 1999). The students were tasked with determining whether or not the concept under discussion could be inferred from the details provided in the texts they had read for each specific case. One the one hand, the reader was not expected to make any form of inference from what was being said because six of the statements were just paraphrases of concepts that were offered in specific publications (low-level learning). One of the comments, for instance, discussed whether or not the working class benefited from the capitalist system. This data was taken directly from the source material, which was a single paragraph. However, sixteen of the questions (true/false questions like "the steam engine had an influence on both the industrial and the transport sector.") needed in-depth knowledge since they required drawing inferences from the material in the book or combining facts from other sources. In this instance, one source described how the steam engine affected industry, while the second source focused on how the steam engine affected the transportation business. You were made aware of both of these effects by the

sources. When a specific student has come to the conclusion that although the true claims cannot be inferred from the texts, the correct assertions cannot be obtained from the texts, the suitable replies are provided as a result. When a student thinks that the texts can be used to deduce the facts, this is what happens. Two certified experts independently assessed the items that were included in each examination category, allowing the categorization of the test items to be verified. Pre-test reliability indices for these portions of the questionnaire were 0.60 and 0.70 for low and high levels of dependability, respectively, while post-test reliability indices for those levels were 0.58 and 0.62. (during the posttest).

2.3.4 Tests and assignments for synthesis texts

Only two of the five separate synthesis papers that the students were required to submit could be used for the tests. The intervention was to be conducted using the other three publications. Each of these inquiries got off to a different start using a mix of primary and secondary sources. I concurred with the students' teachers that the data from the five book pairings ought to be connected to various sections of a specific teaching module on contemporary history that hadn't yet been taught in the classroom. Nothing like this has ever been done before. Before enabling the students to pick their readings from a broad variety of textbooks produced by a number of different publishers, it was crucial to ensure that they had a firm knowledge of the structure of the books as well as the level of difficulty that they posed. This was done to make sure the children could choose acceptable readings from the selections given. The participants' regular teachers assessed the sources' degree of difficulty and decided that the texts were appropriate for their pupils to read based on their findings.

In addition to the material provided in the other collections, each collection of papers included information on a number of historical topics. They were equally separated from one another by the same amount of space (with a mean of 256 words, ranging from 235 to 280). To choose which of these five people would be utilized for testing and which for the intervention, we adopted a technique of selection based on randomization. The person receiving the therapy would be the test subject.

2.4 Exercise

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Sessions	Experimental group	Control group	Topic
Session 1	Reading comprehension and Previous Knowledge tests	Reading comprehension and Previous Knowledge tests	Liberalism and Absolutism (Political systems)
Session 2*	Performance of the pre-test synthesis task individually without any help	Performance of the pre-test synthesis task individually without any help	Liberalism and Absolutism (Political Systems)
Sessions 3-6	Performance of the first synthesis task through the strategies of modeling and observational learning	Work with texts and activities from the textbook (conventional Method Performance of the	Industrial and Agricultural Revolution

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		first synthesis task individually and without help	
Sessions 7-10	Performance of the second synthesis task through the strategy of collaborative writing with instructor support	Work with texts and activities from the textbook (conventional Method Performance of the second synthesis task individually and without help	Capitalism
Sessions 11-14	Performance of the third synthesis task through the strategies of individual practice supported by the instructor and the written guide	Work with texts and activities from the textbook (conventional method) Performance of the third synthesis task individually and without help	Urban and rural lifestyle in 19th century
Session 15*	Performance of the post-test synthesis task individually without any help. Topic knowledge test	Performance of the post-test synthesis task individually without any help. Topic knowledge test	Liberalism and Absolutism (social life)

* To use the subsample in the recordings they created, Sessions 2 and 15 each developed their own unique movies of it.

Both participant groups in the study read the same kinds of books, concentrated on the same kinds of historical subjects, and worked on the same kinds of synthesis projects throughout the three stages of the study, which occur before, during, and after the intervention. This should be pretty obvious to everyone (traditional or SWSL). The experimental group approached the tasks for the three synthesis activities in the instructional units in a variety of ways (modeling, collaborative activity, written guide support, etc.), whereas the control group, who had previously learned the themes through the conventional method, wrote the tasks for the three synthesis activities independently and without assistance.

2.4.1 The process for assessing the value of education in a certain field

Calculations were used to establish the two scores for the two most significant aspects of the learning (high- and low-level learning). Abad, Olea, Ponsoda, and Garca (2011) claim that these scores were determined by first adding up all of the points for exam questions that were properly answered, and then deducting those questions from the final weighted score.

Products

We examined the pre-synthesis texts and the post-synthesis texts with relation to selection, elaboration, intra-textual integration, intertextual integration, and title complexity in light of the work that we had already completed (Martnez, Martn, & Mateos, 2011; Mateos et al., 2008; Mateos). These criteria acted as pertinent elements that were taken into account while calculating an overall score, which was based on that score. & Solé, 2009). The evaluation of the kids on the aforementioned factors was done by two trained experts, neither of whom were aware of the circumstances surrounding the students. The complexity level of the components ranges from simple to difficult (see Table 3).

The numerous levels of excellence that may be given to each of the five textual variables are summarized in Table 3, which is available right now.

Selection	Does not select Includes important and unimportant ideas Includes all or most important ideas, but also unimportant and repeated ideas Includes all the important ideas and none, or only one, unimportant or repeated idea
Elaboration	Copies Copies and paraphrases Copies, paraphrases and some unimportant elaboration Copies, paraphrases and some important elaboration
Intratextual integration	List of unconnected ideas List of ideas with connectors copied from the source texts At least one attempt at connection Connected ideas
Intertextual integration	Two separate texts Two juxtaposed summaries Integration of both texts with one idea Integration of several ideas from both texts
Title	No title or summary Copied title Sum of titles Integration of titles with new information added

In order to determine whether or not the collection of criteria was referring to a singular idea—more particularly, the quality of the synthesis as a whole—we carried out a reliability test. This

allowed us to check that the set of criteria was, in fact, referring to this idea (Cronbach, 1951). The alpha values for the task completed before the intervention were 0.60, whereas the alpha values for the work completed after the intervention were 0.89. We opted to compute the average mean of the scores on all five criteria rather than separately calculating them since there was a significant and positive relationship between each criterion. This was done because the scores on each criterion were positively correlated with one another. Our decision was affected as a direct result of this.

The two raters used the overall quality criterion that was supplied to provide a score to each of the 124 pieces of synthesis writing that were included in both the pre-test and the post-test. This score was based on the criteria that was provided. The value of the kappa index was.70 for the pre-intervention task, while the value was for the post-intervention task; both values were high and significant (p.05). 71.

The participation of the youngsters in a wide array of cognitive activities

We created a visual pattern recording of each action, complete with start and end times, in order to code the events that were caught on the audio-video recordings. These recordings were used to retrieve the events (for more information regarding the technique, see section 2.4). In addition to this, we go at the written work and references that each individual student has prepared. The classification method was developed using the findings of other studies (Mateos and Solé, 2009; Solé, Miras, and Gràcia, 2005; Solé et al., 2013); for further information, see Table 4.

Table 4 provides a categorization scheme for the different extracurricular activities that the students participate in outside of the classroom.

Category

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Reads source text (source text 1, 2 or both)
Reads and underlines source text (source text 1, 2 or both)
Reads and takes notes on source text (source text 1, 2 or both)
Refers to synthesis guidelines/material
Makes rough draft while referring to source text (source text 1, 2 or both)
Writes final text while referring to source texts (source text 1, 2 or both)
Writes final text while referring to rough draft
Revises rough draft and makes changes
Revises final text without making any changes
Revises final text and makes changes
Writes final text without referring to source texts or rough draft
Makes rough draft without referring to source texts

The visual representations of two of the graphic patterns that illustrate the techniques that we created may be found in Figures 1 and 2, respectively. The above statement provides an illustration of these patterns. Figure 1 displays a range of colors and patterns that were used to depict the various behaviors that were seen while the participants were engaged in the exercise. These behaviors were observed while the participants were carrying out the activity.

	Reads		Reads and underlines source text
	Reads and takes notes on source text		Refers to synthesis guidelines/material
	Makes rough draft while referring to source text		Writes final text while referring to source text
	Writes final text while referring to rough draft		Revise final text without making any changes
	Revises rough draft and make changes		Revises final text and makes changes
	Makes rough draft without referring to source texts		Writes final text without referring to source texts or rough draft

Figure 1. a description of the method in which the reading and writing tasks for each case were illustrated in their respective reading and writing formats.

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On display in Figure 2 is a protocol explanation of the pre- and post-tasks that a participant in the control group was required to complete. This description can be found in the figure itself. This participant followed the same pattern throughout all of the tasks; however, in order to complete the post-test, they needed five more minutes in addition to the time it took them to complete the pre-test. Figure 3, which may be located at this location, depicts the progression that a subject makes during an experiment. Both the pre-tasks and the post-tasks are extremely distinct from one another in this regard. The participant went through the process of studying the strategy guide several times, taking notes on the source materials, reviewing those materials at various stages throughout the process, and amending their answers both before and after the examination. In addition to that, in comparison to the time they spent on the pre-test, they spent a significant amount of time on the post-test.

Figure 2. Graphic of a control group participant on the pre and post tasks.

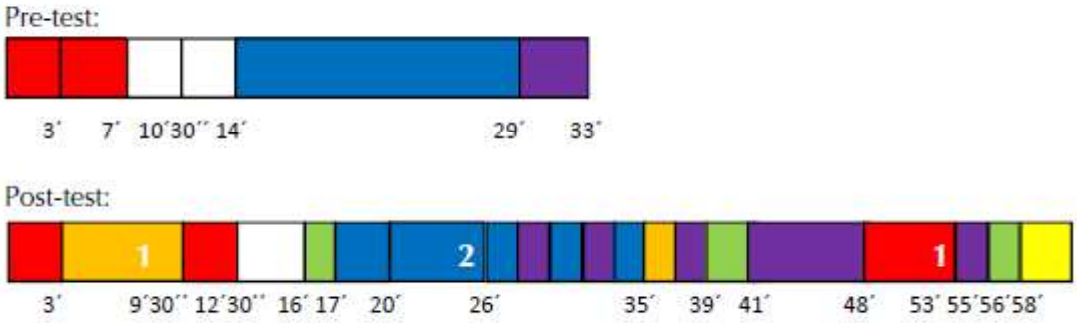

Figure 3. Graphic pattern of one experimental group participant on the pre and post tasks.

We were able to derive two indicators from these visual patterns, which in turn enabled us to conduct an analysis of the many different process components that the students utilized in order to complete the task. The students' use of these process components was necessary for them to be successful in completing the task.

1. The length of time that is allocated to the completion of the project by each individual student, and 2. The range of reading, writing, and editing tasks that are required.

In addition, we were able to corroborate the existence of three more factors, which is in line with the findings of earlier research (Martnez et al., 2012; Solé et al., 2013). (For further information, see footnote 5 in the table.)

Twenty percent of the operations, which was the total number of surgeries, were rated by two specialists who were unaware of the student's condition. The results obtained for the Cohen's kappa index were broken down as follows: 0.76 for the interactions between the student's text and the source texts; 0.80 for the review variable; and 0.84 for the initial reading of the source texts. These ideals were extremely influential and significant in our culture (p.05). After then, one of the specialists, who was also the principal author of the study, assigned ratings to the students who were still there. The criteria mentioned up top served as the foundation for these evaluations.

The variables that were used in the technique are listed in Table 5, along with the various degrees of explanation that may be provided for each variable.

Interactions	Moves backwards and forwards between the source texts and the student's own text in short periods (less than 30 seconds) Moves backwards and forwards between the source texts and the student's own text in long periods (more than 30 seconds) In addition to level 2, adds a longer rereading that breaks the backwards and forwards sequence and/or occurs during revision
Revision	Does not revise or rereads final text only for a few seconds Revises and makes small changes Revises and makes substantial changes
First reading of source texts	Parallel reading Serial reading

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3. Results

The first phase in this approach consisted of utilizing ANOVAs and Chi-squared tests to validate the hypothesis that neither the control group nor the experimental group had any significant differences in any of the pre-test variables. Repeated-measures ANOVAs with two factors—a between-subjects (group) component and a within-subjects (time) factor—were performed for all variables, with the exception of the Chi-square test for the analysis of the first reading of the source texts criterion, which contained two different levels. Repeated-measures ANOVAs with two factors—a between-subjects (group) component and a within-subjects (time) factor—were performed Due to the fact that the criterion consisted of two different levels, this test was carried out.

Both groups began off on an equal basis from the very beginning (paragraph 3.1)

We did not find any early differences in the seven traits that were being examined between the experimental group and the control group, as well as between boys and girls within each of the groups. This was the case both for the experimental group and the control group (Table 6).

The descriptive statistics on the parameters that were first evaluated for each group are shown in table 6, which may be found below.

	N	**Control**		**Experimental**	
		M	SD	M	SD
Reading comprehension	62	17.17	3.22	17.67	4.83
Low-level prior knowledge	62	1.57	1.96	1.52	2.57
High-level prior knowledge	62	2.55	3.48	1.76	2.95
Time (mins.)	32	36.13	5.57	37.81	10.18
Number of activities	32	3.38	1.26	3.31	1.25
Interactions (1-3)	32	1.19	0.54	1.25	0.48
Revision (1-3)	32	1.25	0.58	1.50	0.82

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Overall quality (1-4)	62	1.70	0.43	1.68	0.50

3.1 Effects of the intervention on content-learning

The mean score and standard deviation for each group's performance on the content-leaning criteria are presented in Table 7 at a number of periods during the research project. As was noted before, the scores were determined by taking the total number of responses that were proper and subtracting it from the total number of responses that were incorrect. This resulted in a total score.

The results of both the pre-task and post-task evaluations of each participant's knowledge of the issue are presented in Table 7, together with the group averages and standard deviations for each of the two types of tests.

		Control				**Experimental**			
		PRE		**POST**		**PRE**		**POST**	
	N	M	SD	M	SD	M	SD	M	SD
Low-level learning (max6)	62	1.57	1.96	3.29	1.50	1.52	2.57	3.02	1.96
High-level learning (max. 16)	62	2.55	3.48	4.04	3.07	1.76	2.95	6.27	6.27

3.2.1 Low-level learning

During the course of this investigation, it was discovered that the variables of time (pre-test and post-test) and group (control and experimental) did not have a significant interaction with one another (F (1, 60) =.15, p >.05, 2p =.002). In spite of the fact that a significant time impact was discovered (F (1, 60) = 30.29, p.001, 2p =.34), the scores of both groups improved between the pre-test and the post-test activities.

3.2.2 Education beyond the level of the high school diploma

Because the scores of the two groups developed in distinct ways over the course of the investigation, the findings of the study demonstrated that there was a significant interaction between the within- (time) and between-subject components (F (1, 60) = 9.48, p.05, 2p =.14). This was demonstrated by the fact that the results showed that there was a significant interaction between the within- (time) and between-subject components. The findings of the post-testing job revealed that the experimental group had a superior performance in relation to the basic effects (F (1, 60) = 8.98, p.01, 2p =.13). This was shown by the fact that the F statistic was significantly higher than the other value. The scores of the individuals in the experimental group changed over time, but the scores of the participants in the control group did not substantially differ between the two tasks (F (1, 32) = 57.83, p.001, 2p =.64; see Figure 4 for more details).

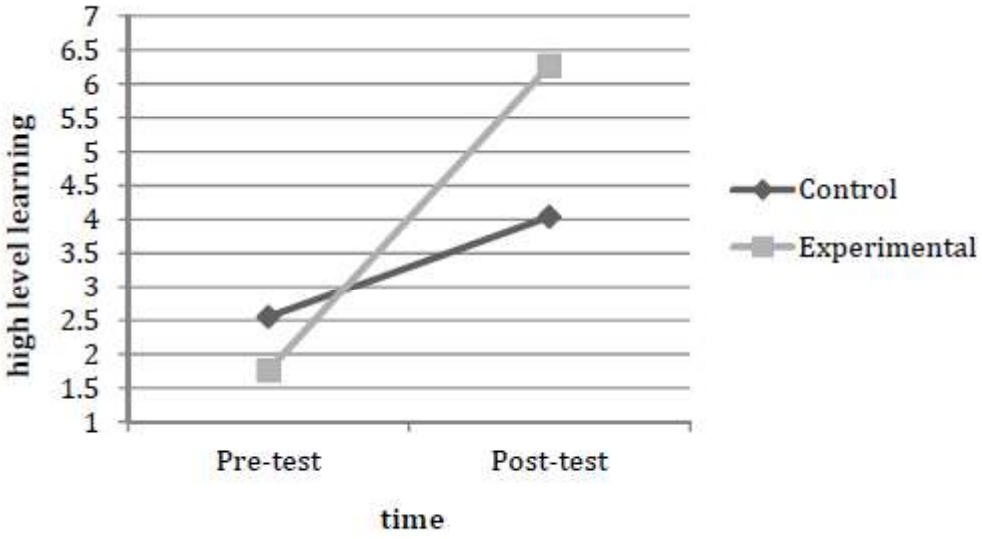

Figure 4. High-level learning score for each group on the pre and post tests.

3.3 Effects of intervention on product quality.

Table 8 gives a summary of the findings of the study on the overall product quality. This summary includes the averages as well as the standard deviations for each group throughout the various stages of research.

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Table 8 presents the pre-task and post-task evaluations of the overall product quality criteria, together with the group averages and standard deviations for each of those evaluations. In addition, the table also includes the results of both evaluations.

		Control				Experimental			
		PRE		POST		PRE		POST	
	N	M	SD	M	SD	M	SD	M	SD
Overall quality (min. 1 - max. 4)	62	1.59	0.43	1.72	0.33	1.58	0.46	3.01	0.64

It was demonstrated that there was a significant difference in performance as a result of the interaction of time (pre-intervention task versus post-intervention task) and group (experimental versus control) (F (1, 60) = 13.15, p.001, 2p =.63). [Citation needed] We did not discover any differences between the two tasks carried out by the control group when we looked at each group on its own (F (1, 32) = 181.01, p.001, 2p =.85; see Figure 5), but we did detect differences when we compared the control group to the experimental group (see Figure 5).

3.4 Aspects of the intervention's impact on the processes

The results of the pre- and post-intervention synthesis tasks, as well as the relevant means and standard deviations for the scores on the process variables, are presented in Table 9 for each of the groups.

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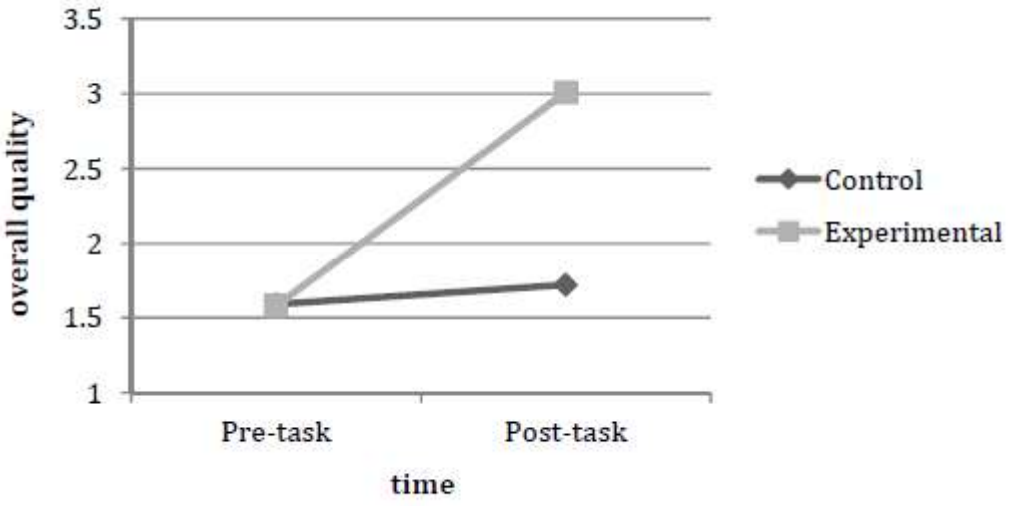

Figure 5. Overall text quality score for each group on the pre and post tasks (overall quality max. 4).

Table 9: The pre-task and post-task evaluations of the corresponding averages and standard deviations of process variables are presented in the following table for each of the groups that participated in the assessments.:

		Control				Experimental			
		PRE		POST		PRE		POST	
	N	M	SD	M	SD	M	SD	M	SD
Time spent on task	32	36.13	5.57	28.13	7.75	37.81	10.18	51.44	8.99
Number of different activities	32	3.38	1.26	2.56	0.63	3.31	1.25	5.06	1.61
Interactions between source texts - student text	32	1.19	0.54	1.00	0.00	1.25	0.45	1.88	0.81
Presence and nature of revision	32	1.25	0.58	1.13	0.50	1.50	0.82	1.88	1.02

3.4.1 Processing Time

It was demonstrated that there is a substantial correlation between the two variables of time and group (the F (1, 30) = 47.44, which is statistically significant, and 2p =.61). [Citation needed] When comparing the two groups' mean scores on the post-intervention task, there was a statistically significant disparity between them (F (1, 30) = 61.71, p.001, 2p =.67). The control group's average time to finish a task decreased with time (F (1, 15) = 18.73, p.01, 2p =.56), but the experimental group's average time to finish a task increased over time (F (1, 15) = 28.82, p.001, 2p =.66). These results were found using a factorial design with 15 participants. Both of the groups went through a period of change during the course of the investigation, albeit in different ways.

3.4. 2 various activities

While the students were working on the synthesis project, they were given a variety of obligations, which are detailed in Table 4. This table provides a breakdown of these responsibilities. It was proven that there is a substantial correlation between the number of tasks completed and the learning environment (F (1, 30) = 33.22, p.001, 2p =.53). This was demonstrated by the following: When compared to the pre-intervention task, the experimental group participated in a greater number of activities during the post-intervention task (F (1, 15) = 23.71, p.001, 2p =.61), in contrast to the control group, which participated in a smaller number of activities (F (1, 15) = 9.64, p.01, 2p =.39). In order to arrive at these conclusions, a multivariate analysis of variance was carried out (ANOVA).

3.4.3 The links between the main texts and the completed work

We found that there was a significant interaction between time and group in terms of the interactions that took place between the source texts and the texts that were created by the students (F (1, 30) = 13.00, p.01, 2p =.30). This was the conclusion that we came to after doing the research. After conducting the investigation, we came to the conclusion that this was the case. In order to provide evidence of this, the statistical model that was applied is as follows: When the effects of each group were studied independently, it was discovered that the performance of the experimental group improved throughout the duration of both

of the tasks, but the performance of the control group did not change at all (F (1, 15) = 12.10, p.01, 2p =.45). During the course of the process of assessing the precise direct findings obtained by each group, it became abundantly evident that this was the case.

3.4.4 Strategies and approaches for the revision

For the revision, there was a significant interaction between time and group (F (1, 30) = 6.32, p.05, 2p =.17) - for a description of the data, see Table 9 -. Time and group interacted in this way significantly. The results of the two groups on the post-intervention task were statistically different from one another (F (1, 30) = 6.92, p =.01, 2p =.19), despite the fact that the scores that the two groups obtained on the pre-test did not differ from one another in a way that would be considered statistically significant. After breaking down the components of this interaction effect, it was found that the post-intervention performance of the two groups was statistically distinct from one another.

3.4.5 The investigation of the main sources in their original form

The frequency with which different kinds of score changes occur is presented in Table 10, which is organized in line with this criterion. There were two distinct choices to select from in accordance with the grading strategy that was utilized for this characteristic. Reading in parallel and reading in serial were the terms used to describe them. As a part of the evaluation, the following actions were carried out: (3) The expression "go down" referred to the direction in which the reading changed, and it was used to represent the change from parallel reading to serial reading. This change was represented by the phrase. (1) The phrase "no change" was used to characterize scenarios in which the student read the texts in the same way for both tasks, which, depending on the circumstances, might have been either parallel or serial reading. (2) The expression "go up" refers to scenarios in which the student moved from parallel to serial reading for the pre-task to the post-task. This transition took place during the transition from the pre-task to the post-task. This modification took place all through the process of moving from the pre-task to the post-task state.

Table 10 shows the corrected standardized residuals as well as the number of students in each group who had a change of opinion as a direct result of reading the source texts for the first time.

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	Control			Group	Experimental		
	Down	No change	Up		Down	No change	Up
First reading of	7	9	0		1	10	5
source texts CSR	2.4	-4	-2.4		-2.4	-4	2.4

When the adjusted standardized residuals have a value that is more than 1.96, they are shown with a shade of grey that is darker than the normal one. If the value is more than -1.96, black numerals will be displayed; else, numbers will be shown in a light grey color.

These findings (2 (2) = 9.55, p.01) indicate that the student scores of the experimental group's students on this measure increased more than would have been expected, whereas the student scores of the control group's students decreased. This suggests that the experimental group's students performed better than the control group's students. These are the data that make up Table 10, and you can find them here.

4.Discussion

A SWSL program that was established to increase learning by offering strategy training in text-digestion through the construction of synthesis was the focus of this research. The major objective of this study was to evaluate the efficacy of the program. Reading and writing activities need to communicate with one another in order for this type of learning to take place. The training was given to the students who were a member of the experimental group, and as a consequence, they attained greater levels of comprehension. This provides some evidence that they were more adept at receiving and processing information that was communicated to them at a greater distance. This demonstrates how providing students with instruction on the processes essential to construct syntheses (selection, elaboration, organization, and integration) aided them in learning in a manner that enabled knowledge transformation rather than simply the repetition of fundamental content. Previous research has demonstrated that the efficiency of the learning process may be significantly improved by combining the knowledge obtained from a variety of various

sources into a single, distinct, and original presentation (Miras et al., 2008). This new study expands the prior research by providing an evaluation that is both direct and thorough of the three fundamental criteria that affect the performance of the synthesis. This is accomplished by delivering a direct assessment of the features. The degree to which an individual is aware about the subject at hand, the caliber of the written work that is produced, and the frequency with which an individual is needed to read and write are the three aspects that make up this consideration.

This study makes a contribution to the existing body of knowledge about the ways in which education may encourage the cognitive growth of older students as they engage in synthesis reading and writing (Martinez et al., 2011), as well as the ways in which this method of instruction can be used with younger children as long as the appropriate scaffolding is in place. Specifically, this study focuses on the ways in which education may encourage the cognitive growth of older students as they engage in synthesis reading and writing.

The cognitive processes that students go through as they perform synthesis exercises in order to arrive at a conclusion was another major issue that received a lot of attention in this study that was centered on the findings of this research. According to the findings of earlier studies (Lenski and Johns, 1997; Mateos et al., 2008; Martnez et al., 2011; Solé et al., 2013), participants in this experiment exhibited a propensity to initially stick to rigid, linear patterns. This conclusion is similar with the findings of other studies. Mateos et al., 2008; Martnez et al., 2011; Solé et al., 2013). After the intervention, it was discovered that there was a discernible improvement in the performance of the experimental group when compared to their performance on the pre-intervention tasks. This was shown in the post-intervention tests. In general, this was how things turned out to be. This information came to light after the intervention had already been carried out.

The members of this group, all of whom were in agreement with the discoveries reported by Spivey and King, may be found here (1989). Specifically, they increased the length of time that students spent working on the project, as well as the number of different activities that they took part in. There is still a possibility that the project will not be completed, despite the fact that it will take a materially longer amount of time and that there will be a materially greater number of things to do. The continuation of connections that were

established between the works produced by the students and the primary texts probably made it possible for the expansion of the ideas that were eventually incorporated into the final product. This was the case because the ideas were eventually incorporated into the final product. In addition to this, we discovered that the qualities of these pursuits differed from one another in a qualitative sense. Students who first studied the material on their own quickly became fluent enough to read it aloud to their classmates. Some of these students even referenced back to the main sources when they were polishing their own distinctive works, which demonstrates how important independent study is. After investigating the significance of the participants' repeated readings of the sources during the process of developing the synthesis, Solé and her colleagues (2013) came to the conclusion that these findings are congruent with what they uncovered. They came to the realization that carrying out such an activity was advantageous for the participants in the experiment.

On the other hand, the viewpoint of one particular individual was that the alterations need to have a behavior that was distinct from the one that was commonly recognized. Despite the fact that there was an obvious tendency toward development, the outcomes of this exercise were not particularly significant. This conclusion is in keeping with the findings that Torrance, Fidalgo, and Garca arrived at (2007). This conclusion could be explained by the difficulties that first-year students face while rewriting their papers, particularly when trying to notice crucial faults that are different from grammatical and spelling issues, such as significant misunderstandings or a lack of ability to organize information, etc (Graham & Harris, 1996; 2000; Martnez et al., 2011; Mateos et al., 2008). Graham and Harris are the ones who initially brought forward these discoveries. Even though the students who took part in the program began reviewing their papers, when they had not done so in the past, it appears that the intervention was not effective enough to enable the students to review with the intention of doing something other than just correcting spelling and grammar errors. According to Torrance et al. (2007), another factor may be the fact that students spent a substantial amount of time preparing their comments before giving the most polished English they were capable of creating all at once. This was done in order to demonstrate that they were competent to do so. Because the author may have already made the necessary modifications when reading and writing the material, reviewing the content may not be as crucial in certain instances to increasing the overall quality of the work that

was created. This is because the author may have already made the necessary adjustments. It would appear that the students did not feel it essential to make any changes to their work once they had completed the draft that they had been working on; nevertheless, they had previously been working on this document. It's probable that the environment conducive to learning in the classroom is to blame for this situation. According to Mateos and Solé (2009), students prefer to assess their writing more if the context dictates refining the content, such as when it will be viewed by an audience. For example, students prefer to analyze their writing more when it will be seen by an audience. This study lends credence to the idea that students are more likely to be motivated to review their writing in response to external variables if they find that their findings are supported. On the other hand, this was one of the areas in which the previous research did not perform enough. Even though the students were given explanations of the editing process, it is likely that they did not feel compelled to improve their writing in order to fulfill a particular task. This is because the students were supplied with explanations of the editing process. Because the intervention had such a profound impact on the standard of the text as a whole, it is extremely unlikely that any more modifications could have had an effect on the end result (about three standard deviations).

Because of these facts, we are in a position to make the reasonable conclusion that the post-intervention tactics that the students used to address the issue followed a range of basic patterns. This is something that we are able to do because we are in a position to do so. Reading and writing activities that were given to participants in the experimental group were designed to be more pliable and recursive. These activities were delivered to the participants. These behaviors included devoting more time to the task at hand, engaging in additional activities, revising and significantly altering their texts, and returning to the texts repeatedly over extended periods of time in order to elaborate on the information that they had read and integrate it into their own texts from the beginning in an integrated manner. Additionally, these behaviors included revising and significantly altering their texts.

Not only did the manner in which the intervention was carried out have a beneficial affect on the learning outcomes of the students, but it also had a positive influence on the products that the students made and the activity patterns that they formed. As a direct result of this, it would seem to indicate that the methods that were used throughout the sessions were

successful. The software that was developed by Wray and Lewis (1997) was used as the basis for this approach, which also contained other resources for methodological support, such as the textual guide. This method was published in 1997. We have shown that this kind of action has substantial ramifications for the educational system, and those repercussions have been proved. Children who are better able to read and write are more able to adapt to changing circumstances and engage in recursive mental processes. Students are able to create superior texts that contain vital concepts that are presented in a manner that is consistent throughout as a direct result of this, and as a consequence of this, students obtain a deeper comprehension of the subject matter.

According to the findings of past studies, a significant portion of the written synthesis that is produced by students is not of an adequate level (Lenski & Johns, 1997; Mateos et al., 2008). They relied on paraphrases or copies of the text gained from the sources, they failed to correctly integrate the material obtained from the two sources, they excluded crucial elements, and they followed a structure that was illogical. It was not surprising to notice that the two groups' performances on the post-intervention task were considerably different from one another given the findings of the study that had been carried out by Martinez and her colleagues (2011). In contrast to the output of the control group, which did not significantly improve at all, the experimental group showed significant progress in the writing of synthesis texts through their participation in the experiment. When employing the two sources that were mentioned earlier in this paragraph, the experimental group shown a significant improvement in concept selection, elaboration, coherence, and integration. This was the case throughout the whole paragraph.

In closing, we would like to bring your attention to some additional potential lines of inquiry that have developed as a direct result of either the findings or the limits of the study. When each of the tactics that were utilized at various points throughout the intervention was taken into consideration, it became obvious that the intervention was successful in terms of the program design that it was attempting to implement. In the not-too-distant future, a novel strategy for doing research may be put to the test. In this newly designed structure, compartmentalizing the course into its multiple educational methods might also prove to be advantageous. It will be possible, as a direct consequence of the findings of our research, to acquire additional knowledge on the specific ways in which each instructional strategy

contributed to the benefits that were discovered. The intervention was carried out over the course of a period of four weeks, and it was only put into practice within the confines of a single instructional unit that was centered on a specific subject matter. Are these findings capable of being extended to other sorts of units, subjects, and texts, particularly ones that do not complement one another in any way? A whole new research field has emerged as a direct result of the discovery of benefits related to certain illnesses that were not previously known. Students need to learn how to rework the work that they have already completed in order for them to be able to conduct a more in-depth study of the material that they have written. Only then will they be able to accomplish this. This is just another aspect of the situation that has to be looked at more thoroughly. In the end, the researcher came to the conclusion that the best way to take into account the personal lives of the lecturers would be to make use of the program. As a consequence of this, it is feasible that the effects of the therapy were misunderstood to be those of the instructor. This is because the researcher does not have a strong familiarity with the students and may not have as much expertise as the normal professors who are in charge of the control groups. The reason for this is due to the fact that the researcher does not have a strong familiarity with the students. The creation of strategies for teaching regular educators how to make use of the software is one of the prospective foci of research that may be conducted in the future. This would accomplish two goals: first, it would make it possible to evaluate the performance of the program in an environment that is more comparable to its natural environment; and second, it would eliminate factors that may skew the findings. Both of these goals would be met if this were to take place. If this were to be done, then we would have accomplished both of these goals. In the end, one of our goals is for teachers to be able to successfully implement this program in their own classrooms, and for it to be seen as a dependable and beneficial resource within educational settings. Another one of our goals is for students to be able to successfully implement this program in their own classrooms. As a result of this, the primary objective will be able to be completed successfully.

When attempting to quantify the process of acquiring new knowledge, there are typically two challenges that come up. Throughout the duration of the intervention, the learner was questioned with questions taken from each of the six books that were covered in order to ascertain how effectively they had internalized the information that was being presented.

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We made use of this information because we had the impression that the kids were able to learn in a new way as a result of the intervention as a whole, and we were able to confirm this feeling. On the other hand, the fact that learning is subject-specific hints that the relatively low reliability may have been the consequence of a test that had questions derived from six different sources of knowledge. It would be beneficial to devise a test that is directly connected to the information that was acquired via the text pairings that were utilized in the pre- and post-synthesis activities in research that is analogous to the one that we described in this paper.

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