Title
Introduction to Special Edition: The Future of the Textbook

Permalink
https://escholarship.org/uc/item/5m64m4p5

Journal
Technology Innovations in Statistics Education, 7(3)

Author
Gould, Robert

Publication Date
2013

DOI
10.5070/T573020596

Copyright Information

INTRODUCTION TO THE FUTURE OF THE TEXTBOOK SPECIAL EDITION

I'm very pleased to present this special edition of *Technology Innovations of Statistics Education,* The Future of the Textbook. The main papers were first presented in a session organized by Joan Garfield at the 2011 Joint Statistics Meetings in Miami, Florida. Webster West, Rebekah Isaak, and Chris Barr each presented their vision, and I served as the discussant. The papers you see in this volume elaborate on the original presentations, and I'm honored to have a very distinguished group of statisticians provide commentary.

A few themes emerge from the papers and commentaries: Production, Features, and Pedagogy. Technology has affected the textbook production process, has provided us with a range of features that might (or might not) enhance student learning , and has provided tools for new pedagogy. Changes to production is a central theme of Cetinkaya-Rundel, Barr & Diez (CBD).   Their *OpenIntro* project takes advantage of changes in the production process to provide a very inexpensive textbook. Much of the discussion in these papers is motivated by concerns about the price of textbooks. In the case of *OpenIntro*, the price is low in part because of the generous contribution of the authors' time. However, low price is not a necessary component of their model and perhaps distracts from other interesting features. What is truly innovative here, I think, is the possibility for creating collaborative textbooks that can quickly morph to meet the needs of students and teachers.

The textbook is a centuries old object. (Although I think perhaps not as old as some of these papers claim. Hardbound books themselves may date back more than one thousand years, but the statistic textbook may date back "only" to 1824 (Bibby 1986, p. 65).) A simple advantage of a pdf over its ancient predecessor is, as West points out, that a pdf is searchable, which immediately gives the reader the potential to engage in a more active relationship with the book. West describes other intriguing features of the e-book which might lead to radical changes in the way we teach. Most intriguing of these for me is the possibility to integrate statistical computation with statistical learning, since an e-book provides the possibility of merging statistical software, texts, data, data collection, and student assessment into one package.

Perhaps the most radical vision, at least in terms of pedagogy, is offered by Zieffler, Isaak, and Garfield. Their CATALST project has created a highly student-centered curriculum that takes advantage of computational technology so that students "discover" statistical principals and compile their own textbooks based, in part, on their observations and findings.

Statistics textbooks face special challenges caused by the fact that such a small percentage of statistics teachers are statisticians. Even in higher education, statisticians may work within mathematics departments and be forced into choosing textbooks that do not necessarily serve the needs of the statistics profession or follow standard statistical practice. Particularly at two-year colleges and high schools, where there are very few educators with statistics degrees, there is the very real danger that students are learning

from textbooks which, from a statistician's view, have only a passing semblance to the discipline or, even worse, spread statistical misconceptions. The same technologies that allow statisticians to create the high quality resources presented in these papers also allow anyone, regardless of credentials, to make and distribute books. And thanks to the internet, these resources can reach fairly large audiences. For instance, a 2013 petition led by statistician Phillip Stark at UC Berkeley (which I signed) cited numerous factual errors in an open source textbook in a failed attempt (at least to date) to prevent the inexpensive book's widespread adoption in California community colleges and some university campuses.

One might argue that Statistics has long been plagued by poor quality textbooks and, perhaps, that this problem is not unique to Statistics. However, the truth is that technology allows for poor quality to be rapidly and widely disseminated, and the low barrier-to-entry for publishing creates a higher probability that poor materials will be widely adopted. For me, this argues that we should not be dazzled by new and exciting innovations, but must always keep our eyes to the quality of the content.

I should not end this introduction on a pessimistic note. I am sure you'll agree that the papers and discussions provided in this special issue are evidence of the ability of technology, when joined with talented authors and educators, to create exciting and productive classroom experiences. I hope you'll feel encouraged to contribute your own technological innovations to the future of statistics education.

Reference

Bibby, J. (1986), Notes Towards a History of Teaching Statistics, Edinburgh, Scotland: John Bibby (Books).