

Chapter 9

Engaging Families in STEM Through Environmental Education

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ABSTRACT

Family engagement in education refers to a partnership between schools and the community to support children's development and learning. Family engagement has been at the forefront of education initiatives in recent decades as research has shown positive effects on a variety of student outcomes. At the same time, there has been increased emphasis on integrating environmental education into science, technology, engineering, and mathematics (STEM) content areas. This chapter illustrates how engaging families in environmental education within STEM curricula can benefit schools, families, and the community. Existing literature on family engagement in environmental education will be explored, along with strategies to engage families. Specific strategies for engaging families who are culturally and linguistically diverse will also be discussed. The chapter concludes with recommendations taken from the literature for designing, implementing, and sustaining family engagement in environmental education.

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INTRODUCTION

The positive effects that result from families and schools working together on behalf of students has been well documented by numerous studies (Castro, Expósito-Casas, López-Martín, Lizasoain, Navarro-Asencio, & Gaviria, 2015). Some of the many benefits of family-school partnerships include increased student achievement in academic subjects, reduced drop-out rates, and improved post-school outcomes (Galindo & Sheldon, 2012; Jimerson, S., Egeland, Sroufe, & Carlson, 2000; Sheldon & Epstein, 2005). More specifically, students tend to do better when families have high expectations for student achievement, maintain consistent communication between home and school, and support curriculum in the home (Castro et al., 2015). Therefore, family engagement has become a priority in recent educational reform efforts (U.S. Department of Education, 2016). A variety of terms have been used in the literature to label parent/family participation in K-12 education, including parent involvement, family involvement, parental support, and more recently family engagement. For the remainder of this chapter, the term “family engagement” will be used as this term implies togetherness as opposed to “family involvement”, which has been criticized as a term associated with families as an add-on rather than as equal partners in the educational process (Ferlazzo, 2011). Family engagement in education refers to “a shared responsibility in which schools and other community agencies and organizations are committed to reach families in meaningful ways and in which families are committed to actively supporting their children’s learning and development.” (Weis & Lopez, 2009, p. 6).

Family engagement in environmental education that promotes Science, Technology, Engineering, and/or Mathematics (STEM) is one way to involve families in meaningful ways. Engaging students and families as partners in environmental education within STEM curricula has potential to positively impact the family, school, and community, as issues related to the environment concern individuals of all ages. While the effects of environmental education on child outcomes have been explored, researchers more recently have examined how this translates to the adults in students’ lives (Vaughan, Gack, Humberto, & Ray, 2003). Furthermore, there is potential for greater impact when students’ families are engaged and become active participants in environmental education to influence eco-friendly attitudes and behaviors. This chapter will explore cases of family and community engagement in environmental education efforts that promote STEM from the existing published literature and the impact of intergenerational learning from child to parent and parent to child. Second, themes related to engaging families who are culturally and linguistically diverse will be discussed, including benefits and strategies to promote increased family engagement. Lastly, examples of how schools can partner with families and the community surrounding environmental STEM education

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