

## Chapter 4

# Entrepreneurship Education at Mtech, University of Maryland

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### ABSTRACT

*As universities recognize that an entrepreneurial education is an enabler, entrepreneurship is increasingly recognized as higher education's ally. Today, more than 5,000 entrepreneurship courses are offered in over 2,000 college and universities in the United States (U.S.) (Kauffman, 2009). Entrepreneurship education is extending beyond its traditional business school offerings to engineering, arts, and sciences schools as educators develop specialized, experiential content most relevant to their student populations. The Maryland Technology Enterprise Institute (Mtech), a unit of the A. James Clark School of Engineering at the University of Maryland, is a global leader in entrepreneurship education (Barbe, Green, & Chang, 2010). Mtech's award-winning programs are being replicated throughout the U.S. and abroad to serve entrepreneurial students in pursuit of new ventures. Mtech's entrepreneurship courses and programs have more than 1,000 student enrollments annually. This chapter introduces Mtech's approach to entrepreneurship education, defines the inner workings of Mtech's entrepreneurship education initiatives, and discusses best practices and lessons learned.*

### INTRODUCTION

How can universities best develop the entrepreneurial mindset and functional skillsets of entrepreneurial students? This chapter addresses the question by reviewing entrepreneurship education

in U.S. colleges and universities, and providing a comprehensive discussion of the entrepreneurship education activities of Mtech.

Mtech's award-winning undergraduate programs are discussed first, as these programs are being rapidly replicated (23 colleges and

universities as of August, 2011). Graduate and professional programs are examined second as these fill a central gap in the commercialization of university-based research. Finally, a discussion of Mtech's pre-college programs examines how middle school and high school students are learning about entrepreneurship and innovation.

Program assessment is a high priority for Mtech. A section of the chapter is dedicated to Mtech's holistic approach to entrepreneurial education progress through both short-term measures evaluating entrepreneurial mindset and functional skillsets, and long-term measures including new venture creation.

Further research directions and conclusions close the chapter.

### **The State of Entrepreneurship Education in U.S. Higher Education Institutions**

As universities recognize the benefits of an entrepreneurial education, entrepreneurship is increasingly recognized as higher education's ally. Since the first entrepreneurship class held in the U.S. in 1947, the academic discipline of entrepreneurship extends to over 2,000 college and universities in the U.S., about two-thirds of the total (Cone, 2011). In 1985, studies indicated there were approximately 250 entrepreneurship courses offered across all college campuses in the U.S. (Kauffman, 2009). Today, more than 5,000 entrepreneurship courses are offered in two-year and four-year institutions in the U.S. (Kauffman, 2009).

With entrepreneurship education expanding in the U.S. and globally, it is important to understand that entrepreneurship education is fundamentally different than business education (Solomon, Duffy & Tarabishy, 2002). Since business entry is a very different activity than managing a business (Gartner & Vesper, 1994), entrepreneurial education must extend to include skill building in negotiation, leadership, new product development, creative thinking, and technological innovation (McMul-

len & Long, 1987; Vesper & McMullen, 1988). Areas identified as important for entrepreneurial education include awareness of entrepreneur career options (Hills, 1988), sources of funding to include venture capital (Vesper and McMullan, 1988; Zeithaml and Rice, 1987), idea creation and protection (Vesper & McMullan, 1988), ambiguity tolerance (Ronstadt, 1987), the characteristics that define the entrepreneurial personality, (Hills, 1988; Scott & Twomey, 1998; Hood & Young, 1993) and the challenges associated with each stage of new venture development (McMullan & Long, 1987; Plaschka & Welsch, 1990).

Within this broad area of entrepreneurship education, a fundamental question is how to influence personal development of the entrepreneurial students within the university environment. This is tightly tied to learning models and developmental programs. Past research has identified the contributions of prior knowledge, creativity, and cognitive mechanisms to entrepreneurial learning, development, and performance. Ward (2004) emphasized that the ability to identify and act on opportunity is strongly influenced by the way individuals process and use knowledge. Baron (1998) and Mitchell, Smith, Seawright, and Morse (2000) theorized that individuals recognize opportunities differently based on personal differences in cognitive processing. In all of these areas, it is critical to consider that learning is the source of how knowledge asymmetries evolve.

These studies demonstrate that improved understanding of new learning models and programs to build entrepreneurial traits and skills within collegiate entrepreneurs interested in new ventures is closely aligned with the psychological characteristics of the students. Vesper and Gartner (1997) demonstrated the positive impact that university entrepreneurship programs have on students, the university, and the community. Courses, competitions, internships, public symposia, student consulting projects, and company spin-offs are examples of high value activities (Vesper & Gartner, 1997).

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