

**THE EFFECTS OF STORY MAPPING ON PICTURE-GUIDED WRITING FOR EFL
SENIOR HIGH SCHOOL STUDENTS IN TAIWAN**

Jen Ting & Chiu-yu Huang

ABSTRACT

This study investigates the effects of story mapping instruction on the picture-guided writing performance of EFL senior high school students in Taiwan. Seventy-six juniors in high school from two classes in Ping-Jen Senior High School participated in the present study. The experiment lasted for ten weeks from March 2004 to May 2004. During the experiment, the participants underwent story mapping instruction, took a pre-test and post-test, responded to a questionnaire and were interviewed. Differences in the students' story writing performance were analyzed in terms of the t-test results of three elements: word count, story grammar units and story writing performance. In addition, the qualitative data were summarized and discussed. Given both the quantitative and qualitative results, we consider that it is difficult to deny the important role played by the story mapping strategy in affecting students' progress in story writing. Based on the findings, the researchers recommend that story mapping instruction be introduced to EFL writers as a pre-writing activity in the writing course.

Key Words: story mapping, picture-guided writing, story writing, story grammar unit, pre-writing activity

INTRODUCTION

Learning to write is a complex matter. While writing presents a fairly challenging task for both native and nonnative speakers (Kroll, 1990), EFL learners, moreover, encounter particular challenges in orchestrating many different types of knowledge involving cultural and linguistic differences, background knowledge about the topic and other issues that

may arise during the process of writing in a foreign language (Clay, 1998; Dyson, 1989). It is not surprising that many students in an EFL environment in Taiwan feel tortured by English writing and have problems expressing their ideas and feelings in English (Chen et al., 1992). Li's (1992) research indicates that a large majority of high school graduates failed English writing in JCEE (Joint College Entrance Examination), for they had no idea what to write. It is therefore necessary and crucial to help students find a way of generating ideas and organizing their texts. To achieve this purpose, the present study explores application of story mapping, a pre-writing strategy that establishes a correct concept of story structure, by investigating its effects on picture-guided writing for EFL senior high school students in Taiwan.

Picture-guided writing has been a format well adopted by local writing proficiency tests such as the JCEE (e.g. in 2004-2006) and the GEPT (General English Proficiency Test). The type of writing is narrative or, more specifically, story writing (cf. Chiang, 2003; Tseng, 2003). Regarding story writing, a pre-writing strategy of story mapping has been reported to have positive effects on English writing in a L1 context (Brown, 1988; Fine, 1991; Fitzgerald & Teasley, 1986; Harris & Graham, 1992; Saddler et al., 2004; Vallecorsa & deBettencourt, 1997) but there has been little research on its application to EFL writing. Likewise, in Taiwan, although there have been some studies that investigate effects of the story mapping strategy on reading comprehension (Chang, 2003; Yeh, 2002) or writing performance of elementary school students (Hsu, 2001) in a L1 context, there has been little research that studies effects of story mapping instruction on English writing. By investigating effects of story mapping on picture-guided writing in a second-year senior high school EFL classroom, the present study attempts to show that the strategy of story mapping, providing a visual concept of basic story elements, plays an important role in helping students write well-organized stories in English. The research addresses the following two questions:

1. Do the participants have better content and organization in their stories after receiving story mapping instruction?
2. Do the participants write more story elements and improve the details of their story elements after receiving story mapping instruction?

LITERATURE REVIEW

Writing instruction, according to Applebee (1986), used to be product-centered, emphasizing correct usage and mechanics, and little attention was given to the process approaches. Recently, the focus on writing instruction has shifted from the product of writing to the process of writing. With this change of focus, both researchers and instructors have been emphasizing the importance of involving writers in pre-writing experience before the start of actual writing (Noyce & Christie, 1989). Appropriate pre-writing activities can help students generate more ideas for writing and better structure the content (Tompkins & Friend, 1986). Among the pre-writing activities, story mapping has been proved to be a helpful activity for story writing.

Story mapping, a schematic and strategic learning tool based on the concept of story structure or story grammar (Mandler & Johnson, 1977; Stein & Trabasson, 1982; Thorndyke, 1977), is of great importance to reading instruction and writing instruction. Providing a visualized story schema and basic elements of a story, the strategy of story mapping enables readers to get a better picture of the relationship among all story elements and hence to comprehend a story more quickly and easily. Writers as well benefit from use of the story mapping strategy. With the concept of story structure or story grammar, writers can develop and construct better-organized and more coherent stories. Various cognitive and psychological theories, including schema, meta-cognitive and reduction theories, have supported application of story mapping to language learning (Foley, 2000).

Effects of story mapping on language learning have been extensively investigated. Based on the research that was done on story mapping, it is concluded by Jackie (1989) that the story mapping strategy assists language learners with respect to all four skills, namely, listening, speaking, reading comprehension and writing. When we consider its effects on writing, three issues have been discussed in the literature.

The first issue is concerned with whether the story mapping strategy promotes students' story writing ability. According to Brown (1988), the story mapping strategy has the best effects on the quality of L1 students' story writing among three pre-writing strategies, namely, story mapping, webbing and brainstorming. The participants in this study, comprising 24 fourth grade L1 students, received different types of pre-writing activities: Experimental Group 1 engaged in the story mapping activity; Experimental Group 2 engaged in the webbing activity; and the Control

Group engaged in the brainstorming activity. The story mapping activity was designed by giving questions about story elements for guiding the writing of stories. The story elements or units in the study included setting, initiating event, internal response, attempt, consequence and reaction. Results of the study indicated that the group engaged in the story mapping activity scored significantly higher than the other two groups in terms of the primary story elements. This finding showed that the story mapping activity was the best pre-writing activity among the three pre-writing activities for story writing. According to Brown (1988), the story mapping strategy benefited not only the students' reading comprehension but also their ability of story writing. Furthermore, Fitzgerald and Teasley (1986) found that when fourth grade L1 students received story mapping instruction, the overall quality and organization of their writing was improved. As to the studies in Taiwan, Hsu (2001), investigating direct instruction of story mapping on Chinese story writing proficiency, reported that the experimental group of 61 sixth graders outperformed the control group significantly in terms of the "total score", "content", and "organization" of story writing.

The second issue discussed in the literature on the story mapping strategy for writing is concerned with whether there is an increase in the number of story elements in students' writing after story mapping instruction. Harris and Graham (1992) showed that a group of fifth grade L1 students, including both normal achieving students and several students with learning disabilities, improved in the number of story elements and in the details included in their stories. Likewise, according to Saddler, Moran, Graham and Harris (2004), the six African American second grade participants composed longer stories with more story elements and richer story details after pre-writing planning instruction of story grammar.

The third issue that has been discussed in the literature is whether students make progress in all the story elements. In Fine's (1991) research, the participants included 77 L1 second graders. The teacher gave direct instruction of story grammar elements, including "characters", "setting" and "plot", to the experimental group. The results of ANOVAs on the means of the post-test story grammar scores, the total adapted-Glazer Narrative Composition Scale scores and the holistic scale scores showed significant improvement in writing achievement of the experimental group over that of the control group. Qualitative analysis also showed that students had a good understanding of the

concept of “character” at the pre-test and post-test interview. Eight students who could not manipulate “plot” before the instruction could do so after direct instruction of story grammar. Five students who could not identify or manipulate “setting” could do so after direct instruction of story grammar. Moreover, the students in the experimental group also reported that they would think of “characters”, “setting” and “plot” before writing a story after learning to use story mapping as a strategy.

The studies reviewed above have shown that story mapping instruction greatly benefits L1 story writing. However, these studies did not discuss the correlation among the three issues mentioned above. If such a correlation is found, then the positive effects of story mapping instruction on writing, as reported in previous studies, can be further confirmed. In addition, many of the studies were focused on either elementary school students or students with learning disabilities in a L1 context, but not on EFL students. To the best of our knowledge, no research here in Taiwan has been conducted to investigate effects of story mapping instruction on EFL students. It will be more desirable if the story mapping strategy, which has greatly benefited L1 story writing, can be shown to also benefit EFL story writing. Therefore, the present study aims to investigate whether the story mapping strategy helps EFL students improve their story writing performance.

METHOD

Participants

The participants in the study were 76 juniors in high school, consisting of 53 female and 23 male students, in Ping-Jen Senior High School in Taoyuan County, Taiwan. These participants, between 16 and 17 years of age, were social sciences majors. They had six English hours per week, including two hours of writing classes. The majority of the participants had received four years of formal English instruction before this study: three years in junior high school and one year in senior high school. Prior to participating in the present study, none of them had been exposed to any type of story mapping instruction.

Materials

Four stories, a simplified version of *The Last Leaf*, a simplified

version of *The Phantom of the Opera*, *The Unicorn in the Garden* and *Just a Taxi Ride*, were chosen as the reading texts for this study, based on consideration of the story structure, readability level, which is determined by using a Tools function of Microsoft Word, and length suitable for the participants and the story mapping instruction. Table 1 summarizes the length, readability and sources of the selected articles. One may find that readability of the selected articles was relatively low for senior high school students. This is because in this way it would be easier for the participants to determine the story elements. If readability of the selected articles was too high for them, it would take them more effort to comprehend than to analyze the stories.

Table 1. Summary of Length and Readability of Selected Articles for Story Mapping Instruction

Selected articles	Length	Readability	Source
<i>The Last Leaf</i>	688	3.0	American Writers & Their Works
<i>The Phantom of the Opera</i>	426	4.5	Sanming Textbook
<i>The Unicorn in the Garden</i>	536	4.7	http://btflatt.tripod.com/stories/thurb1.htm
<i>Just a Taxi Ride</i>	703	5.4	Lungteng Textbook

Story Mapping Instruction

The whole story mapping instruction lasted for four weeks, two hours per week. The first hour was devoted to instruction on story mapping and the second hour to the students' practice on applying the strategy to writing of stories. Each week, one of the selected stories was used as materials for illustration of the story mapping strategy in the first hour of the class. Overall, there were four components in the instruction: introduction of the concept of story grammar and mapping, modeling, story mapping cloze test and picture-guided writing. These components of instruction echoed Harris and Graham (1992), who contended that only when students were familiarized with all the story grammar units could they compose a well-constructed story. The following are the details of the instruction.

Introduction of story mapping

During this phase, the instructor (i.e. one of the researchers) first

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introduced the common story grammar elements, adopted from Harris and Graham (1992), including (1) character(s), (2) locale, (3) time, (4) starter, (5) goal, (6) action(s), (7) ending and (8) reaction. Then the instructor discussed with the students the goal of the story mapping instruction and the ways that inclusion and expansion of story grammar elements could improve a story. The instructor also outlined and explained the instructional procedures, strategy steps and story grammar mnemonic. This gave the students a simple description or definition of the story mapping strategy and the idea that acquiring this strategy would help them become better story writers.

Modeling

In the modeling phase, the instructor showed the participants how to do story mapping for the selected stories. The instructor first presented Harris and Graham's (1992) Story Rating Scale (See Appendix A) and gave a detailed explanation of each story element or unit in the text structure of a story. Then she identified the story grammar in one of the selected stories, e.g., *The Last Leaf*, and explained to the students the text structure of the story by graphing of the form (See Appendix B).

Story mapping cloze test

In this phase, the instructor led the students to identify story grammar elements in the other selected stories. She discussed with the students how to fill out the story map and answered students' questions.

Picture-guided writing

In this phase, the instructor investigated how well students could transfer the knowledge of story mapping strategy to real writing.

During the one hour of writing, the students were given a set of three sequential pictures (but without one for the ending, following the practice of the JCEE) and a blank form of the story map indicating categories of story grammar elements such as "main characters", "locale" and "time" under the main category "setting". The students were asked to fill out the story map based on the given sequential pictures. Then they used this map as a guideline for writing their stories. In the next writing class (namely in the following week), the instructor gave feedback on the students' writing by giving comments on the writing and showing samples of both well-constructed and poorly-constructed stories. Worth noting is that the instructor's comments were mainly focused on the story structure rather than on grammar or vocabulary

skills because the purpose of this study is whether story mapping can help improve picture-guided writing performance. The instructor also explained why some students' stories were better than others', hoping that the students could learn from their peers and compose better stories.

Data Collection

The study lasted for ten weeks from March 2004 to May 2004. Data were collected both quantitatively and qualitatively. Quantitative data were obtained from the pre-test, post-test and questionnaires; qualitative data were obtained from an interview, which was conducted on the basis of the questionnaires in order to elicit further responses. The pre-test and post-test both took about one hour, in which all the participants were asked to write a story based on the given sequential pictures. The questionnaire, which took about 15 minutes, was conducted a week after the post-test to elicit the participants' responses to the story mapping instruction (See Appendix C). Besides the questionnaires, the researchers, during a two week time period, interviewed half of the participants in order to elicit more responses to the story mapping instruction.

Data Analysis

The data collected were analyzed both quantitatively and qualitatively. A quantitative analysis was computed using the SPSS statistic package for Windows 12.0. A *t*-test was applied to compute the number of words of the results from the pre-test and post-test to detect whether the length of students' writing differed after the story mapping instruction. In addition, a *t*-test was used to compare and analyze the story grammar elements or units in students' writing.

The criteria of story grammar elements or units in the present study were based on those in the Story Elements Rating Scale by Harris and Graham (1992), with a slight modification.¹ There are eight elements or units, including "main character(s)", "locale", "time", "starter event", "goal", "action(s)", "ending", and "reaction". The total score was 19, with 0-3 for "characters", 0-2 for "locale", "time", "starter event", "goal", "ending" and "reaction" and 0-4 for "actions", respectively. If the students wanted to get higher scores, they had to elaborate on the item by providing more than one fact, one piece of detail, or by discussing the fact at length (See Appendix A).

During the rating procedure, each composition was scored under

each category of the story elements by two raters. If the scores given by the two raters differed by more than three points, the raters would give a new score after discussion. Furthermore, the JCEE Rating Scale by Chen et al. (1992) was slightly modified² to be the criteria of the writing performance. The measured components included content (5 points), organization (5 points), grammar (4 points), vocabulary (4 points) and mechanics (2 points). The total score of each composition was 20 points. The rating procedure of writing performance was the same as that of story grammar elements. The significance level for statistical results was set at .01 (**) for all the above-mentioned data analysis in this study.

Another source of the quantitative data came from the percentage of the participants' answers to each item on the questionnaire, which showed the participants' opinions and attitude toward the story mapping instruction. Furthermore, an interview was conducted to elicit more responses from the participants. Based on the feedback collected in the interview, a qualitative analysis was employed to reveal specific opinions of the participants over the issues under investigation in this study.

RESULTS AND DISCUSSION

Comparison of Word Count Between the Pre-test and the Post-test

Table 2 summarizes the average length of the stories written by the participants in the pre-test and post-test. The result shows that the participants wrote a longer story in the post-test after story mapping instruction. The mean score of the students' word count significantly increased by 105 words (Pre-test: 78; Post-test: 183). Before story mapping instruction, the participants typically produced relatively short and incomplete stories of poor quality with an average length of their stories as only 78-word long. After learning the story mapping strategy, all the participants wrote stories almost twice longer.

Table 2. A *t*-test of Mean Scores on Word Count in the Pre-test and Post-test

	<i>M</i>	<i>SD</i>	<i>t</i> -value
Pre-test	78	26.5	
Post-test	183	73.9 ³	13.69**

Note. ***p* <.01

A similar result of composing longer writing is also found in Saddler et al. (2004), in which the students' stories were 2.5 to 7 times longer after learning the story mapping strategy. However, the focus of their study was on L1 students with learning disabilities. The results shown in Table 2 demonstrate that story mapping instruction not only has positive effects on L1 students with learning disabilities but is also likely to benefit EFL students. Knowledge of the story structure or story grammar, according to Noyce and Christie (1989), serves as a source of the content of writing. With the framework of a story, writers could have more to write about and thus overcome the so-called writer's block. As shown by the statistical results, knowledge of the story structure is highly likely to help the participants compose longer stories, which could be due to the added details.

Comparison of Writing Performance Between the Pre-test and the Post-test

The results shown in Table 3 indicate a significant difference of the participants' writing score between the pre-test and post-test. Increase in the mean score of overall writing performance ($t=11.23^{**}$, $p < .01$) as well as in the five measured components ($t=11.03^{**}$, 11.63^{**} , 10.22^{**} , 7.75^{**} , 6.89^{**} , respectively, $p < .01$) is all significant. Worth noting is the fact that the increase in the mean score of "Organization" (11.63^{**}) and of "Content" (11.03^{**}) is the most remarkable.

Table 3. A T-test of Mean Scores on Writing Performance in the Pre-test and Post-test

	Pre-test		Post-test		t-value
	M	SD	M	SD	
Content	1.86	.73	3.09	.94	11.03**
Organization	1.45	.72	2.80	.98	11.63**
Vocabulary	1.32	.62	2.39	.90	10.22**
Grammar	1.09	.77	1.95	.82	7.75**
Mechanism	0.51	.50	0.95	.32	6.89**
Overall writing proficiency	6.34	3.08	11.17	3.50	11.23**

Note. ** $p < .01$

Because the focus of the treatment in the present study was on the participants' learning story mapping and its effects on their English story writing, it follows naturally that the participants performed better in the

text structure of their writing and could use story grammar elements as a guideline for elaborating details of their writing. It is necessary to note that the participants did not progress as much in other components such as “Vocabulary”, “Grammar” and “Mechanism”. This suggests that the treatment of story mapping instruction did have some positive effects on enhancing the participants’ story writing performance. This finding is supported by other studies such as Brown (1988), Fitzgerald and Teasley (1986), and Hsu (2001). In their studies, the participants also made improvement in content and organization in the compositions after story mapping instruction. The results shared by all these studies show that story mapping, an organized, schematic writing strategy, can play an important role in helping students generate stories with better organization and richer content.

Comparison of the Average Number of the Story Grammar Units Between the Pre-test and Post-test

Table 4 shows a significant increase in the average number of the story grammar units (Pre-test: 5.05; Post-test: 7.33; $t=13.621^{**}$, $p < .01$). In the present study, there were eight story grammar elements or units in a well-constructed story. Before story mapping instruction, the participants wrote a story with 5.05 story grammar units in comparison with 7.33 story grammar units after the instruction. This was a significant improvement in students’ writing.

Table 4. A *t*-test of Average Number of Story Grammar Units in the Pre-test and Post-test

	<i>M</i>	<i>SD</i>	<i>t</i> -value
Pre-test	5.05	1.58	
Post-test	7.33	.87	13.62**

Note. ** $p < .01$

The fact that the participants wrote with more story grammar elements after story mapping instruction supports the findings reported in the previous research such as Harris and Graham (1992), Vallecorsa and deBettencourt (1997), and Graham and Harris (2004). In their studies, the students made improvement in the number of the story elements included in their stories. Despite the fact that the participants could write a roughly-constructed story with a limited number of story

elements, many of them failed to write a story with all the story elements. After receiving story mapping instruction, however, the participants made significant improvement in including more story elements in their story writing.

Comparison of the Mean Score of the Story Grammar Units Between the Pre-test and Post-test

Table 5 shows a significant increase in the mean score of the overall story grammar unit (Pre-test: 5.50; Post-test: 10.29; $t=17.715^{**}$, $p < .01$); each of the story grammar units reached a significant level. Among the eight story grammar units, the students made the most progress in “Action” and “Character” and the least progress in “Ending”.

Table 5. A *t*-test of Mean Scores of Story Grammar Units in the Pre-test and Post-test

	Pre-test		Post-test		<i>t</i> -value
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Character	1.03	.28	1.88	.54	13.35**
Locale	0.54	.50	0.99	.31	7.08**
Time	0.57	.50	0.99	.26	7.02**
Starter	0.86	.35	1.42	.55	7.98**
Goal	0.54	1.21	1.25	.44	4.75**
Action	1.18	.48	2.17	.82	10.05**
Ending	0.82	.42	0.97	.61	2.10**
Reaction	0.13	.34	0.78	.74	7.07**
Overall SG	5.50	1.89	10.29	2.53	17.72**

Note. ** $p < .01$

The results of the progress made regarding each of the story grammar units support the findings reported in the previous studies. According to Fine (1991), direct instruction of story mapping helps the students improve the details of each of their story grammar units. The researchers in the present study found that the participants had developed the ability to describe more details in actions by creating more episodes in their stories after receiving story mapping instruction. Therefore, the stories written in the post-test appeared to have more creative and coherent actions. The participants in the present study were also found to describe the main characters in greater detail with respect to the characters’ physical appearance, characteristics and feelings after

receiving explicit story mapping instruction. It is suggested that when the students are provided with instruction of a distinct organizational structure, they are more likely to internalize this structure and use it in the writing development of narrative stories. On the other hand, in comparison to the other story grammar elements, the participants did not perform as remarkably in the category of “Ending”. Noteworthy is the fact that this less remarkable progress in “Ending” still reached a statistically significant level. This suggests that even without the aid of pictures, the participants could perform better in this category, e.g. by including this story grammar element in the writing or elaborating more details about it. This once again supports our claim that the story mapping strategy does help EFL students in story writing. Another possible relevant cause of the less remarkable progress could be due to the participants’ poor time management skill in meeting the time constraint of finishing their writing.

Correlation of Score of Story Grammar, Writing Performance and Word Count

As briefly mentioned earlier, research on story mapping instruction rarely reported the correlation between the story mapping strategy and writing performance. In the present study, the researchers investigated the correlation among the story grammar units, writing performance and word count. Table 6 shows a strong correlation among the story grammar score, writing performance score and word count number. The correlation between the score of story grammar and that of writing proficiency is .83**; the correlation between the score of story grammar and word count is .68**; the correlation between the score of writing proficiency and that of word count is .57**.

Table 6. A Correlation-test of Mean Scores on SG Units, WP and Word Count ($N=76$)

	SG	Writing Performance	Word Count
SG	1	.83(**)	.68(**)
Writing Performance	.83(**)	1	.57(**)
Word count	.68(**)	.57(**)	1

Note. ** $p < .01$

Given a positive correlation among word count, story grammar units

and writing performance, we suggest that story mapping instruction is highly likely to improve the text structure of the participants' stories, which in turn helps the participants compose writing of greater length, better organization and content, thus contributing to their overall story writing performance.

Results of the Questionnaires

Table 7 displays results of the questionnaires on the story mapping instruction. The results reveal that the majority of students liked or strongly liked the story mapping instruction (Item 1, 86.8 %). They also reported that story mapping instruction helped them understand the story structure (Item 2, 97.3 %), provided them with more ideas to write about (Item 7, 93.4 %), and improved their English story writing (Item 3, 94.8 %) and writing performance (Item 4, 92.1 %). Most of the students agreed that story mapping helped enhance their confidence in writing (Item 5, 81.6 %) and reduced their writing apprehension (Item 6, 73.7 %). Moreover, the students also thought that story mapping instruction enhanced their reading comprehension (Item 8 & 9, 82.9 % and 80.3 % respectively) because it provided them with knowledge of the story structure, which helped them predict the development of stories and have a better reading comprehension. In addition to the positive feedback on capturing the concept of story grammar elements and improving their story writing ability, results of the questionnaires show that the story mapping strategy also helped the participants in reducing writing apprehension and enhancing reading comprehension.

Results of the Interview of Students' Response to the Story Mapping Instruction

Based on the results gathered from the questionnaires, the researchers interviewed half of the students to elicit further responses. Most of the interviewed students reported that they enjoyed reading, analyzing and creating stories during the instruction. They considered story mapping an effective learning strategy that offered them the schema of the story structure. With the story schema, they comprehended and composed stories more easily and confidently. Most of the students recognized story mapping instruction as a non-threatening, enjoyable activity and regarded story mapping as a useful pre-writing activity, which helped them organize stories they wrote. Some representative responses are as follows:

Table 7. The Percentage of Items on the Response to the Story Mapping Instruction ($N=76$)

Item	Strongly Disagree & Disagree		No Comment		Strongly Agree & Agree	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1. I like story mapping instruction.	5	6.6	5	6.6	66	86.8
2. Story mapping instruction helps me understand the story structure.	1	1.3	1	1.3	74	97.3
3. Story mapping instruction helps me with English story writing.	1	1.3	3	3.9	72	94.8
4. Story mapping instruction helps me with English writing.	4	5.3	2	2.6	70	92.1
5. Story mapping instruction gives me confidence in English story writing.	10	13.1	4	5.3	62	81.6
6. Story mapping instruction reduces my writing apprehension.	15	19.7	5	6.6	56	73.7
7. Story mapping instruction gives me more ideas to write about.	2	2.6	3	3.9	71	93.4
8. Story mapping instruction helps predict the development of stories and improve my reading ability.	5	6.6	8	10.5	63	82.9
9. Story mapping instruction helps me comprehend stories better and improve my reading ability.	6	7.9	9	11.8	61	80.3

S 306: I like the feeling of getting everything set and done as planned. I find that once the story structure is planned, writing stories becomes a relatively unproblematic and easy task for me.

S 411: After learning about story mapping, I find story writing an

enjoyable task. I can create my story step by step, which gives me confidence in my writing ability.

S 316: Now, I am used to making a plan before I write. I would spend about five to ten minutes writing down the story outline to have a general framework of the story and then write my story down in details. This instruction helps me work out an outline of a story efficiently and makes me feel more confident.

S 422: I have more to write about with the help of story maps. Besides, I think I write with better organization and coherence instead of writing whatever comes to my mind.

S 411: When writing based on the story maps, I could generate more ideas and compose longer and imaginative stories.

Summarizing the results gathered from the questionnaires and interviews, an overwhelming number of participants expressed that they liked story mapping instruction since it improved their story writing performance and boosted their confidence in English writing. Nevertheless, explanation regarding some students' reservations about Item 5 and 6 (13.1% and 19.7 % strongly disagree and disagree respectively) is in order. A possible reason may be that strict time constraint on filling out the story mapping form and composing the stories within one hour gave some students pressure in doing the English writing assignments, as reported by some students during the interview, which in turn made them nervous about writing in English. Another reason we speculate is that anxiety about writing in English is simply too big a barrier for some students to overcome. Eight of the participants expressed their preference for analyzing the reading passage rather than writing their own stories. This reluctance to write reflected that some students regarded writing in English as a challenging task. To further help these students who still have anxiety about writing in English, we suggest that more time be allowed for students to finish their writing assignments and more individual guidance be provided in using the story map for planning their writing.

Overall, given both the quantitative and qualitative results above, we would like to suggest that the story mapping strategy is highly likely to play a role in enhancing students' picture-guided story writing ability. First of all, notice that the results in Table 4 and Table 5 straightforwardly support the claim that treatment by story mapping

instruction helped the participants perform significantly better in terms of including more story grammar elements and scoring higher in each of the story elements. We consider that because the focus of the treatment in this study was on familiarizing the participants with the story mapping strategy in order for them to apply it to picture-guided writing, the participants did demonstrate progress in handling aspects of story grammar in their writing. We believe that mastering of story grammar elements also contributes to the significant progress of students' story writing performance. As shown in Table 3, the two most remarkable categories in terms of progress are content and organization. This result is not a surprise because with the concept of story grammar, the participants had a better text structure in their writing and thus scored higher in the category of organization. Also, equipped with the concept of story grammar elements as a guideline, the participants would include more story elements and give more details to each element. This in turn resulted in a longer piece of writing, as demonstrated by the increase of word count between the pre-test and post-test in Table 2. The correlation among mastery of the story mapping strategy, writing performance and word count is confirmed in Table 6. In addition to the quantitative results above, other results also support our claim that the treatment of story mapping instruction plays a role in helping the students perform better in story writing in English. As shown in item 2, 3, 4 and 7 in Table 7 and feedback from the interviews, students reported that they benefited greatly from learning about story grammar for their English writing. Therefore, given both the quantitative and qualitative results, we consider that although the maturation effects might be a confounding factor for claiming positive effects of the story mapping treatment on the students' English writing performance, it is difficult to deny the important role played by the story mapping strategy in students' progress in English story writing. As pointed out above, the participants did perform the best in the target areas of writing (e.g. organization, story grammar elements, etc.) which were emphasized in the treatment and they reported not only enjoying the learning of story mapping but also thought it helpful for their English writing. For this reason, although we still cannot totally attribute the participants' progress in this study to the story mapping treatment, yet it is also difficult to deny that the story mapping strategy is highly likely to play a role in enhancing students' story writing ability.

Some pitfalls in implementing the story mapping strategy in

instruction are in order. First, we found that it was somewhat difficult to find stories which perfectly met the format of the eight story grammar elements adopted in this study. Many of the modern short stories do not seem to conform to such a text structure. Therefore, some effort needs to be exerted for locating suitable stories with the targeted story grammar. Second, it was difficult for some of the participants to finish both the story mapping form and the composition during the one-hour writing class, which may have led to their difficulty and haste in writing the ending of their story, as discussed earlier. We suggest that the students be allocated more time in practicing using the story map or be taught skills of time management. Third, several participants felt difficulty in handling all the eight story grammar units adopted in this study. We suggest that the students be given a smaller number of story grammar units. Fourth, we found that some of the participants lacked creativity and imagination in composing their stories even with the aid of pictures. Therefore, some more guidance needs to be provided for such students. Another limitation in this research involves design of experiment. To exclude maturation effects as a confounding factor for benefits of story mapping treatment on students' English writing performance, it will be more desirable to have a control group in order to have their performance contrasted with that of an experimental group in future studies.

CONCLUSION AND IMPLICATIONS

Both the quantitative and qualitative results gathered from the current study strongly suggest that explicit story mapping instruction played an important role in helping the participants capture the concept of story grammar and improve their story writing performance. On the one hand, this conclusion supports the claim made in Fine (1991), Vallecorsa and deBettencourt (1997), and Harris and Graham (1992) that story mapping instruction helps generate more story elements and improve details of the story elements, and also supports the claim made in Brown (1988), Fitzgerald and Teasley (1986), and Hsu (2001) that story mapping instruction helps improve students' story writing performance. On the other hand, the present study explores some interesting topics which have not been investigated in previous studies. First, a positive correlation among the length of stories, story grammar units and story writing performance is confirmed, an issue which has not

been discussed in the literature. Second, to the best of our knowledge, in previous studies on the positive effects of story mapping on writing, the participants were either elementary school students or students with learning disabilities in a L1 context. The results in this study suggest that the story mapping strategy is equally helpful for the average EFL student. Third, as far as we know, there has not been much research on the effects of story mapping on picture-guided writing but just on topic-guided writing. Results of the present study suggest that story mapping is a good pre-writing activity for picture-guided writing.

Based on results of the study, some pedagogical suggestions on English writing are provided for the EFL writing instructors. First, EFL writing teachers can incorporate the concept of story mapping or other text structures into writing courses. They are advised to provide story mapping and other appropriate pre-writing activities to help students overcome writer's block and generate more ideas to write about in their compositions. This also helps to raise students' awareness of the writing process. The positive role played by the story mapping activity in the present study indicates that the story mapping strategy is worth adopting by EFL English writing instructors and learners, especially when the writing task is of the category of stories or of picture-guided writing. In addition, to help students lacking creativity or imagination compose their stories, the instructors are advised to provide proper reading selections to integrate the reading class with the writing class. In this way, students will be able to collect more ideas to write about from the reading selections.

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NOTES

1. The score of “main character(s)” was modified from 0-2 to 0-3, and that of the “goal” was modified from 0-3 to 0-2 because emphasis was placed on description of characters in this study.
2. Scores of every item in the JCEE Rating Scale by Chen et al. (1992) are 0-4 points. In the study, scores of every item were modified as: content (5 points), organization (5 points), grammar (4 points), vocabulary (4 points) and mechanics (2 points).
3. The relatively high SD of the post-test, in comparison to the SD of the pre-test, may result from the fact that students of high proficiency level made much more progress than those of low proficiency level.

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Jen Ting & Chiu-yu Huang

CORRESPONDENCE

*Jen Ting, Department of English, National Taiwan Normal University, Taipei, Taiwan
E-mail address: ting@ntnu.edu.tw*

*Chiu-yu Huang, Ping-Jen Senior High school, Taoyuan, Taiwan
E-mail address: iris_huang01@yahoo.com.tw*

APPENDIX

Appendix A. Wordlist for Experimental Group

Units of SG	Scale for Scoring	
Main Character	0	No main character is established.
	1	A main character is presented; however, he/she is just a name on a page. Very little information or detail about the main character is provided.
	2	A main character is presented and described in detail.
Locale	0	No locale or place is mentioned.
	1	Locale given, but little description offered.
	2	Locale given, with more complete description offered or unusual locale is chosen.
Time	0	No time is given.
	1	Time is given, but traditional in reference.
	2	Time is given, but unusual in reference or more complete description.
Starter Event	0	The precipitating event that causes the main character to establish a goal is not presented.
	1	The precipitating event that causes the main character to establish a goal is presented. The precipitating event can be a natural occurrence (a landslide), an internal response (loneliness), or an external action (the dragon stole the jewel).
	2	The precipitating event is complex, unusual, or well described.
Goal	0	The goal or purpose of the main character is not established.
	1	The goal or purpose of the main character is established, but not clearly articulated.
	2	The goal or purpose of the main character is clearly articulated.
	3	Add one additional point if two or more goals are clearly articulated.
Action	0	The actions that the main character initiates in order to achieve the goal are not presented.
	1	What the main character does in order to achieve the main goals is presented.

	2-4	Add one point for each of the following: actions or events happening in a logical order, ingenuity or originality being used to solve situations or predicaments, more than one well-defined episode.
Ending	0	No real ending, lack of conclusion, or story seems unfinished. In other words, the long-range consequences of the main character's actions are not resolved.
	1	Long-range consequences of the main character's actions are resolved, but the ending or conclusion is fairly common.
	2	Long-range consequences of the main character's actions are resolved. In addition, the conclusion or ending is unusual, or the ending contains a moral.
Reaction	0	The emotional reactions of the main character are not presented.
	1	Some emotional feelings are expressed by the main character.
	2	Emotional feelings of the main character expressed with depth.

Note. Adapted from "A Scale for Scoring the Inclusion and Quality of the Parts of a Story" by Karen R. Harris and Steve Graham (1992)

Appendix B. The Story Map of *The Last Leaf*

Setting	Main Characters	Sue, a good friend of Johnsy Johnsy, having got pneumonia, dying Behrman, a model, boasting about his masterpiece
	Locale	The top of a building in Greenwich Village
	Time	Winter
Problems	Starter Event	Johnsy got pneumonia and had little chance to live.
	Goal	Behrman hoped Johnsy gets the desire to live.
	Action	1. Johnsy was counting the remaining leaves on the ancient tree. 2. She believed she would die when the last leaf fell. 3. Behrman spent a night painting a make-believe yellow leaf to encourage Johnsy. 4. Johnsy didn't want to die after seeing the last leaf.
Solution	Ending	1. Behrman died after painting the last leaf. 2. Johnsy had a will to live on after seeing the leaf.
	Reaction	Sue was touched by Behrman's last leaf.

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Appendix C. The Questionnaire on the Story Mapping Instruction for English Writing

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>No Comment</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. I like story mapping instruction.					
2. Story mapping instruction helps me understand the story structure.					
3. Story mapping instruction helps me with English story writing.					
4. Story mapping instruction helps me with English writing.					
5. Story mapping instruction gives me confidence in English story writing.					
6. Story mapping instruction reduces my writing apprehension.					
7. Story mapping instruction gives me more ideas to write about.					
8. Story mapping instruction helps predict the development of stories and improve my reading ability.					
9. Story mapping instruction helps me comprehend stories better and improve my reading ability.					