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Book review

Student writing in the quantitative disciplines:
a guide for college faculty

Bahls, P. (2012). Wiley.

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Bahls' main idea in this book is that writing activities can be beneficial for students in courses that are traditionally more "quantitative." This book makes an important contribution to teaching practice because it illustrates practical ideas that could be used to engage students and to make the learning process better. Although it was written for college faculty, high school teachers would also find this an excellent resource. The strategies which Bahls presents and which he has personally used in his own classes are easy to understand and it would not be difficult for anyone to adapt these strategies in their own classrooms. Furthermore, he lists Internet resources, journal articles and links to organizations and conferences that contain more information on writing activities that could be utilized in these quantitative courses.

In the first chapter, Bahls explains the history of integrating writing in courses that are typically not writing-intensive. He describes his first attempts to use writing in his own class and he tries to encourage instructors to utilize this strategy. However, his best arguments for adapting writing in quantitative courses are found in the next chapters where he expounds on specific classroom activities. For example, he claims that creating web wikis forces students to recognize the interrelationships between concepts they learn because of the very nature of designing websites. He writes how in creating poetry, the process of picking out the right words to use might allow students to gain insights into the ideas they are writing about. He also describes his "watchword" exercise, asking students to analyze how certain jargon is used in everyday language and in technical discourse. Bahls asserts that this makes students learn the subtle meanings of words and the different ways they are used. This is consistent with what researchers such as Halliday (1978) have theorized regarding language "registers" in mathematics and how they affect mathematical understanding and learning.

The rest of the book focuses on how to actually implement writing in the classroom. The second chapter is on the writing process: writing outlines, drafting, reviewing and revising, and sequencing writing assignments in class. In the third chapter, he focuses on how to assess students' performance in these writing activities. Bahls emphasizes that the main point of writing in mathematical courses is not to learn how to write correctly but to learn the material better. He argues that assignments must be low-stakes activities. Bahls notes that students should be allowed to explore and discover ideas and to use writing to grapple with mathematical concepts. Therefore, he tries to convince other instructors that these assignments are not and should not be extremely hard to mark. Bahls also suggests that not all writing assignments should be read or graded. He writes that instructors should not be too concerned about grammatical and structural correctness since the point of these activities is learning concepts and not writing per se. Finally, he mentions that writing might not be adaptable to all courses.

He describes his attempt to use it in a Topology class, which ended up not producing the same effects as his other classes because of the abstractness of the concepts the students were studying.

Because the intended audiences of this book are teachers and instructors, little evidence from research is cited to justify the whole concept of writing in quantitative courses. In the last chapter, he writes that more studies are necessary to show how writing helps students learn. No justification is included on how writing could improve conceptual understanding, comprehension, or argumentation. Nevertheless, Bahls asserts that there is plenty of anecdotal evidence and that instructors need not engage in rigorous research to share their writing experiences with others. This is the weakness of this book: readers might need to be convinced more before they attempt these activities in their own classrooms.

Barring the lack of evidence, Bahls' work is a courageous attempt to introduce activities in the classroom that could motivate and aid students to learn the materials they are taught in quantitative classes. Readers are urged to attempt it in their own classrooms and to keep track of its effects to students. Such is the nature of educational research anyway. More akin to a design science like Engineering (Wittmann, 1995), practitioners should try out novel ideas in class, document improvements they see in the educational process, and refine these activities. This book is valuable because it adds to the repository of good ideas teachers can use in their classrooms.

How relevant is this book to teaching practice in the Gulf? Given that universities and schools in the region have adopted English as the language of instruction, language proficiency has become an important aspect of academic success among students. A commonly used measure of English competency is the International English Language Testing System (IELTS) test and the average scores of test takers in the region are not very high. In 2014, the average writing scores on the IELTS 9-band scale were 4.7 for Kuwait, 5.0 for Oman, 4.7 for Qatar, 4.6 for Saudi Arabia, and 4.6 for the United Arab Emirates (IELTS, n.d. a). A score of 5 denotes "modest" users, those who have partial command of the language, those who can cope with overall meaning in most situations, and those who are able to handle basic communication in his or her own field, though likely to make many mistakes. Those who get a score of band 4 are "limited" users, those whose basic competence is limited to familiar situations, those who have frequent problems in understanding and expression, and those who are not able to use complex language (IELTS, n.d. b).

Given that many students are learners in a second language, it is possible that they will find most of the activities described in the book difficult. Aside from learning the actual content of the course, they will have the additional burden of learning it in a language not used at home. Additional writing activities may become very burdensome. The other side of the issue however is that if the objective of educational institutions was for students to improve their English skills, then the additional writing work would give students additional opportunities to hone these skills. However, as was stressed previously, there is no evidence presented that it will work. What teachers and instructors need to do is to experiment with these ideas. Adapting the writing activities to fit the levels of the students might be successful, and if it is, instructors should share it with others. For instructors in the Gulf, this book presents ideas that could be challenging to implement but could potentially bear much fruit for the students.

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