The impact of collaborative-online reading on summarizing skills

Abstract

As a result of the continuing and broadening distribution of platforms and applications for reading books in digital form, such as iBook, Kobo, and NOOK, it is estimated that in the near future it will be common to read digital books collaboratively, synchronously and a-synchronously (Siekmann, 2004). The aim of this study was to determine whether, as a result of collaborative-online reading of a chapter from a book of an academic nature, the quality of the collaborative summary that the readers would write would be of a better quality than that written by readers who would read the same chapter and write a summary in a face-to-face setting.

The study examined the difference between summaries written by two groups of participants who had read a chapter of a book together, and collaborated on writing a summary. The experimental group read the chapter as it appeared in a website for collaborative reading built especially for this study. The control group was asked to summarize the chapter on a shared online Google document. The participants of both groups were asked to limit their summaries to 300 words.

The quality of the summaries was evaluated with a tool developed by Rivard (2001). The findings indicated that there were significant differences in most of the writing indicators being measured with the tool. The findings indicated that collaborative-online

reading and writing produce a summary of a higher quality than one read and written collaboratively face-to-face.

Keywords: online collaboration, online reading, online writing, summary.

Introduction

Collaborative, online reading takes up a significant part of our daily lives, beginning with news sites, blogs, forums and other internet wiki's based databases. Studies have found that people reading on these platforms react in new ways to the content they consume (Golder, 2005). However, to the best of our knowledge, only a very few studies addressed the issues related to collaborative-online reading, despite its widening spread (Siekmann, 2004).

One of these studies was conducted by RAND (RAND Reading Study Group, 2002), which found that three components contribute to reading comprehension: the text, the act of reading itself and the reader. Moreover, these are greatly dependent on the social and cultural context in which the reading takes place. These findings supported earlier findings which asserted that reading comprehension is, at its core, essentially a social function. Earlier studies (Leu, 1996; Reinking, *et al*, 1998) have already found that the online environment provides opportunities which can be harnessed to learning processes. In recent years other studies asserted that the impact of collaborative-online reading on various learning skills is salient (Leu and Kinzer, 2000), while reading collaboratively is the feature that develops higher levels of thinking skills necessary for conceiving deeper ideas.

In this study, we decided to examine the impact of reading collaboratively online on the skills required for writing a clear summary of high quality. We chose the skill of writing a summary because of its importance in this era of advanced digital reading platforms, which has made a huge amount of information accessible and available (Cox,

Bobrowski & Maher, 2003). The ability to summarize has become, for that reason, a learning strategy which often serves as a means of evaluating reading abilities. To some, it has even become a way to improve reading comprehension, and advance clear thinking and effective learning (Hill, 1991).

The goal of this study was to determine whether, as the result of collaborative-online reading of a chapter from a book of an academic nature, the quality level of the summary the participants will write will be higher than that written by participants who read the same text in collaboratively, but in a face-to-face arrangement.

For the purposes of this study, we have built an online platform for collaborative reading and writing. It comprised an online interface for collaborative reading, chatting and writing with a Google document. The summaries underwent evaluation and examination with the Rivad's (2001) instrument for evaluation of summaries, which is composed of ten different indicators. A committee of three literature teachers served as judges and decided which ideas from the chapter could be defined as *main* or *secondary*. Two of the teachers later evaluated the summaries written by the experimental and control groups, using the Rivad's Instrument.

Our research findings show that the collaborative-online reading of a text provides a summary which is written in a collaborative-online way on a higher level of quality than that produced collaboratively, after collaborative frontal face-to-face reading.

Face-to-face Collaborative Reading

The studies we found in the topic of face-to-face collaborative reading were conducted mainly among elementary school children who were at the stage of acquiring the basic reading skills; the phase at which it can be said that one has begun to comprehend reading (Palinscsar & Brown, 1984; Klingner and Vaughn, 1988; MacGinitie & MacGinitie, 1989). These studies attempted to determine how Collaborative Strategic Reading (CSR)

improves children's level of reading comprehension (Standish, 2005). The CSR approach adopts a constructivist approach toward the reading of a complicated informative text. The children play an active part in structuring meaning from the text and cooperate with others in order to understand it. The CSR approach is based on the idea of teaching children to be active in improving their ability to read and understand the printed word. The children learn in teams, where their role is defined from the outset, and they encounter conceptual ideas from the informative text. The children play an active part in structuring meaning from the text and are expected to work together in order to understand it (Katims & Harmon, 2000). To the best of our knowledge, this kind of studies was not conducted to date with graduate students, which were the participants of our study.

Collaborative-online Reading

As regards to collaborative-online reading, we found just a few studies that were devoted to this issue, despite its being an interesting subject, and one linked to learning. In one study, Siekmann (2004) suggested that in online reading, the reader relates to the pages on the electronic book as s/he relates to interactive internet pages, since, in order for the reader to continue reading, s/he has to be active, and progress in the reading by "mousing" or by "keyboarding." According to Siekmann, when collaborative-online reading is taking place, the readers are essentially combining in their reading some of the text characteristics and some of their own individual subjective contribution to the text. When a couple of readers work collaboratively on an online text, interaction is generated among the two participants on top of the interaction that is generated with the computer.

One of the examples of collaborative-online reading is conducted in blogs and wikis' spheres. Blogs as well as wikis make interactivity possible between the blog's writer and his or her readers. A blog's writer may choose to further interact through hypertext links embedded in the blog or wiki to various other sources – other blogs or other web pages.

Beside blogs written and managed by individuals, there are group blogs which are generally interconnected with other blogs, making up a large blog community on the web.

Blogs and wikis have been in the rise for educational purposes, serving students as personal daily diaries or as data repositories or summaries of entries in a vast variety of topics. In writing blogs or wikis, students are able to write for others, something which is impossible for individuals participating in an internet forum. Studies have found (Godwin-Jones, 2003) that self publishing for a genuine community encourages a feeling of responsibility and of ownership, and drives students to take into account issues of content and structure in their writing. Blogs' readers as well as wikis and other forums, have a marked influence on those internet environments. As readers, they respond to the written content, and this leaves a mark on the way in which text will be presented to those who will read it in the future (Golder, 2005).

Collaborative reading technologies

One of the advantages of electronic books, such as the Apple's iBook or the Amazon's Kindle, is a feature that enables readers to involve others in their reading experience by inviting them to jot down on their digital copy of the book comments and icons. Readers can also add other readers to a list of participants in their collaborative reading experience, thereby welcoming others to discuss various issues.

There are also some digital books' applications that were developed to match a regular computer browser. Among others are Calibre, Amazon's Kindel for PC, and the portal of Book Glutton, all of which enable large groups of colleagues read books, both synchronously and asynchronously.

For the purposes of this study we decided to use the Wordpress platform for building websites and for developing an interface which would allow the participants in the study to engage in collaborative-online reading and writing, as well as conducting synchronous or

a-synchronous discussions about the text through an embedded chat module. We developed the interface so that the participants would have access to it at all times and on any platform – on their desktop computers, tablets, or mobile smart phones.

Technologies for collaborative-writing

To date there are a number of technologies which make possible collaborative-online writing. The principle technologies which enable collaborative-online writing for a vast number of people include collaborative writing sites such as Wikipedia and the social networks and forums. These technologies, however, mostly enable asynchronous collaborative writing, which makes simultaneous editing of the text by several people almost impossible. It must be said, however, that with the ever-increasing and widening use of cloud storage, applications which were able to facilitate collaboration among tenth of colleagues only are step by step enabling collaborative-online writing for hundreds of participants synchronously. Among them are Microsoft's Groove, CloudOn, and GoogleDoc.

The collaborative writing in our study was assigned to take place on a file, to which the participants had access via the interface we developed as a GoogleDoc. The file was defined as a public file, so that all the participants had easy access to it, without having to register for membership in the Google site. Next to the field in the interface meant for reading and writing the summary a chat module appeared in order to facilitate streamed correspondence and discussion among the participants, even while the writing of the summary was going on (Figure 1).
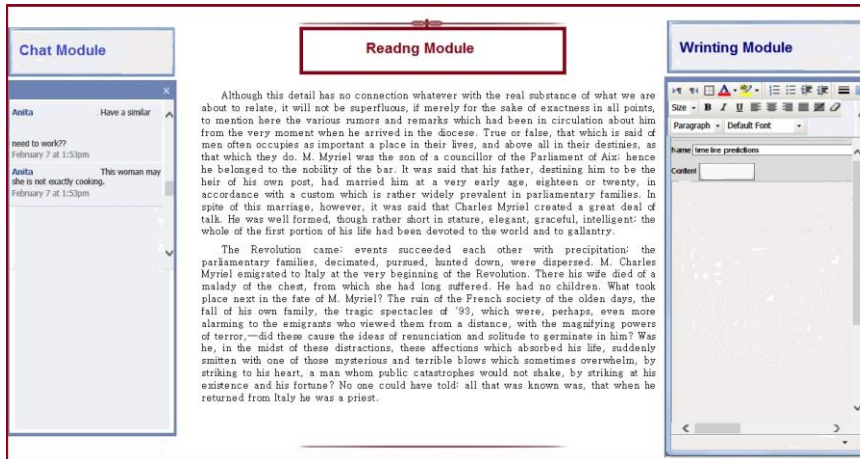
Figure 1. A snapshot from the reading and writing modules of the interface

Research instrument

The quality of the summaries was measured with a tool which was developed by Rivard (2001). Rivard developed and validated the instrument with the help of an advisory committee with expertise in the fields of language, literature, and learning. We used from the tool ten learning indicators that were relevant to our purposes, with whose help we tested our hypotheses.

Quality

Four of the ten indicators aimed at evaluating the quality of the summary. Two indicators measured the quality by calculating the number of the *main* ideas and the *secondary* ideas, which the participants incorporated in their summary. And two indicators measured the way they integrated the ideas as well as how faithful they were to the original text.

1. *Main ideas*: Three Literature teachers determined in our study which ideas mentioned in the chapter to be read were to be defined as *main*. This indicator aimed to measure the number of ideas that the participants included in their joint summary. According to the instrument's grading scale, the maximum score for this indicator was 5 points. Since, in this study, ten main ideas were identified by the teachers, thus one main idea earned that group a total score of 0.5 points.

2. *Secondary ideas*: This indicator measured the number of ideas, deemed

    unimportant by the teacher, remained in the group's summary, but should have been

    omitted. The maximum score for this indicator was 4 points. Since, in this study,

    ten secondary ideas were identified by the teachers, thus each one secondary idea

    earned the group a total score of 0.4 points.

3. *Integration of ideas*: This indicator measured the number of sentences that included

    two or more main ideas in one sentence. The maximum score for this indicator was

    5 points.

4. *Faithfulness to the original text*: This indicator measured the number of times the

    participants included in the summary any of the following things: inaccurate

    information, addendums, wrong ideas, errors, over generalizations, unnecessary

    commentaries, judgmental comments, and exaggerations. The score for this

    indicator was greater than 0.

Language

Five other indicators measured issues connected to the level of language used in the

summary. Four of these five aimed to measure the summary's level of organization. The

fifth indicator aimed to measure the summary's general use of language:

5. *Organization*: This indicator measured the clarity and flow of the summary. The

    maximum score for this indicator was 4 points.

6. *Style*: This indicator measured the structure of the sentences and the vocabulary of

    the summary. The maximum score for this indicator was 4 points.

7. *Language*: This indicator measured the typographical errors and syntax. The

    maximum score for this indicator was 4 points.

8. *Objectivity*: This indicator measured to what extent the summary was a correct paraphrase of the chapter, and not just an unnecessary commentary. The maximum score for this indicator was 4 points.

9. *Holistic writing*: This indicator measured the summary holistically based on four parameters: style, use of language, objectivity, and succinctness. The maximum score for this indicator was 4 points, where each instance received one point.

Efficacy

The last indicator measured the efficacy of the summary based on studies that measure the efficiency upon content and language (Garner, 1982).

10. *Efficacy*: This indicator measured the efficiency by calculating it decimally from the number of the main ideas divided by the number of words in the summary.

Participants

The participants in this study were an occasional sample of students from a Graduate Program in Information and Communication Technology (ICT) and Education. A total of 48 students took part in the study; six of them were males, and 42 females. As graduate student in ICT and Ed, they all mastered a variety of computer applications with advanced web surfing skills and were highly engaged in either managing or just participating in collaborative writing through forums, chat rooms, mailing lists, and social networks. They all volunteered to take part in this study.

The participants were divided into two research groups: an experimental group and a control group. Each group consisted of 24 students, and each group was divided into eight sub-groups of three participants each.

Table 1. Participants

Participants	# of sub-groups (N)

Face-to-face groups	24	8
Online groups	24	8
Total	48	16

Procedure

The participants were asked to summarize a chapter from a book of a scientific nature. They were asked to read and summarize it collaboratively. The teachers that determined the *main* and *secondary* ideas in this chapter were trained by the researchers to serve as judges and analyze the summaries with the tool developed by Rivard (2001). Each teacher examined the summaries independently. We then compared their scores for each summary in order to calculate Spearman's coefficients, which indicate the level of similarity between the different evaluations. The summaries were evaluated by the three teachers on nine indicators, in order to ascertain constancy between their evaluations. The tenth indicator was just calculated by the researchers.

We found that there are statistically significant correlations on six of the nine indicators. The reliability measured by the Spearman' Coefficient, which indicates the strength of the correlation, runs from 0.57 in the *objectivity's* indicator to 0.83 in the *main ideas*' indicator (Table 2).

Table 2. Spearman's Co-efficiencies for 9 indicators

Indicators for measuring the quality of the summary	Correlation
1. Main ideas	0.83**
2. Secondary ideas	0.67**
3. Integration of ideas	-0.04
4. Faithfulness to original text	0.32
5. Organization	0.71**
6. Style	0.78**
7. Language	0.40
8. Objectivity	0.57*
9. Holistic writing	0.77**

$P<0.05$* $P<0.01$**

Results

This research was designed to determine if there is a significant difference between the qualities of a summary composed in a face-to-face collaborative writing arrangement as opposed to a collaborative-online writing setting. Earlier studies found significant differences in the above indicators between groups which studied a scientific text in different face-to-face settings and wrote summaries (Rivad, 2001). The main assumption in our study was that the use of an interface for collaborative-online reading and writing would make possible the composition of a better quality summary than face-to-face reading and writing. In order to examine this assumption, we measured the differences between the experiment and the control sub-groups in each of the ten indicators with a *t* test for independent samples. The differences, including averages, standard deviations, and the *t* test values are presented in Table 3.

Table 3. Averages, standard deviations, minimum and maximum scores of the indicators and *t* test values.

Indicators	Face-to-face collaborative writing N=8				Online collaborative writing N=8				*t* test (p)
	Mean	SD	Min	Max	Mean	SD	Min	Max	
Main ideas	1.68	0.75	1	3	2.93	0.67	1.5	3.5	-3.48**
Secondary ideas	0.30	0.35	0	0.8	0.55	0.36	0	1.2	-1.38
Integration	0.25	0.46	0	1	1.12	0.64	0	2	-3.13**
Faithfulness	1.12	0.83	0	2	0.12	0.35	0	1	3.12**
Organization	2.25	1.03	1	4	4.00	0.00	4	4	-4.78***
Style	2.25	1.28	1	4	4.00	0.00	4	4	-3.86**
Use of language	3.37	0.91	2	4	3.5	1.41	0	4	-0.21
Objectivity	2.75	1.06	1	4	3.8	0.35	3	4	-2.90*
Holistic writing	2.50	1.06	1	4	3.75	0.70	2	4	-2.75*
Efficiency	0.021	0.007	0.01	0.03	0.01	0.005	0.005	0.02	2.44*

P<0.05*   P<0.01**   P<0.001***

In light of these findings (Table 3), we can say that there were differences between the quality of the summary written after collaborative-online reading and writing, as compared with collaborative face-to-face reading and writing in eight of the ten indicators. Significant differences were found in the following indicators*: main* ideas, *integration* of ideas, *faithfulness* to original text, *organization*, *style*, *objectivity*, *holistic* writing, and *efficiency* of summary.

In six of these eight indicators, we found that the quality of the summary, which was written collaboratively online, was significantly better than the quality of the summary written collaboratively face-to-face. The quality was significantly better in the following indicators: *main* ideas, *integration* of ideas, *organization*, *style*, *objectivity* and *holistic writing*. No significant difference was found in the other two indicators: *secondary* ideas and use of *language*.

The alternate hypothesis, which stated that in the *holistic* writing's indicator the scores of the experiment group would be higher than those of the control group, was also corroborated.

The null hypothesis was also rejected at a level of significance of $p<0.01$, which means that there are differences between the groups in the *holistic* writing's indicator at a level of 0.015. On the use of language's indicator, we could not reject the null hypothesis, since the result was not statistically significant, and because the differences between the groups could be due to chance.

The null hypothesis was accepted in the *efficacy* indicator. In other words, the alternative hypothesis stating that the scores of the *efficacy* indicator would be higher in the experimental group was rejected. The null hypothesis was accepted on a level of $p<0.05$, which means that there are differences between the two groups' results in the *efficiency* of the summary on a significance level of 0.028.

A *t* test was also performed to examine the null hypothesis. It showed that there is a difference between the experimental and control groups in the *efficacy* indicator on a level of 0.028 (p< 0.05). The *t* test results show that there is a difference of 0.008 between the averages of the *efficacy* indicator for the two groups, where the higher scores were achieved by the control group which read and wrote collaboratively in a face-to-face arrangement.

Following this result and even though we did not stated initially any hypotheses regarding the difference between the number of words in summaries written by the control sub-groups and the number of words written by the experimental sub-groups, we decided to examine the differences between the number of words in the summaries due to the fact that the *efficacy* indicator was calculated by only dividing the number of *main* ideas into the number of words in the summary.

The *t* test we performed showed that there is a statistically significant difference between the experimental and the control sub-groups in favor of the experimental sub-groups who composed the summary in a collaborative-online setting. The level of the significance was 0.006 (p<0.01) (Table 4).

Table 4. Averages and standard deviations of the number of words in the summary, and results of the *t* test

	Face-to-face reading		Online		*t* test (p)
	Mean	S.D	Mean	S.D	
Number of words in summary	257.75	49.56	171.75	55.57	3.26*

P<0.01**

In sum, this study indicates that in most of the indicators the summaries which were written collaboratively online are of higher quality than the summaries which were written in frontal collaboration. We found that there are statistically significant results in six out of

the nine indicators. In two indicators we found that the control sub-groups received better scores than the experimental sub-groups. In the indicator of *faithfulness* to the original text, the average score was significantly higher among the control sub-group, whose members wrote the summary collaboratively, face-to-face. Similarly, we found that the *efficiency* of a summary is albeit better, but not significantly better, for a summary which has been written collaboratively, face-to-face, as opposed to a summary which was written collaboratively online.

Discussion

The results indicate that the participants in the experimental sub-groups received higher scores in some of the indicators, but those differences were not always statistically significant. We found differences in three out of four indicators that measured the content quality of the summary according to Rivard's (2001), However, only in two indicators the results were found to be statistically significant – in the *main ideas* and the *integration* of ideas. One can understand these statistically significant results in these indicators in a number of ways.

One way to explain the statistically significant results in composing summaries of the main ideas and integrating them together is due to the fact that at the time the experimental sub-groups were collaborating on writing their summaries online, all the participants in each sub-group were able to see the summaries which were being written by all the members of their group, and to comment on the importance of the main ideas they chose to include in the summary. This explanation reflects findings in the study on reading comprehension conducted by the RAND Reading Study Group (2002). The RAND's study found that the three components of reading comprehension *i.e.,* the *text*, the *activity*, and the *reader*, exist in the socio-cultural context which envelops them. One way, thus, to explain the results is that the process of writing online became a socio-cultural process, and

thereby forced the participants to present their ideas and to share their opinions with all the other participants, which by itself enhanced the content quality of the summary.

Another way of explaining the significant differences between the content quality of the control and experimental sub-groups is related to the virtual screen and the distance created at the time the writing was taking place online. It might be that the virtual screen and distance blur the boundaries between the writers, and erase some of the inhibitions which exist at the time the task was being carried out face-to-face. This explanation is supported by an earlier study carried out by Passig & Schwartz (2007). Here also, it appears that the chat module and the writing module made it possible for the experimental groups to see the summary as it, literally, took shape. They were able to change, correct, erase, and add to the text in real time so as to contribute whatever was felt to be necessary for making a proper summary. It seems that, while online, they were able to improve their decisions regarding what are the main ideas, since instead of waiting for the completion of the first draft, and then engage in editing (as is done in collaborative face-to-face writing), the participants in the experimental sub-groups were able to examine and edit the text at the moment their preferences were conceived.

Main ideas

Choosing the sentences which constitute the *main* ideas and integrating them into the text is a behavior that requires comprehension. Therefore, we assumed that in online collaborative reading, when a number of people are engaged in reading a text, more structure and content's schemes are formed, as a result of the joint effort. Thus, a broader base is being formed for reading comprehension, as Kintsch & van Dijk (1978) pointed out. In this instance, each participant worked "together but separately" with the other participants in the group, and since all of the participants in the group were responsible for the quality of the summary, the written product was, for the most part, on a higher level in

the *main* ideas' indicator. The participants were able to be more open to ideas, suggestions, and reactions from their colleagues, as Stroch (2005) pointed out. This is as opposed to the groups which carried out the tasks face-to-face. In that instance, they usually chose a representative from among them, and s/he was responsible for the writing, while the rest of the participants only occasionally expressed their opinions.

The experimental groups produced also a better summary in the *secondary* ideas' indicator, but their scores were not statistically significant. It could be that had we examined a larger sample of participants on this indicator, the difference between the two groups would also have been statistically significant.

Faithfulness

Alternatively, we found that in the *faithfulness* to the original text's indicator the differences were statistically significant in favor of the control group that read and wrote a summary in a face-to-face setting. These results reflect similar findings in earlier studies (Goldberg, Russell & Cook, 2003) which found that collaborative writing online is more effective, produces a higher quality product, and improves the writers' motivation. Our results can be explained by their observation that participants in a face-to-face reading and writing situation are required to invest a large amount of energy in concentrating in the main points they would like to deliver and probably do not see it necessary to further elaborate on their ideas. It seems therefore that in our study, the control groups were able to be more faithful to the original text since they have invested more in that aspect. In contrast, the online groups could have easily elaborate and integrate different ideas and depart from the original text due to the ease of writing with a computer online that demands less efforts as compared to handwriting.

Language

Our research findings indicated that the participants in the experimental groups received higher scores in all five of the indicators representing the second group of indicators defined by the Rivard's tool (2001), which aimed at examining the quality of the language. However, only four indicators were found to have significant differences: *organization*, *style*, *objectivity*, and *holistic* writing.

The findings indicate that since the participants in the experimental sub-groups consulted each other extensively, through the chat module, regarding the text that should be written, the quality of the organization and style of the summary they were able to generate was significantly better. This can be explained by the fact that a text is easily edited and re-edited on a computer. While working collaboratively online the ease of erasing, cutting, and pasting chunks of texts makes it easier to better organize the conveyed ideas and smooth the style of the text. In contrast, while writing collaboratively face-to-face and by hand, the limitations are obvious; it is much difficult to rewrite, reorganize and improve the style of the initial draft.

It is possible that if the participants in the control groups had been asked to write a number of drafts, until they arrived at a clear and consistent written product, they would have done it. However, since such a demand was not made, they submitted their first draft as their finished product. Yet, the experimental groups working online constantly consulted and decided on editing issues, which subsequently determined the quality and the consistency of the language all over the writing process.

This finding is also supported by similar studies (Passig & Schwartz 2007) that found that participants in a group writing collaboratively online wrote and changed the ideas which they conceived prior to completing the fully finished draft of the text. It seems, thus,

that the level of the language of the summary is dependent on the reading and writing mode of expression and presentation.

Efficacy

The findings indicated that there is a significant difference between the two groups in the indicator of *efficacy* of the summary in favor of the control groups that read and wrote collaboratively face-to-face. These results corroborated the hypothesis that a summary written collaboratively, face-to-face, is more efficient than a summary written collaboratively online. These results can be explained by the *t* test, which we carried out for that reason.

As a result of the significant difference which we found in the indicator of the efficacy of the summary, in favor of the control groups, we decided to examine the differences between the number of words in each summary. We decided to do so since the indicator was calculated by dividing the number of *main* ideas by the number of words in the summary. Thus, the larger the numerator was (the number of words in the summary), the lower the value we obtained (*efficacy* of summary).

Our results indicated that there is a statistically significant difference between the groups, in favor of the experimental groups. This explains that even when the number of *main* ideas, which were written by the experimental groups, was greater than that of the participants in the control groups, the numerator (the number of words in each summary in the online summary) was larger, so that the *efficacy* indicator of the experimental groups will be lower than the *efficacy* indicator in the control groups.

We can explain these findings by pointing out that when the participants in the experimental groups wrote a summary, for the most part they copied part of the text from the page on which the chapter they had to summarize was located. Afterward, they pared down the text they copied, leaving only the main ideas they wanted to meld into the

summary. This matter and the fact that one can click and erase text so much more easily than by hand, contributed to the online summaries generally being longer than those of the group working with pen and paper.

In addition, the word-counter application, which comes with the collaborative digital file, made it easier for the participants in the experimental groups to count as required up to 300 words and not exceed it. The participants in the control groups had a harder time with word-counting, especially when they had to make a word-count more than once. The participants were helped by making marks at the edge of each row intended for writing (each mark indicated one row, with approximately 10 words to a row), but it seems they did not use the marks.

For those reasons one may assume that the summaries written by hand were shorter than those written collaboratively on a computer. These reasons provide explanations and meaning for the findings related to the average word count of summaries, and, as a result, meaning to the findings related to the *efficacy* indicator. In the case of our study, it may be that while the results of the research indicate a statistically significant difference in favor of the groups which read and wrote collaboratively face-to-face, we saw how this difference can be explained by the differences in word counting.

Summary

Many, in recent years, studied the impact of online social networks on learning and literacy in a variety of aspects (Allenby & Sarewitz, 2011; Turkle, 2012). Our study was carried on in order to better clarify whether the new digital reading platforms improve or harm the quality of the academic summaries. We sought to further advance the debate regarding the educational advantages and shortcomings of the extensive use of social networks of our students. We hope that the results of this study will provide those who would choose to

integrate digital forms of reading and writing in their teaching with some assurance that this kind of learning their products could bring forth products of the best kind too.

References

Allenby, B. and Sarewitz, D. (2011). The Techno-Human Condition. MIT Press: Boston.

Cox, P. L., Bobrowski, P. E., & Maher, L. (2003). Teaching first year business students to summarize: Abstract writing assignment (my favorite assignment). Business Communication Quarterly. 66(4) 36-54.

Garner, R. (1982). Efficient text summarization: Costs and benefits. Journal of Education Research. 75, 275-79.

Godwin-Jones, R. (2003, May). Emerging technologies, blogs, and wikis: Environments for online collaboration. Language Learning & Technology. 7(3), 12–16.

Goldberg, A., Russell, M., & Cook, A. (2003). The Effect of computers on student learning: A meta-analysis of studies from 1992 to 2002. Journal of Technology, Learning, and Assessment. 2(1), 1-24.

Golder, S. (2003). Webbed Footnotes: Collaborative Annotation on the Web. Master of Science in Media Arts and Sciences. School of Architecture and Planning, Massachusetts Institute of Technology. Massachusetts.

Hill, M. (1991). Writing summaries promote thinking and learning across the curriculum—why are they so difficult to write. Journal of Reading, 34(7), 536-540.

Katims, D. S., & Harmon, J. M. (2000). Strategic instruction in middle school social studies: Enhancing academic and literary outcomes for at-risk students. Intervention in School and Clinic. 35(5), 280-289.

Kintsch, W. & van Dijk, T. A. (1978). Toward a Model of Text Comprehension and Production. Psychological Review, 85, 363-394.

Klingner, J., & Vaughn, S. (1998). Using Collaborative Strategic Reading. Teaching Exceptional Children, 30(6), 32-37.

Leu, D. J., Jr. (1996). Sarah's secret: Social aspects of literacy and learning in a digital information age .The Reading Teacher. 50, 162–165.

Leu, D. J., Jr., & Kinzer, C. K. (2000). The Convergence of Literacy Instruction With Networked Technologies for Information and Communication. Reading Research Quarterly. 35, 108–127.

MacGinitie, W. H., & MacGinitie, R. K. (1989). Gates-MacGinitie Reading Tests (3rd ed.) Riverside. Chicago.

Palinscsar, A. S. & Brown, A. L. (1984). The Reciprocal Teaching of Comprehension Fostering and Comprehension Monitoring Activities. Cognition and Instruction, 1, 117-175.

Passig, D. & Schwartz, G. (2007). Collaborative Writing: Online vs. Frontal. International Journal on E-Learning, 6(3), 395-412.

RAND Reading Study Group. (2002) Reading for understanding: Towards an R&D program in reading comprehension. http://www.rand.org/pubs/monograph_reports/2005/MR1465.pdf last accessed January 2013

Reinking, D., McKenna, M. C., Labbo, L. D., & Kieffer, R. F. (Eds.) (1998). Handbook of literacy and technology: Transformations in a post-typographic world. Erlbaum Press. Mahwah: New Jersey.

Rivard, L. P. (2001). Summary writing: A multi-grade study of French-immersion and Francophone secondary students. Language, Culture and Curriculum. 14, 171-86.

Siekmann, S. (2004). Mediational Tool Use and Strategic Behaviors during Collaborative-online Reading: A Microgenetic Case Study of Beginning Students of German. A PhD dissertation submitted to the Department of Secondary Education, College of Education, Department of World Language Education. College of Arts and Sciences. University of South Florida.

Standish, L. G. (2005). The effects of Collaborative Strategic Reading and direct instruction in persuasion on sixth-grade students' persuasive writing and attitudes. PhD Dissertation submitted to the Graduate School of the University of Maryland, College Park.

Storch, N. (2005). Collaborative writing: Product, process, and students' reflections. International Journal of Second Language Writing. 14, 153-173.

Turkle, S. (2012). Alone Together: Why We Expect More from Technology and Less from Ourselves. Basic Books: NY.