

A study of students' self-regulated revision on writing

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Abstract. Student writing development is not likely to happen without revision. In this computer-assisted learning era, revision is increasingly practiced as a self-regulated process. Students can regulate their revision behaviors through cognitive strategies like goal-setting or social strategies like peer review. We examined possible effects of writing goals together with peer review on college students' self-regulated revision in order to better understand how to enhance that revision. We asked one research question in particular. What kinds and effects of revisions did students produce in the digital learning context of the current study? 52 U.S. college students participated in this study. During the 16-week semester, students were instructed to write two papers (with writing goals written at the end), each in two drafts. When they finished writing each draft, they submitted documents into an online writing and peer review system (Peerceptiv), reviewed peer papers, gave required comments and ratings, wrote reflections based on peer review, and then revised and resubmitted their drafts. We found that students made targeted revisions. High level revisions occupied a bigger percentage in terms of changes of sentence numbers. Revision-caused writing score improvement was not tremendous, but statistically significant.

Keywords: self-regulated revision, Peerceptiv, Third Keyword.

1 Introduction

Deep, lasting learning of any subject matter requires self-regulation, including writing. Writing, as a complex cognitive task, entails self-regulation to orchestrate the sub-processes, and adjust writing efforts for better writing achievement (Schunk & Zimmerman, 2007; Harris, Graham, MacArthur, Reid, & Mason, 2011). The improvement in writing is gradual, which needs serious efforts from both instructors and students. Computer technology provides facilitation tools to increase writing practice and feedback and helps transforming writing into a self-regulated learning process. High levels of self-regulation are required from a student writer in the —usually “self-planned, self-initiated and self-sustained” writing activities (Zimmerman, 1997, p.73). Many researches pointed out students' lack of self-regulation capacity and aimed to elicit and develop self-regulation strategies in students (Bereiter & Scardamalia, 1987; Zimmerman, 1997; Nilson, 2013). Self-regulated learning has become an area of interest within writing research, though the writing specific self-regulation research is still scarce. Self-regulation of writing is interwoven with students' use of cognitive,

social and behavioral strategies. Students make use of their repertoire of sources and strategies to regulate their writing behaviors, through cognitive strategies like goal setting and social strategies like seeking peer assistance. The present study aims to shed light on the respective and collaborative impacts of writing goals and peer review as social cognitive strategies on students' revision.

1.1 Revision strategies through goal setting and peer review

Goal setting and peer review are both important self-regulation strategies to enhance writing and revision. Even though goal setting is an effective and flexible intervention technique, there has been less focus in the literature on goal setting interventions than on teacher and student feedback (Graham & Perin, 2007). Goal setting, as an integral component in strategy instruction together with feedback, needs to be given more importance. In addition, little research has been done by integrating goal setting and feedback into writing performance enhancement (Schunk & Schwatz, 1993; Alitto, et al., 2016), though the two probably interact proactively in promoting writing performance. Also, previous studies on goal setting's effects on revision deal with teacher-set goals for younger learners. From a self-regulation perspective, college students' decision making in writing and revision is largely based upon the mental representation of their own goals. In a self-regulated online writing environment for college students, elicitation of students' self-generated writing goals approximates more the reality of student writers' inner mental processes and decisions in writing.

1.2 Revision taxonomies

Revision can be identified and revealed through the types of revision writers make in writing, since revision leaves a record of what has been changed from first draft to later drafts. Faigley and Witte (1981) tested their taxonomy of revision changes by coding and comparing only six research samples. Sengupta (1998) further coding of revision in terms of types, sizes and functions is more explicit in determining the multi-facet dimensions of revision, the workable counting of the numbers of changes and thus more reader-friendly to be applied. Later revision categorizations are largely based on the above mentioned studies to cover the operations, types and functions of revisions (e.g. Min, 2006).

2 Research design

2.1 Research questions

Specifically we asked one foundational question about self-regulated revision behaviors. The question is: What kinds and effects of revision do students produce?

2.2 Research participants

The participants were 52 undergraduate students from a variety of majors enrolled in an introductory Cognitive Psychology course at this large public university in the Northeastern United States. These 52 students agreed to include their class tasks in this research study, and then completed the writing tasks and surveys analyzed here. These enrolled students are with slightly above average mean on the college entrance examination SAT scores (max = 800, national means of approximately 500): SAT math mean=606, SD=69; SAT verbal mean=611, SD=80; SAT writing mean =596, SD=75. Student writers who complete all four assignments including writing goals, peer review, self-reflection from peer review and revision fall into 52.

3 Results and Discussion

Across the 52 student draft 1/draft 2 pairings, a total of 476 revision changes were found. In terms of frequency, each student made an average of 9 revisions (keeping in mind that some revisions could affect multiple sentences). That is, students were making targeted revisions, rather than entirely rewriting their papers. In terms of size, revision has been made within, equal to or beyond a sentence. Within sentence boundary, revision happened at format, letter, word, phrase and clause level. Beyond sentence boundary, revision happened at sentential and paragraphical level. There was no case of rewriting the paper. 61% revision fell into sizes within sentence boundary, and 39% revision fell into sizes beyond sentence boundary. The categories and percentages are as follows.

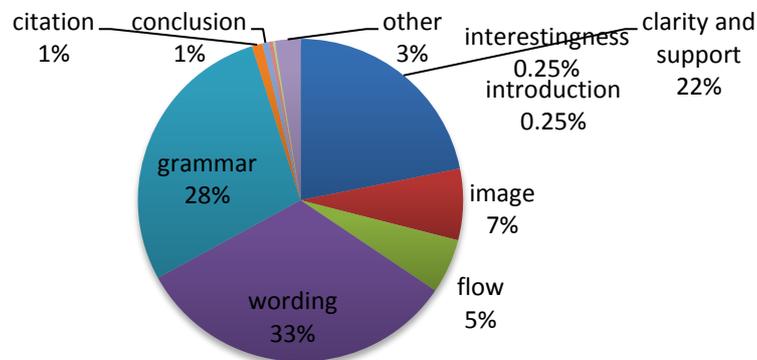


Figure.1. Revision categories and percentages

In terms of effects, revision was explored in two ways. We measured whether or not students improved paper ratings over drafts. Then, we count frequencies of function of revisions to measure the contribution of revision. Revision was measured by the improvement of scores from first draft to second draft. A paired t-test ($t(51)=3.92$, $p<.002$, Cohen's $d=0.54$) of paper ratings from draft 1 to draft 2 showed paper ratings improved by a mean of 0.21 (out of 7). Slightly more lower-scored Draft 1 papers tend to improve more in Paper 2 round. It suggests that students did not make revolu-

tionary progress between drafts, though they did improve through revision and their improvement were statistically important. Among the revision change categories, clarity and support, grammar, and wording are the most common categories in revision, while interestingness, introduction, and conclusion were the least taken care of. Citation change was a newly emergent category.

In terms of the number of sentences involved in the change, clarity and support occupied the large amount of textual change, which can be seen through the mean number of sentences change under each category as listed below (Table 1).

Table 1. Mean number of sentences changed under each category

	Clarity	flow	Image*	Introdu- tion	Conclusion	Interesting- ness	Cita- tion	Wording	Grammar
Mean #	3.4	2.5	NA	4.0	2.3	11.0	6.0	1.0	1.2

4 Conclusion

To summarize, revisions were measured in terms of types, functions, paper rating improvements and sentence numbers. It is in line with writing research tradition (Faigley & Witte, 1981; Min, 2006; Sešek, 2016). When students regulate their revision behaviors, they might not orient towards an absolutely right direction. However, their revision needs to be analyzed in detail, so as to understand what issues could fall into their revising action and how revision can be enhanced.

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