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Introduction

The Next Great Debate?

By elevating engineering design (practices) to the same level as scientific inquiry (practices), the crafters of the *Framework for K-12 Science Education* (NRC 2012) and the subsequent *Next Generation Science Standards* (NGSS 2013) have caused some controversy and lively debate, some of which is captured in Clough and Olsen's final Commentary. represented what engineers do. Where do the true connections between engineering and science practices reside. To what extent can and should science and engineering practices co-exist in educational spaces?

In a recent issue of the *Journal of Science Teacher Education*, Cunningham and Carlsen (2014) offer a rather critical review of the way the nature and methods of engineering are portrayed in these reform documents (NGSS 2013; NRC 2012). As the editors of this volume, we acknowledge and accept (even embrace) the fact that the *eight practices* described in these reform documents look different across science and engineering. We think these differences should be explicitly addressed with students (as several of the contributing authors also suggest) but the mere existence of differences in these disciplines does not preclude their successful integration. We think these differences actually enrich and deepen their relationship. In this book we do not really enter the debate over the relative value, importance, or proper placement in the "standards" of science and engineering as separate disciplines. Rather we maintain that, while different in nature and methods, science and engineering are intimately intertwined and their thoughtful integration is essential to the development of a scientifically literate citizenry moving forward. This book aims to help researchers and practitioners better leverage power of these shared practices to promote science proficiency. This book is intended to help those looking for productive ways to harmonize science and engineering practices to propel STEM teaching and learning within a culture of innovation.