Use of Peer Review to Improve Student Writing Performance and Learning Efficiency

A Generation of Students that Can't Write

For many years, teachers, college professors, and employers have observed a steady deterioration in the quality of writing in students and new hires. Many core writing skills, including organization of thoughts, clarity of ideas, and use of reasonably complex sentence structures appear to be lacking in this generation. A culture of informal email and texting is no doubt a factor, but it's also clear the nature of writing teaching has changed over the years. Budget constraints and time pressures are contributing to fewer writing tasks assigned across all courses in the curriculum, and the length of these assignments is decreasing in size. The result is a student population that is not college and career ready.

There is little dispute that writing skills in high school students today are inadequate. The *National Assessment of Educational Progress* conducted its writing assessment in 2011, measuring students on their ability to, "persuade or change the reader's point of view; explain or expand the reader's understanding; and convey experience or communicate individual experiences to others." Only 27% of 12th graders performed at *Proficient* or *Advanced* levels, with significantly worse performance by males and non-Asian minorities.   Twenty percent of these students were found to be *Below Basic*, without even an elementary ability to compose thoughts in writing. Similar results were found in the test group of 8th graders.

It is estimated that colleges spend $2 billion annually in providing remedial education for incoming students not adequately prepared in writing, reading and math (*ECS, 2010*). In its last survey on remedial coursework, the *National Center for Education Statistics* reports remedial coursework being offered in 47% of private 4-year colleges, 67% of public 4-year colleges and 96% of public 2-year colleges. College professors estimate that 50% of incoming students are not prepared for college-level writing (*Achieve, Inc., 2005*)

Employers are also scrambling to provide supplemental training for new employees. A survey by the College Board found that 40% of U.S. employers offer or require training for salaried employees with writing deficiencies at a cost of approximately $3.1 billion annually. State governments spend an additional $200 million to provide training in memo, letter, technical report writing. Clearly high school and college classrooms are inadequately preparing students for the demands of the workplace.

Use of Peer Review in Writing Learning

Peer review has been used informally for many years as a way to enhance the efficiency and effectiveness of writing learning. Peer review offers a significant time savings for the teacher, enabling the assignment of a wider variety of writing tasks across an entire curriculum than could ever be possible if the instructor had to review and comment on each document. A recurring theme in research critical of writing instruction today is that the length of each writing task appears to be decreasing to the point where the student never develops the language processing and reasoning skills necessary to be a proficient writer (*Applebee & Langer, 2006*). Peer review offers a way to assign more and longer writing tasks without overburdening already stressed instructors.

Peer review also allows each student to become directly involved in a collaborative learning effort. The student benefits greatly from commenting on the work of others, and engaging in the critical thinking skills necessary to, in essence, teach the art of writing to his classmates. This twin benefit in the classroom – the scalability of teaching in addition to the critical thinking development by commenting on the work of others – are the primary benefits of peer review.

Bias and its Role in Peer Review

Despite its benefits, peer review has not been widely used to address the many issues in writing education. This is because in the past reviewer bias has factored into peer reviews and grading, and prevented students, instructors, parents and administrators from accepting peer feedback as objective.

Bias is inherent in any process in which people are critiquing the work of peers. This bias may manifest itself in the classroom by students grading their peers too easily (they may not want to be critical of their classmates) or too harshly (and have their own work appear inferior on a curved grading scale.) Or they may simply go through the motions without making a conscientious effort, offering generic reviews in an effort to save time and avoid the critical thinking necessary to generate objectively beneficial comments. Bias is the primary constraint to the broad adoption of peer review in writing improvement.

SWoRD Peer Review – the Benefits of Bias Elimination

This problem has been studied for a decade at the Learning Research & Development Center at the University of Pittsburgh. If a collaborative writing learning system was available to realize efficiencies and critical thinking benefits

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of peer review, but without reviewer bias, a significant improvement could be made in the writing skills in an entire generation of students.

Dr. Christian Schunn of the Pitt LRDC initially released SWoRD Peer Review in 2003, and re-wrote and re-released it in 2009. SWoRD includes the double-blind anonymity of assignment collection, commenting and distribution, allows the instructor to customize the rubric for each assignment, integrates a unique grading module, and most importantly includes proprietary algorithms to eliminate reviewer bias. It's this elimination of reviewer bias that allows the modern writing classroom to realize the full collaborative benefits of peer review. Panther Learning Systems Inc. is now the exclusive licensee of SWoRD Peer Review.

Tested by more than 4,000 students around the world, SWoRD includes the data flow logic and mathematical modeling to prevent bias from factoring into peer review results. The grading methodology incentivizes reviewers to take their task seriously. With bias eliminated, empirical studies show that multiple reviews from peers are more reliable and just as valid as a single review from an expert instructor (*Cho, Schunn, Wilson, 2006*). Another study demonstrates that written documents improve more via SWoRD-supported feedback than from instructor feedback (*Cho, Schunn, 2007*), regardless of subject matter or level of content. This appears to be because less 'distance' between peers facilitates information exchange, meaning that peers communicate more effectively with each other than in a traditional expert-to-student model.

As much as the core benefits of peer review enhance writing learning effectiveness, it may be the lack of suitable alternatives that is the primary driver of peer review adoption. In today's classroom there simply aren't the resources to teach writing skills any other way. Budgets are too limited, and instructor time constraints too great. Writing tasks simply won't be assigned without peer review, and, if they are, they will be shorter writing tasks than are necessary to adequately develop critical thinking skills. Just one example is one of SWoRD's test users in the Fall 2012 semester. A Biology professor at UNC Chapel Hill is teaching an Intro to Biology course with 350 students. Using SWoRD she has integrated 2 writing assignments into the semester – a news article on a genetic test for an 'athletic' gene and an essay on participatory citizen science. Without SWoRD, these assignments would not be possible.

Peer review has been slow to ramp up in the writing classroom because reviewer bias has prevented students and instructors from developing trust in the system. SWoRD Peer Review by Panther Learning eliminates reviewer bias and ensures that reviews are as objective and helpful as those done by the instructor. Bias elimination is fundamental to building trust in peer review, and is the technology that will enable the broad adoption of peer review in classrooms around the world.

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