

## Book Review

Paul Webb, *Section Editor*

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### Team Teaching Science: Success for All Learners

by

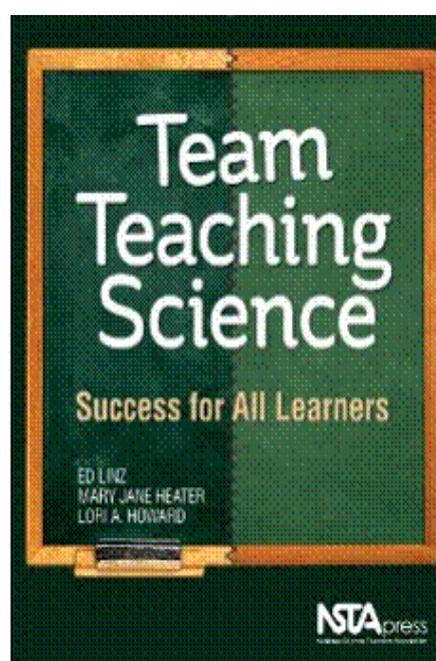
Ed Linz, Mary Jane Heater &  
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162 pages

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This book evolved from the experiences of a pair of team teachers assigned to teach an entry-level physics class to a mix of general education and special education teachers. The authors, who are key figures in the science and special education fields, ask what strategies are needed to help both general education students and special education students' benefit from co-teaching, and what types of approaches can be used for guidance.

There are two key terms used throughout the book. The term '*game plan*' in an inclusive classroom is used as a metaphor to break the teaching year into three sets (pre-season, season, and post- season) in order to prepare students in terms of both science content and conducting safe yet stimulating laboratory work and demonstrations. The other key term is '*co-teaching*', which refers to a professional relationship in which team-teachers communicate and collaborate to provide effective educational practices to both students with disabilities and students in regular classroom settings (Sileo, 2011). They note that while team teaching has become prevalent in America's K-12 schools as a way to foster inclusion of children with special needs, it is still in its infancy in science classes.

In this book the authors provide information on empirical findings on the effects of team teaching science in inclusive classrooms. Successes and failures are highlighted to inform decision-making when pursuing co-teaching practices, and strengths and weaknesses are identified and discussed. As such, this book is not only useful to science teachers, but also to special education teachers, school administrators, curriculum developers, parents, students and other service providers such as speech pathologists, school psychologist, etc.

The book has an introduction and eleven chapters. In the introduction the metaphor of a game plan for the year is proposed, after which the chapters follow as the challenge of team teaching science (Chapter 1); historical perspective on the role of science in the curriculum (Chapter 2); inquiry-based approaches (Chapter 3); the basics of the models of co-teaching (Chapter 4); and team teaching science in elementary school, middle school, and high school classrooms (Chapters 5-7). Chapter 8 is dedicated to a game plan for a school year in inclusive science classrooms, while chapter 9 emphasizes Individualized Education Program (IEP) accommodations and modifications for students with disabilities in honors, gifted and talented, international baccalaureate (IB), and advanced placement (AP) classes. Chapter 10 explains the importance of working with others and following the Individuals with Disabilities Education Act (IDEA) and the Family Educational Rights and Privacy Act (FERPA) guidelines. Conclusions are drawn in chapter 11.

The authors describe the characteristic challenges of team teaching in science classes in the first chapter, and help the reader to deduce answers to key questions about the co-teaching approach such as “What does a science teacher need to know about kids with disabilities?” “How knowledgeable should special education teachers be in scientific concepts?” and “Where should you start if you are new at co-teaching?” They illustrate the characteristics that are included in the term co-teaching, and provide multiple views of the goals, resources, and standards required. They also provide a brief description of science content standards and the goals to be addressed, and examine Free Appropriate Public Education (FAPE), Least Restrictive Environment (LRE), Universal Design for Learning (UDL), and the Family Educational Rights and Privacy Act (FERPA) in special education in table form.

Chapter 2 emphasises the history of science teaching in American K-12 public schools since the 1900s, i.e. provide a history of the role of science in the curriculum, the development of science standards, the impact of the science standards, and the impact of high-stakes testing (if you ever wondered why high-stakes testing as a way of assessing accountability is heavily emphasized in public schools, you can find an answer in this chapter). They examine the rationale that guided science standards after the successful launch of Sputnik, the effects of science standards on inquiry based learning, and test-taking skills that team teachers should promote. In chapters 3-4 the authors address science teaching approaches and the basics of team teaching. They build a case for inquiry-based teaching and learning, discuss models of co-teaching, and present six models of co-teaching, viz. one teach-one observe, one teach-one assist, station teaching, parallel teaching, alternative teaching, and team teaching. They note the dynamic relationship that needs to be established for effective communication when team teaching and the fact that students in special education appreciated the extra attention they received from co-teachers (Hang, & Rabren, 2011). Chapter 3, which covers designing content lesson plans, assessment and grading, is a ‘must read’ for co-teachers and school administrators.

Chapter 4 addresses safety, teacher preparation, demonstration, experiment and instruction issues and provides an exemplar table of teacher responsibilities. Chapters 5-7 synthesize and discuss issues of science content, cognitive and physical differences between students, and team teaching in elementary, middle school, and high school classrooms. The authors highlight different teaching approaches for students at different grade levels – noting that

the focus in the elementary school is to read, write, and build social skills to function in the school, middle school is a transition stage for students and a time when they begin to read to learn science. They also highlight the need to pay attention to developmental issues such as late-onset puberty for boys and early-onset puberty for girls, and the challenges that surface when children are introduced to discrete science subjects in high school. Overall, strategies to enable students to succeed in science at all school levels are discussed.

The effects of the onset of puberty during the middle school years are discussed in more detail in chapter 6, while chapter 7 addresses specific challenges in inclusive high school science courses such as biology, chemistry, earth science, and physics. The authors emphasize standards and curriculum, safety concerns, specific challenges related to students with disabilities, and field trips. A sample high school co-teaching lesson plan, field trip checklist, and a lab report template are included in this chapter. New co-teachers will benefit a great deal from these insights when preparing an effective game plan in which they are able to discuss their philosophies in the pre-season, “establish the tone” for the school year in the season, and evaluate the year in the post-season.

In chapter 9 the authors discuss the inclusion of students with disabilities in advanced classes. They note that advanced classes are usually not team taught, but believe that teachers in these classes should still follow IEP accommodations and modifications to help students with disabilities (Sweeden et al., 2010). They also feel it is important that teachers should discuss classroom behaviour, as well as academic and laboratory issues, with a special education case manager whenever possible.

Chapter 10 focuses on students who have diverse cultural backgrounds and languages and is a helpful guide to fostering student learning with the help of instructional assistants, specialists, administrators, and parents. Chapter 11 summarizes 25 years of co-teaching of science in America, and notes that during co-teaching the special education teacher can gain expertise in science topics while, at the same time, the science teacher has the opportunity to learn from strategies developed by special education teachers.

In my opinion this book does a sterling job in guiding team teachers irrespective of their backgrounds and serves its purpose by providing key answers to concerns raised. The authors are clearly authoritative, which helps dispel fears associated with co-teaching, particularly those of novice co-teachers.

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