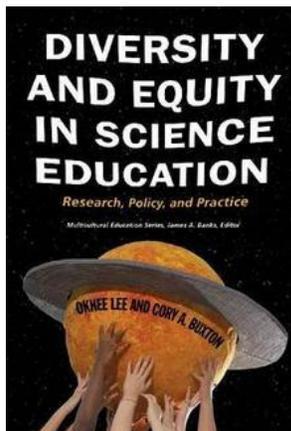


Professional Book Review

Lee, O., & Buxton, C. (2010). *Diversity and Equity in Science Education: Research, Policy and Practice*. New York, NY: Teachers College Press. 237 pp., ISBN: 9780807750681(paperback), \$34.95

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As part of James A. Banks' "Multicultural Education Series," the goal of the text is to provide teachers at all levels and places in their careers with a summary of research, theory, and practice to help them improve the academic achievement of their students from different ethnic, racial, cultural, and linguistic groups. Lee and Buxton address the question, "What do equitable learning opportunities look like in the science classroom?" The authors try to answer this question by separating the larger question into four parts. First, they introduce the policy and concepts that are experienced by non-mainstream students. In this section, they discuss the terminology used in diversity education and define science outcomes. Second, they look at student characteristics and environmental issues that influence science outcomes. Next they look at how classroom practices and home-based factors affect science outcomes for diverse students. These chapters address how non-mainstream students learn and how teachers instruct these students. They also discuss how the science curriculum and assessment marginalize students of diversity. Lastly, they draw conclusions based on research and provide a call for reform in educational practices to better serve all students in science education.

For the reader to get the full benefit from this text, it is important to read Part I thoroughly and to make note of the abbreviations and terminology used in this section, as these are used throughout the remainder of the text. As someone new to the jargon used in multicultural education, I found myself referring back to this section on a regular basis.

As readers exit Part I, they may find themselves convinced that the traditional science program taught to mainstream students is not meeting the needs of the students of diversity in our classrooms. As a practicing science teacher, I was most intrigued by Part II, which focuses on classroom practices. As I read this section, with a highlighter at the ready, I was both affirmed and challenged in my own classroom practices. I found myself calling a colleague over to discuss the results of a study that either agreed with or contradicted our current beliefs about what is the best way to teach science. I was particularly taken by the research regarding cultural beliefs and science instruction. I was

challenged to rethink the connections that can be made between what I experience as scientific fact and what my students might consider cultural facts. The authors assert, "The larger question is not how to bring students' worldviews more in line with the views of Western science, but rather how science itself should be reconceptualized to better align with the worldview of people from marginalized groups" (p. 59).

At the end of each chapter, the authors provide some meaningful activities. I found these very useful in solidifying my understanding of the material. The activities challenged my thinking as a member of the mainstream. When discussing assessment, the authors assert that mainstream teachers and test generators do not know enough about non-mainstream cultures to write a meaningful test. This statement did not resonate with me at first. When I looked at the activities at the end of the chapter, I was taken aback by the test designed for aboriginal students. As I considered this test, I was given an opportunity to experience what my diverse students might be experiencing as they take a test that I designed.

Part III discussed the research results related to science teacher education, school organization, and home connections. I found this section on teacher education quite intriguing as well. The authors note that many teachers, pre-service and in-service, believed that the goal of inclusive science instruction was to help non-mainstream students change their way of thinking and to reduce the amount of diversity in the classroom. My own personal experiences agreed with the authors' conclusion regarding teacher education and science instruction. They found that teachers' attitudes were the most important factor in predicting if they changed their practice after receiving education on diversity.

The book ends with conclusions and a "Call to Action." The summary of the literature in this section served as a good reminder of the vast amount of information presented in the other chapters. In this section, the authors set priorities for further research into equity and diversity in science education. They assert that research must continue on science outcomes, student experiences versus science curriculum, and teacher education (among others). As a classroom teacher who is not actively involved in research or policy reform, I found this section to be the least useful but nonetheless necessary. The ending activities in this section include developing a personal action plan. The book would be incomplete without the inclusion of next steps.

Overall, the authors compelled me to examine my own classroom practice. They challenged the traditional, non-inclusive attitudes that were entrenched in my philosophy of education. As a science teacher, I appreciate the extensive use of research to generate conclusions. As a reader, I found the discussion of research a bit tedious. By including activities at the end of each chapter, the authors show they are interested in not only educating the reader, but encouraging the reader to make changes. The analysis of textbooks for images of diversity, for instance, encourages the reader to apply what she has read and supports the points made in the book.

As the diversity of the student population increases in our schools, this book is a “must read” for science teachers and policy makers. As educators, we can no longer expect our students of diversity to learn to adapt to our systems. We must adapt to better serve these students and learn from the cultural beliefs and practices that they bring to our classrooms.

Lee and Buxton have summarized research and provided practical ways for the average science teacher to make the classroom more accessible to his or her students of ethnic, cultural, or racial diversity. I believe that science departments should use this book to frame their professional development activities. The book is formatted to encourage discussion among colleagues. Students and teachers will benefit from the resulting changes in curriculum, policy, and classroom practices.