

Chapter 5

Becoming STEAM: Perspectives From School Leaders

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ABSTRACT

This chapter shares a brief history of the STEM to STEAM movement, shares two case descriptions drawn from the perspectives of leaders in two school districts in which schools adopted a STEAM focus, describes challenges and opportunities associated with implementation of a STEAM initiative, and proposes five features to consider when implementing models to becoming a STEAM-focused school or school district. The five features drawn from analysis of the two cases are intentional efforts by school districts to gain buy-in; adequate time for teacher learning and planning through authentic and relevant professional development; community connections, real-world and problem-based or project-based; mutual decision-making and support between teachers and administrators; and budget planning and allocation.

INTRODUCTION

The world in which we live is constantly changing. In our increasingly dynamic global economy, it becomes critical for educational systems to focus on the goals of helping students learn to think for themselves, analyze relationships among concepts and disciplines, reason about broader challenges, and solve problems confronting an ever more global society. These goals have developed overtime in the United States

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through a national focus on improving education in the sciences and mathematics that was prompted in the 1940s following World War II. The forming of the National Science Foundation (NSF) in 1950 marked a paradigm shift in support for education initiatives in science, technology, engineering, and mathematics. The educational focus on these disciplines has evolved overtime to recognize and acknowledge the interconnectedness of the four separate fields. The acronym STEM is now widely used and understood in education to represent the integration of science, technology, engineering and mathematics.

More recently, the arts have been added to STEM initiatives in an attempt to enhance the creative and innovative aspects of solving problems as well as a means for motivating a more diverse range of students to pursue careers in STEM fields. To date, there is not a consensus on a precise meaning of “the arts” in STEAM. Some view the arts as the fine arts and design, language arts and more recently as architecture. In 2019, the United States Congress passed the Carl D. Perkins Career and Technical Education (CTE) Act, formally recognizing architecture as a STEM subject. According to a statement by Robert Ivy, FAIA, EVP/Chief Executive Officer of the American Institute of Architects (AIA), “The CTE is intended to encourage a more diverse workforce and see that the promise of design as the synthesis of art and science are fulfilled through education,” (AIA, 2018)

Because this new conceptualization of science, technology, engineering, arts and mathematics, known as STEAM, is still in its infancy there are many questions about how these different disciplines inter-relate, what it means to add the arts to STEM, what the A or the arts includes, and how schools can implement a STEAM-based education. This chapter shares a brief history of the STEM to STEAM movement, shares two case descriptions drawn from the perspectives of leaders in two school districts in which schools adopted a STEAM focus, describes challenges and opportunities associated with implementation of a STEAM initiative, and proposes five features to consider when implementing models to becoming a STEAM-focused school or school district. The five features drawn from analysis of the two cases are:

- Intentional efforts by school districts to gain buy-in from teachers and school administrators;
- Adequate time for teacher learning and planning through authentic and relevant professional development;
- Community connections, real-world and problem-based or project-based;
- Mutual decision-making and support between teachers and administrators; and
- Budget planning and allocation.

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