Chapter 7
Secondary Education Mathematics and UDC Expectations:
Do They Align? If Not, What's Next?

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ABSTRACT

In this chapter, the authors wish to examine the alignment between Common Core mathematics standards and introductory mathematics courses at the University of the District of Columbia. In this study, the authors are not trying to determine the reasons students choose or not choose STEM-related fields as their majors; instead the authors are exploring the transition from secondary to post-secondary mathematics education by aligning the Common Core mathematics standards that have been the District of Columbia Public School (DCPS) system. The authors have observed from their teaching experiences that for many students, the transition from secondary to post-secondary mathematics has not been seamless. One factor that may cause a breakdown in this transition could be the misalignment between Common Core state standards mathematics content and the content of the introductory mathematics in the Division of Sciences and Mathematics at the University of the District of Columbia.

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INTRODUCTION

In today's current secondary educational environment, the need for students to be exposed to science, technology, and engineering mathematics (STEM) runs high as science and technology continues to shape our society (National Research Council, 2011). Many young people, including those persons who are educated in urban environments across the nation, have strong aspirations of careers in the sciences, technology, mathematics, and engineering. However, their aspirations meet reality when they enter higher education and are exposed to the rigors of STEM. The authors' overall theme in this chapter surrounds the topic of whether secondary and post-secondary mathematics education need to align in order to ensure college readiness and, thus, support retention and success in mathematics degrees and fields.

The University of the District of Columbia (UDC) is, at once, very old and very new. The seeds of higher education for the District were planted in 1851 when Myrtilla Miner founded a "school for colored girls" in Washington, DC. Through a series of mergers among the District's teachers and technical colleges, a comprehensive university structure was envisioned for the city. On August 1, 1977, a public announcement was made of the consolidation of the District of Columbia Teachers College, the Federal City College, and the Washington Technical Institute into the University of the District of Columbia under a single management system. On the same day, the Board appointed Lisle Carleton Carter, Jr., the first president of the university. In 1999, the U.S. Department of Education formally designated UDC for recognition among the nation's Historically Black Colleges and Universities.

UDC is a Congressionally-mandated land-grant institution of higher education. It is a comprehensive public institution offering quality, affordable, postsecondary education at the certificate, associate, baccalaureate, and graduate levels. These programs prepare students for immediate entry into the workforce, for the next level of education, for specialized employment opportunities, and for lifelong learning.

UDC was built on the dreams of its founders, and it continues to transform itself to meet the changing needs of its students, enhance the lives of the community, and to meet the demands of the ever-changing landscape of the Nation's Capital: Washington, DC (Committee, 2016). Education is the key to equity--a fair shot at success. If you are born poor in the United States, you are most certain to die poor. Education offers just about the only escape there is from poverty. Employment training can help many begin climbing the income ladder by qualifying for better jobs. It can be a start, but the odds against entering the middle class are nearly insurmountable for workers who do not hold a bachelor's degree (Columbia, 2019-2022).