

Book Review**Automated written corrective feedback in research paper revision: The good, the bad, and the missing, by Qian Guo, Ruiling Feng, Yuanfang Hua****Reviewed by:**

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L2 graduate students face the dual struggles of being both second-language speakers and novice research writers. Publication is an important indicator of one's academic potential, but the language barrier and a lack of research-writing experience often hinders L2 students' ability to get published. In *Automated Written Corrective Feedback in Research Paper Revision*, Qian Guo, Ruiling Feng, and Yuanfang Hua show the potential AWE systems have to help L2 students overcome these barriers to publication. The authors study the usage of automated writing evaluation (AWE) systems in the context of research-based writing for students and explore the various ways in which it is helpful, limited, and could be improved for usage in this field/in this vein of writing. The authors present a powerful and convincing argument for the usage of AWE tools for developing writing skills needed to effectively engage in academic discourse.

Guo, Feng, and Hua begin with an overview of how AWE functions and previous research on these tools, asserting that there has been little research in the use of AWE tools for research-based writing, and that feedback accuracy will vary for a plethora of reasons, ranging from student engagement with the tool to student writing. To address these research gaps, the authors created a system-centric evaluation system and a user-centric evaluation system to judge the tool's accuracy as well as an engagement

study pertaining to the cognitive, behavioral, affective, and social engagement and factors affecting the effectiveness of AWE tools. Overall, these studies highlight the need for a better understanding of how AWE tools can be tailored to students' needs.

The researchers chose to use Grammarly due to its advantages over other similar AWE programs. The participants were 40 Chinese doctoral students who were already proficient or advanced English speakers; the first study was an evaluative study of how AWE tools affect the revision process, and the second was a study of how students engaged with AWE systems. Students were instructed to bring a rough draft of their paper to class. The experimental group was instructed in the usage of Grammarly before using it to revise their papers, and the control group was instructed in the usage of Grammarly after they revised their papers. The researchers collected the final drafts at a later date. They flagged errors throughout drafts one and two and then compared whether they were corrected in drafts two and three, respectively. To collect data on engagement, four volunteers from the evaluation studies were interviewed on their perceptions and attitudes of using Grammarly.

The evaluative study consisted of two parts: a system-centric evaluation and a user-centric evaluation. The system-centric evaluation revealed an impressive degree of precision compared to other AWE tools, with 67% of flagged errors being true positives. This rate is lower than those found in previous studies but, due to the technical nature of research writing (which Grammarly is not specifically designed for), is to be expected. However, Grammarly's recall fared much worse, catching only one-third of errors within the submitted drafts. The user-centric evaluation revealed that Grammarly had a significant positive effect on the error revision. Interestingly, the group that revised without the use of Grammarly first and then revised using the tool later significantly outperformed the group that used Grammarly throughout the revision process. The authors suggest that, despite being instructed that Grammarly cannot catch all errors, the experimental group relied too much on Grammarly and missed errors that it did not flag. These findings suggest that while Grammarly can significantly improve L2 students' writing skills, it ought to be used judiciously as to not promote over-reliance on a tool that can only do so much.

The engagement study revealed a number of individual and contextual factors affecting students' engagement with Grammarly. Greater independence awareness, or students' knowledge of the fact that they are expected to grow into independent scholars, was correlated with lower social engagement. Specifically, students aware that they were expected to be independent scholars were less likely to discuss their Grammarly use with others and more likely to solve problems related to the tool themselves. Additionally, genre awareness (i.e. awareness of what is expected in various types of research writing) and prior publication experience impacted how students acted on Grammarly feedback, with genre-aware and previously-published students being less likely to accept Grammarly feedback uncritically. Regarding contextual factors, the students viewed Grammarly as helpful in correcting "trivial

issues” such as grammar and punctuation errors, but were skeptical of Grammarly’s ability to correct higher level logical and structural errors and errors regarding technical terms. The students also praised Grammarly’s highly visible feedback and convenience; however, the researchers suggest that this might actually hinder the revision process, as the visible salience of Grammarly’s flags and the ease of correcting errors may distract students from errors that Grammarly does not flag. Finally, students became doubtful of Grammarly’s feedback when it contradicted the conventions within their disciplines, a finding in-line with previous studies that found ESL students prefer discipline-specific English resources as opposed to more general resources.

Summing up, the authors found that Grammarly significantly aided the revision process for ESL research writers. While there are a number of areas where Grammarly could be improved, such as recall ability and accuracy for higher-order issues and discipline-specific conventions, Grammarly is already a powerful writing aid for novice ESL research writers when used judiciously. Unlike prior research, the authors’ experimental design allows them to draw a definitive causal conclusion that Grammarly has a positive impact on the revision process for ESL writers. Additionally, the inclusion of a social element in their engagement study highlights the collaborative nature of research paper revision and gives us reason to believe that increased social engagement with AWE tools could positively impact the revision process, although more research is still needed. Regarding the limitations of this study, the authors acknowledge that the small sample size for their engagement study and the narrow context overall mean that their findings may not be generalizable to all ESL research writers; however, their findings are certainly noteworthy and suggest that AWE usage could significantly improve ESL writers’ abilities to engage in the academic discourse.

Of note is the authors’ choice to use Grammarly. The authors chose Grammarly due to its higher precision and recall compared to other AWE systems and for the high visual salience of its flags. This was both a blessing and a curse. While Grammarly provides more beneficial feedback than other tools, the high salience and accuracy of its feedback meant that students often ignored what it did not flag. This suggests that as AWE tools improve, students may begin to increasingly rely on them to do the work of revising for them. While Grammarly was undeniably beneficial to ESL research writers, educators ought to consider whether such a program is conducive to their goals. If the goal is to teach confidence and self-reliance during the writing process, perhaps a tool that holds the user’s hand less may be preferable to one that promotes over-reliance on an automated tool instead of cultivating a productive relationship with these systems.

The crossover design employed in the evaluative study is perhaps the most innovative decision the authors made in designing their experimental trials. As mentioned previously, prior studies may not have placed high emphasis on experimental trials, meaning that no causal link could be drawn between AWE usage and improved

revision performance. This might, at least in part, be due to ethical concerns regarding such a study. If the experimental group benefits from using an AWE system during the revision process, then the control group would have been denied the benefits of AWE usage, potentially hindering their ability to publish. This is particularly the case for high-stakes courses and writing, such as the TOEFL iBT. This is also particularly salient for ESL research writers, who may already face greater difficulties in getting published compared to their native-speaker counterparts. Given the importance of publishing in academia, being unable to use AWE tools may potentially harm a control group's career development in a crucial period. The crossover design, however, allowed for all participants to use Grammarly at some point in the revision process, avoiding potentially harming their future career prospects and providing an invaluable contribution to the literature on AWE use among L2 students.

Outside of the realm of teaching ESL research writers, the authors' findings also show the potential AWE tools have to benefit all writers. As it stands, AWE tools are best suited for correcting lower-order errors, such as grammar and mechanics. This suggests that those who struggle with the fundamentals of the language, which native-speaker students might be less likely to struggle with, could possibly benefit the most from AWE tools such as Grammarly. However, even for native speakers, AWE systems have the potential to significantly improve students' ability to revise on their own. By assisting students in catching lower-order concerns, students are able to spend more time focusing on larger issues that Grammarly cannot catch, such as structural and logical errors. For those helping students revise their work, such as tutors, professors, and writing center staff, widespread adoption of AWE tools could mean that students submit work with fewer lower-order issues, allowing them to focus their time on higher-order issues that students may not be able to address on their own. Ultimately, widespread usage of AWE tools promises to allow students and support staff to focus on more complicated issues in greater detail by automating the more time-consuming and attention-demanding tasks of editing and revising.

Considering the authors' findings, educators should be mindful when incorporating Grammarly in the revision process. There is no one-size-fits-all approach to employing Grammarly in various pedagogical contexts, and perhaps the most important conclusion to be drawn is that educators should encourage Grammarly use as a tool for correcting lower-order concerns and not as a silver bullet, so to speak, for all issues. As the book also indicates, more research is needed to generalize the authors' engagement findings, but it appears that creating a culture where seeking help is encouraged could help students use Grammarly in thoughtful ways that build discipline-specific competency. Finally, until AWE tools' recall ability improves, users should be advised that these tools are not a substitute for the revision process, but merely another tool. Still, with AWE tools' abilities improving constantly, it is almost certain that AWE use will increasingly enable ESL scholars to participate in the academic discourse on a level playing field with their native-speaker counterparts.

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