From the Editor

Joshua Shuart

Research Articles

Sustainability: A Paradigmatic Shift in Entrepreneurship Education
by Frances M. Amatucci, Slippery Rock University; Nelson Pizarro, California State University, Chico; and Jay Friedlander, College of the Atlantic

Entrepreneurial Orientation in Public Schools: The View from New Jersey
by Steven E. Phelan, Fayetteville State University; Ane T. Johnson, Rowan University; and Thorsten Semrau, University of Cologne

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Case Study

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Call for Articles and Reviewers

New England Journal of Entrepreneurship (NEJE), published twice a year by Sacred Heart University's John F. Welch College of Business, is an invaluable forum for exchange of scholarly ideas, practices, pedagogy, and policies in the field of entrepreneurship and small business management.

The Journal is currently seeking original contributions that have not been published or are under consideration elsewhere. The scope of the articles published in NEJE range from theoretical/conceptual to empirical research, with maximum relevance to practicing entrepreneurs.

The Journal will consider practitioner interviews, book reviews, experiential exercises, cases, and articles dealing with entrepreneurial education. The Journal appeals to a broad audience, so articles submitted should be written in such a manner that those outside of the academic community would be able to comprehend and appreciate the content of the material.

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Manuscripts submitted to NEJE should be written in Microsoft Word or saved in RTF (rich text format).

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Accompanying each manuscript, as separate files, should be (a) an abstract of the article (100 words maximum) and five keywords; (b) a biographical sketch of the author(s); (c) a page with manuscript title and the order of authors as well as the primary author's name, mailing address, preferred e-mail, phone and fax numbers; and (d) files, figures, images, and tables. Indicate location of figures and tables in the text, but attach them to the end of your document. Do not embed them in the text. Maps, photos, and similar graphics are welcome, but authors are responsible for providing separate camera-ready files, either as tiffs, jpegs, or PDFs. Sizes of images, tables, and figures must conform to the physical dimensions of the journal page. Width is 45p (7.5") and depth is 57p (9.5").

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All papers should be submitted electronically, via e-mail attachment, to herbert.sherman@liu.edu.

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Submission

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Sample Copies

Sample copies of previous issues are available from Joshua Shuart, Associate Editor, on a first-come, first-served basis. Please contact him via e-mail at shuartj@sacredheart.edu.
From the Editor:

We have what I think is another very strong issue here, with four research articles and one case study. Interestingly, and somewhat coincidentally, the four research articles revolve loosely around an educational theme.

The first article is titled “Sustainability: A Paradigmatic Shift in Entrepreneurship Education.” Amatucci, Pizarro & Friedlander defy the long-held “business as usual” (Meadows, et al, 1972) philosophy. They differentiate between economic and noneconomic business concerns, and discuss the impact of sustainable entrepreneurs—who strive to engage equally with economic, human, and environmental capital. I feel that the authors do a terrific job of encapsulating a historical perspective while also pointing us to the future.

The second research article, from Phelan, Johnson, and Semrau, is “Entrepreneurial Orientation in Public Schools: The View from New Jersey.” This research marries economic orientation (EO) with performance, and the authors develop and introduce a scale to aid schools in measurement. The results are presented specifically for New Jersey, although there is much to take away from their findings and suggestions for future research.

The next article is titled “Adding to the Pedagogical Portfolio: Launching a Student Business in a Semester Course,” and is authored by Elizabeth McCrea. This piece outlines the logical next step in entrepreneurship education: the launching of a student business. Traditionally, when teaching entrepreneurship, the focus is on case studies, business plans, and the like. This article systematically lays out the process (and associated difficulties) of venture launch within a traditional academic semester setting.

Narendra Bhandari’s “Relationship between Students’ Grades and School Year and their Intention for Entrepreneurship: Some Pioneering Findings” is the fourth article in this issue. Bhandari’s research also centers on students starting a business, but from a completely different angle. The crux of this research centers on undergraduate academic standing (year in school) and academic performance (GPA), and how these might impact intent to start a business after graduation.

This issue closes out with Todd Finkle’s “AdRoll: A Case Study of Entrepreneurial Growth.” The concept of entrepreneurial growth is heavily investigated and discussed, using the example of AdRoll, one of the fastest growing companies in the United States. AdRoll is an online advertising company that focuses on advertisement retargeting.

As mentioned in my last letter, we have an upcoming “special issue” on the horizon, so please be on the lookout for it. And finally, we are always soliciting fresh perspectives and always interested in expanding our reviewer panel. The reviewers are the lifeblood of this operation, so if you feel that you are qualified, please contact me directly for more information.

Joshua A. Shuart, Ph.D.
Editor, New England Journal of Entrepreneurship
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From ProQuest
This article proposes that sustainability represents a paradigmatic shift from traditional perspectives in entrepreneurship education. This “call to action” argues that it is imperative for entrepreneurship scholars and practitioners to add sustainability to academic curricula and consulting support activities. The evolutionary development of entrepreneurship from the traditional profit-oriented perspective to sustainable entrepreneurship is described. A case study of an academic institution, which has successfully incorporated sustainability principles into its curriculum, is provided. This article is among the first that details the importance of a paradigmatic shift because “business as usual” is no longer effective in the twenty-first century.

Keywords: sustainability; sustainable entrepreneurship; paradigm shifts; entrepreneurship education

Businesses are experiencing a global sustainability revolution, especially as concerns about natural environment degradation, shrinking biodiversity, and resource insufficiency keep increasing. These resources cannot sustain current economic development. As suggested originally in Limits to Growth (Meadows, Meadows, Randers, and Behrens, 1972), “business as usual” ultimately will lead to the collapse of most living systems and thus economic ruin. Companies are moving away from a traditional profit and shareholder wealth maximization model to one in which environmental management and social costs are equally important (Edwards, 2005; Savitz, 2006). Whether referred to as the “Sustainability Revolution” (Edwards, 2005) or the “ Necessary Revolution” (Senge, Smith, Kruschwitz, Laur, and Schley, 2008), this movement signifies a dramatic paradigmatic shift, not unlike the revolutionary changes brought on by quantum physics or relativity, the Industrial Revolution, and the introduction of the World Wide Web.

This perception of the need for change is not limited to commercial enterprises. For example, applicants to universities and colleges and existing students demonstrate increasing levels of sensitivity to social and environmental issues. The current generation of students appears to be the most environmentally aware cohort ever, and they consider jobs that just pay well less attractive than jobs that they find interesting. They also believe that in order for human civilization to survive the next century, lifestyles must change radically (Pew Research Center, 2010; Mueller and Neck, 2010). Accordingly, “prospective students are more likely to be attracted to universities or colleges that can help them cultivate their interests” (Forum for the Future, 2008).

Amid all of this change, the field of entrepreneurship has been slow to adapt. This may be partly because most literature assumes economic motives as the sole purpose of new start-ups (Kirzner, 1973). However, some evidence suggests that economic gain may not be the only motive for all entrepreneurs. Newbert (2003) found that economic motives, such as wealth creation, were generally not the prominent motive of entrepreneurs, who appear to have both economic and ethical motivations for their actions. Moreover, Wiklund, Davidsson, and Delmar (2003) suggest that “non-economic” concerns may be more important than anticipated financial gains to small business managers when they consider expanding their firms.

There is a small, but increasing, number of entrepreneurs who are not limiting their ventures to reach just an economic or social or environmental goal but deliberately strike to have a balance among the three forms of capital: human, environmental, and economic. They are called sustainable entrepreneurs. This concept, sustainable entrepreneurship, is relatively new. Despite the emergence of social entrepreneurship (Short, Moss, and Lumpkin, 2009; Austin, Stevensen, and Weiskellern, 2006), sustainable entrepreneurship is more encompassing in addressing economic and ecologic issues (Tilley and Young, 2009). Increased interest is evidenced by the recent special issue on sustainable entrepreneurship in one of the top entrepreneurship academic journals, Journal of Business Venturing. But, in practice, few entrepreneurship textbooks and entrepreneurial support organizations include sustainability as a priority in the start-up or growth stages. In fact, sustainable entrepreneurship seldom appears in the conference programs of the most prestigious organizations focused on entrepreneurship education.

In this article we describe the evolutionary development of sustainable entrepreneurship from its roots in economic theory to contemporary perspectives. We explain why sustainable entrepreneurship is different from eco-entrepreneurship...
and social entrepreneurship, and we portend that we are in the midst of a paradigmatic shift in the way we view entrepreneurial thinking. We present a case study of an academic institution that has incorporated sustainability principles into its curriculum, and we express a “call to action” for entrepreneurship educators and practitioners to abandon traditional practices and accept a new paradigm for practicing entrepreneurship.

Paradigm Shifts
In the late 1960s, Switzerland had dominated the world watch market for 60 years, with more than 65 percent of unit sales and 80 percent of profits. Yet by 1980, its market share had shrunk to 10 percent, and profits dropped to less than 20 percent. What happened? A profound paradigm shift confronted Switzerland, changing the fundamental rules of watchmaking, because the electronic quartz watch came to dominate mechanical mechanism. The Swiss had created both mechanisms, but because electronic quartz was a new idea, Swiss manufacturers rejected its production in 1967 (Barker, 1993). The Swiss watch industry is not the only example of such a mistake. Nations have done it; various corporations and organizations have done it; and even more individuals have failed to recognize the changing rules in the face of a paradigm shift. Furthermore, such shifts constantly arise, as the current change in relation to environmental systems exemplifies.

The complex social, environmental, and economic problems that mark modern society have existed for a long time but are getting worse. Poverty, environmental degradation, economic instability, unemployment, and the like persist, despite significant efforts to eradicate them (Deming, 1994; Pizarro, 2011). Richmond (2005) argues that the gap exists because people retain outdated ways of thinking, communicating, and learning. In particular, systems are central to the way people live and work, as well as to the economy, education, government, and environment. Yet despite the existence of such a nonlinear world, responses to problems tend to be linear. In contrast, businesses should perceive the world and their surroundings in new, more sophisticated ways—a recommendation that management scholars have been making for at least forty years. Management must change to be effective in an environment in which businesses are embedded in complex sociocultural, economic, and political systems (Ackoff, 1994; Deming, 1994; Senge, 1990; Senge, et al., 2008; Meadows, 2008).

Theoretical Background
Paradigms are systems of thought. These shared sets of assumptions determine how people perceive the world because they allow for the development of expectations about what is likely to occur. However, when information falls outside an existing paradigm, people find it hard to accept. The inability or refusal to see beyond current modes of thinking may be the greatest barrier to paradigm shifts (Harrison, 1994; Kuhn, 1962, 1970, 1996; Smith, 1975). That is, people tend to personalize and invest in a prevailing community belief-perception model (paradigm), or “mental model” (Senge, 1990), then feel threatened by anything or anyone that tries to change or dislodge it (Kuhn, 1970; Barker, 1993).

In The Structure of Scientific Revolution, Kuhn proposes a model to illustrate how science evolves through three stages to produce a new paradigm. Scientists begin by working in specific problems associated with an existing paradigm, which Kuhn calls “puzzles.” This puzzle-solving state is normal in science, but not all problems can be solved by an existing paradigm, and new problems continually arise that the paradigm is unable to resolve. These problems trigger discomfort in the field and signal the shift to a crisis state by the scientific community. Scientists realize that they cannot solve the new problems using their existing paradigm, so they begin to propose innovative solutions that, if successful, eventually replace the existing paradigm (Kuhn, 1962, 1970, 1996).

Kuhn’s work is very important and provides a foundation for extending understanding of the concept of paradigms, as presented by Joel Barker in Paradigms: The Business of Discovering the Future. By building on Kuhn’s model, Barker’s model facilitates strategic efforts to anticipate and shape the future of any field endeavor (Meridith, 1993). We apply Barker’s paradigm concepts to illustrate the arrival of a new paradigm in the entrepreneurship field, namely, sustainable entrepreneurship.

Barker’s Explanation of Paradigm Shifts
Barker (1993, p. 32) defines a paradigm as “a set of rules and regulations (written or unwritten) that does two things: (1) it establishes or defines boundaries; and (2) it tells you how to behave inside the boundaries in order to be successful,” with success defined as the “ability to solve problems, problems from trivial to profound.” The question that remains is to determine when new paradigms arise.

Barker explains new paradigms in line with Kuhn’s theory: “Every paradigm with, in the process of finding new problems, uncover problems it cannot solve. And those unsolvable problems provide the catalyst for triggering the paradigm shift” (Barker, 1993, p. 52). Each paradigm thus identifies a signal for the next paradigm. However, proponents of an existing paradigm continue to believe that they eventually will find a solution to all problems because the paradigm has been successful in the past. All they need is more time or resources. For example, one might postulate such reasoning underlies the national country government decisions to allocate economic stimulus packages for recovery, even though
the modern economic system appears to be functioning under an inadequate, out-of-date paradigm.

A paradigm shift encourages innovation and new rules of the game for an institution, group of institutions, or field. By making these changes, the entities can solve crucial problems, because they have changed the central paradigms. Barker (1993) also distinguishes two groups who set the course for a paradigm shift: (1) outsiders who are new to a field and are more likely to question rules and change an existing paradigm, and (2) insiders who have paradigm-shifting capabilities or potential, such as mavericks, tinkers, or other types of creative participants in the field.

Outsiders do not understand the prevailing paradigm and its subtleties fully. For example, in entrepreneurship, outsiders might change the rules by focusing on goals other than profit. One popular and early example involves Anita Roddick, who founded The Body Shop in 1976 to support herself and her two daughters; she regarded entrepreneurship as a means of survival. The Body Shop opened offering organic and sustainably produced beauty products just as Europe was starting to go “green.” Roddick believed that businesses have the power to do good, so the initial mission statement of the company established its overriding commitment, “To dedicate our business to the pursuit of social and environmental change.” The store and its products help communicate human rights and environmental issues. The Body Shop has grown into a massive international entity with more than 2,200 stores in fifty-five different countries (The Body Shop International PLC, 2011). Companies that similarly challenged the prevailing paradigm from outside include, but are not limited to, Patagonia, REI, Tesla Motors, Kiva, and Qurrent.

Another group of outsiders consists of future leaders—who currently are well represented among university students. The Forum for the Future surveyed 54,240 young respondents (21 years and younger) in 2008, who were living in the United Kingdom and applying to universities or colleges in 2007–2008. These respondents were asked about how they saw themselves compared with their parents’ generation, what they thought would make them happy, and what they expected from the future. Most of them (85%) expressed their belief that it was likely or very likely that human civilization would survive into the next century—but 76 percent warned that to ensure this survival, lifestyles would need to change radically. Furthermore, 88 percent of these young respondents thought the government had the most responsibility for creating necessary changes, followed by individual citizens and then businesses, media, and the education system. Yet 91 percent believed that these organizations were doing very little to help. This evidence implies that students already have begun to adopt a new paradigm. They are aware of the problem and understand that it requires behavioral changes in the form of a paradigm shift.

Practitioners of a prevailing paradigm, or insiders, also can recognize problems, understand that the present paradigm cannot solve them, and thus lead the charge to change the paradigms (Barker, 1993). In 1994, Ray Anderson, founder and chairman of Interface, challenged his then 21-year-old company to adopt a bold vision, one that required new thinking and a new business model. The resulting commitment to sustainability has generated significant results for Interface, across three key areas: carbon footprint reduction, product innovation, and culture change. For example, innovation has helped ensure Interface’s sustainable success, and its commitment to its Mission Zero program has fostered an entrepreneurial spirit among innovative thinkers, who are encouraged to imagine unique solutions. Its innovations range from an inventive modular carpet to sustainable, low-impact products.

Such changes to the rules of the game are not foreshadowed by trends. Instead, rule changes create new trends or alter existing ones (Barker, 1993). Consider B Corporations, American businesses that rely on a new sustainable business model. By shifting the emphasis of business from shareholder value to stakeholder value, these companies commit to ensuring that employees, consumers, and communities, including the environment, all benefit from their economic activity. As of September 2011, 449 B Corporations earning $2.18 billion in revenues existed in 27 states and 54 industries. The rules clearly have changed. As entrepreneurship educators, our imperative is to acknowledge sustainable entrepreneurship as an emerging field that it is here to stay.

In the next section, we describe several evolutionary developments in the field of entrepreneurship from the economic motive to social entrepreneurship to sustainable entrepreneurship.

The Evolution of the Sustainable Entrepreneurship Concept
The relative newness of the idea of sustainable entrepreneurship makes its research agenda difficult to define. The topic has been influenced strongly by environmental business management, another relatively new phenomenon (Schaper, 2005). Both topics remain less well known, less researched, and less understood than entrepreneurship, in general. Most writing pertaining to greener management focuses mainly on greening existing business organizations (Schaper, 2005). In particular, this section focuses on the evolution of the term “entrepreneurship” and its different forms, which eventually led to the formation of the subconcept “sustainable entrepreneurship.”

Entrepreneurship’s Economic Link
Entrepreneurial behavior and its meaning have been greatly shaped by the institutions and environment within which
entrepreneurs operate. In its earliest incarnation, the term “entrepreneurship” was influenced strongly by economists (e.g., the writings of Richard Chantillon, J. B. Say, Adam Smith, David Ricardo, John Stuart Mill, and Joseph A. Schumpeter). Due to this early economic dominant influence, entrepreneurship has come to occupy a primary role in the theory of economic development (Herbert & Link, 1989). Accordingly, it also assumes that entrepreneurship is focused only on economic returns.

**Signals Beyond Profit.** Various organizations are recognizing that the three systems—social, economic, and environmental—inevitably converge, such that they are transitioning gradually toward achieving sustainability. This recognition reflects not only pressure from government agencies (e.g., regulations) and societal stakeholders (e.g., customers, employees, investors, activists), who are increasingly asking questions and calling for action on a spectrum of issues, but also the realization that it simply is good economics. For example, “Hewlett-Packard (HP) says that in 2007, over $12 billion of new business depended in part on HP’s answers to questions about the company’s environmental and social performance” (Esty & Winston, 2009, p. 9). Furthermore, Walmart will “ask” suppliers to create more environmental friendly products (Esty & Winston, 2009, p. 7). However, some authors still argue companies engage in social responsibility solely to earn profits (Reich, 2008). For example, Dow Chemical reduces carbon emissions to lower its energy costs, and Walmart adopts “green” packaging for its fruits and vegetables because the transparent plastics made from corn sugars are cheaper than petroleum-based packaging.

In other publications, the discussion of corporate social responsibility centers on whether it is just a fad. The key challenge may be encouraging a critical mass of smaller companies to adopt corporate social responsibility (Luetkenhorst, 2004), though some researchers argue that it already has been incorporated into mainstream business practices (Godfrey and Hatch, 2007; Porter and Kramer, 2006). In practice, the implementation of sustainable business measures into existing organizational cultures tends to be an arduous and lengthy process (Freimann et al., 2005), such that many environmental conservation measures never move beyond daily operating procedures (Freimann and Schwedes, 2000; Freimann and Walther, 2002).

Promoting sustainability among start-up businesses might be promising, particularly because new businesses have yet to develop their organizational culture (Freimann et al., 2005). However, research on sustainability in the start-up process is limited, despite the introduction of some half a million new businesses each month in the United States (Leebaert, 2006). Freimann et al. (2005) propose the start-up stage as the most sensible starting point for environmental management.

In addition, the most prevalent focus in entrepreneurship research continues to be the pursuit of financial performance, and yet a typology of entrepreneurship-dependent variables supports a broader scope that includes economic, environmental, and social values (Cohen, Smith, & Mitchell, 2006). Regardless of its scope, the field remains difficult to study and analyze critically (Schaper, 2005).

**Social Entrepreneurship**

Social entrepreneurship originates from the nonprofit sector (Dees, 1998; Mort, Weerawardena, and Carnegie, 2003) as a response to diminishing government involvement in the economy and society (Den Hond & De Bakker, 2007). Accordingly, Dorado (2006) suggests there is no way to achieve consensus about what constitutes a social entrepreneur. However, most social entrepreneurship literature focuses on two themes: analysis and the locus of activity (i.e., individual, organizational or interorganizational). At the individual level, definitions of entrepreneurship tend to focus on the founder (Mair & Marti, 2006), who often appears as a “change maker” (Van Slyke & Newman, 2006). At the interorganizational level, definitions deal with the processes of value creation, including opportunity recognition, adopting a mission to create social value, and engaging in continuous innovation, adaptation, and learning (Anderson & Dees, 2006; Dees, 1998; Roberts & Woods, 2005). Other attempts at providing the multiple definitions of social entrepreneurship are evident in Cukier, Trenholm, Carl, and Gekas (2011) and Welsh and Krueger (2009).

Another question involves where social entrepreneurship occurs. For example, Mair and Marti (2006) assert that it encompasses efforts to tackle social problems and catalyze social transformation, regardless of whether the actor is a for-profit or nonprofit organization. Austin, Stevenson, and Wei-Skillern (2006) apply the PCDO (people, context, deal, opportunity) framework developed in Sahlman (1996) to social entrepreneurship to evaluate the similarities and differences with the commercial entrepreneurship framework. Short, Moss and Lumpkin (2009) provide a comprehensive analysis of extant scholarship in this field and suggest opportunities for potential avenues for future research.

**Eco-preneurship**

The combination of two words, ecological (eco) and entrepreneurship, produces the term “eco-preneurship,” which implies the initiation of a very innovative company that supplies environmentally friendly products and services (Schaltegger, 2005). Most related research has worked on understanding the potential of how and why existing firms might become more eco-preneurial. Little research has considered the start-up process or eco-preneurship as a source...
of business opportunities—even though it was cited as a potential profit source in a 1971 *Harvard Business Review* article (Quinn, 1971). This early article claimed that ecology could provide profitable new markets for business expansion, rather than simply being a drain on economic activity. Elkington and Burke (1987) also have argued that innovative business ideas designed to improve the environment could offer a basis for new business prospects, overlooked by mainstream firms. By the mid-1990s, researchers began introducing terms such as “environmental entrepreneur,” “green entrepreneur,” “eco-entrepreneur,” and “ecopreneur” (Bennett, 1991; Berle, 1991; Blue, 1990). More recent authors have provided more detailed analyses (e.g., Isaak, 2005; Kyro, 2001; Larson, 2000), focusing on environmentally friendly innovations in processes, products, and services and stressing the potentially for-profit nature of environmental entrepreneurship (Schaltegger & Wagner, 2008).

An ideal form of eco-entrepreneurship implies a (usually) deliberate strategy to transform the sector into one that operates with sustainability as its primary goal. However, a merely “greenwashing” business seems to have had only a marginal effect on moving society toward sustainability (Fisher & Schot, 1993). Only 20 percent of North American and European companies can be described as proactive in their commitment to improve environmental performance in alignment with sustainable development objectives (World Resources Institute, 2002).

Schaper (2005) argues that making society sustainable requires jump-starting the process of spreading truly green businesses by offering incentives to make all new businesses environmentally friendly from their initial start-up phases. This important recommendation seems viable, yet it lacks any recognition of social elements. For example, an organic, environmentally friendly farm still might pay its workers sweatshop salaries. Thus arise several important questions: Is there a universal set of sustainable principles that define the start-up process? Are sustainable principles applicable to all industries? Does a structure exist to support the start-up process for sustainable businesses?

**Sustainable Entrepreneurship**

Less-than-radical approaches cannot deal with all three dimensions of sustainability, namely, social, environment, and economic, simultaneously. The concept of sustainable entrepreneurship offers an alternative perspective that represents an emerging field of research in its own right. However, existing research is fragmented and lacks a coherent theoretical framework. Shepherd and Patzelt (2011) define sustainable entrepreneurship as “focused on the preservation of nature, life support, and community in the pursuit of perceived opportunities to bring into existence future products, processes, and services for gain, where gain is broadly con-

Strued to include economic and non-economic gains to individuals, the economy, and society.” They surmise that the lack of convergence on a definition to include multiple theoretical perspectives is beneficial as the field emerges. Cohen and Winn (2007, p. 35; also see Venkataraman, 1997, p. 125) define it as the process of evaluating “how opportunities to bring into existence ‘future’ goods and services are discovered, created and exploited, by whom and with what economic psychological, social and environmental consequences.” Shane and Venkataraman (2000, p. 218) define sustainability entrepreneurship as “the process of discovering, evaluating, and exploiting economic opportunities that are present in market failures, which detract from sustainability, including those that are environmentally relevant.” Regardless of its definition, sustainable entrepreneurship must include three forms of capital: *social capital* supports the achievement of social change, with appropriate rewards; *economic capital* enhances the quality of life by increasing the productive capacity of organizations and individuals in society (Holliday, Schmidheiny and Watts, 2002); and *environmental capital* provides opportunities for economic development, creativity, and innovation.

Eco-entrepreneurship is linked most strongly to the pursuit of profitable entrepreneurial opportunities, whereas social entrepreneurship orients more toward nonprofit activities and welfare purposes. Although their historic trajectories differ, the underlying motivations for both activities are very similar, such that they are likely to be united in the future (Schaltegger and Wagner, 2008). For example, activists are putting pressure on farms that grow organic but are not paying living wages to employees. Cohen and Winn (2007) and Dean and McMullen (2002) thus argue that specific market failures provide the underlying root cause for entrepreneurial activities aimed at both social objectives and environmental improvements.

Sustainable entrepreneurship represents a complex issue to understand and manage and remains difficult to measure and research (Schaper, 2005). Despite these challenges, it constitutes an important and growing business area that demands further research attention. Figure 1 highlights the evolution of sustainable entrepreneurship. The first graphic indicates traditional entrepreneurship, which was profit-oriented. Social and environmental practices existed but they were not part of the company strategy and were completely voluntary, in the form of philanthropy. In addition, under this model, if an organization pays its taxes, it meets its societal commitment. The next graphic illustrates societal and environmental practices. It started as a profit-oriented activity, particularly with the environmental dimension. Only few organizations actually have incorporated the practices as part of their strategy. It was more of a sideline activity. Most sustainable organizations are in this stage. Some of the reasons...
why they do not fully incorporate sustainable practices include a lack of understanding of the benefits, not knowing how to do it, costs, and the voluntary nature of the activity. Therefore, it is not implemented universally and businesses operate more cheaply in countries with few environmental and social regulations. The last graphic illustrates the ultimate state of an organization when the three dimensions of sustainability are incorporated into its strategy and day-to-day operations. At present, most organizations fall into the traditional entrepreneurship model.

Hall, Daneke, and Lenox (2010) recognize the growing awareness of the need for transformation and discuss concerns about the Panacea Hypothesis—that entrepreneurship is the magic bullet to becoming a more sustainable system. Claiming that “sustainability has become the mainstay of corporate strategy,” the authors note the paucity of entrepreneurship research, although the number of journal publications over time is increasing. They also differentiate research in social entrepreneurship as being “complementary” but not identical.

The need for more research in the start-up process is evident by the number of new firms that emerge and close every year. Many scholars have recognized that risk is embedded in the start-up process. For example, the process of starting a new business is loaded with difficulty and failure (Reynolds and Miller, 1992; Van de Ven, 1992; Venkataraman et al., 1990). It appears to consist of problems and difficulties that are unforeseen at the outset and are often uncontrollable once these activities are undertaken. It is complicated, chaotic, and prone to failure (Bygrave, 1989; Cooper and Gascon, 1992; Longsworth, 1991). On the other hand, there is evidence that sustainable practices can do the following: (1) help show the way to increase productivity while reducing resources use; (2) make it easier to “fix” environmental components and processes from the outset (Isaak, 2005); (3) broaden the range of opportunities for entrepreneurs; (4) provide numerous niches that enterprise individuals and firms can successfully identify and service; (5) develop new products and services; and (6) reconfigure existing business models, and practices (Schaper, 2005).

Although few focus on the start-up or nascent entrepreneur, there are several notable exceptions. Hockerts and Wustenhagen (2010) propose a model of how start-ups and existing firms engage in sustainable entrepreneurship. In their popular textbook about new venture creations, Timmons and Spinelli (2009) identify sustainability, defined as concerns for environment, community and society, as the foundation of the model of the entrepreneurial process. Likewise, they raise sustainability issues in several sections of the business plan outline, although there is no detailed guidance about how to develop a sustainability plan. Still, the inclusion of a separate chapter on sustainability is more than most other entrepreneurship textbooks, which typically include a chapter on social entrepreneurship at the end of the book. Hitchcock and Willard (2008) provide a very useful practice guide for developing a sustainability plan regardless of whether it is a start-up or incumbent.

An interesting empirical study of start-up entrepreneurs and start-up business advisors in Germany identifies several challenges start-ups encounter in adopting environmental management practices (Schick, Marxen, and Freiman, 2002). Inhibitors are information and workload that prevent the entrepreneur from addressing strategic over operational issues. Also, easy access to information about sustainability business practices is nonexistent. Moreover, most business advisers are ill equipped to provide sustainability business counseling. They associate sustainability with increased costs rather than cost savings and view it as involving products not processes. Lastly, advisers were not prepared to make environmental issues part of their start-up consulting services.

The previous summary of research and practitioner-oriented materials on sustainable entrepreneurship shows a paucity of knowledge on a subject that represents a revolutionary shift in paradigms regarding the way firms do business. In the following section, we provide a case study of an academic institution that has incorporated sustainability principles into its curriculum.

Case Study: College of the Atlantic

With its ever-evolving standards and the multiple stakeholder perspectives, sustainability has become an engine for innovation and entrepreneurship. Quite simply, if you look at a problem using one perspective, you are going to only see one solution. If you look at it from multiple perspectives, you are going to see opportunities you never expected. You will redefine the value equation.

What would this look like in an entrepreneurship-focused academic setting? College of the Atlantic (COA), in Bar Harbor, Maine, gives us some insight into this new approach. The college is itself a roughly forty-year-old entrepreneurship experiment. COA was created by a group of academic rebels who sought to remake higher education. Among other innovations, they banished departments and created a transdisciplinary curriculum focused on highlighting the connections between traditionally siloed academic disciplines to spark
innovation and to solve problems from multiple perspectives. In addition, the students were focused on learning these skills in an environment that encouraged engagement with the world beyond the campus boundaries to help them to become change agents after graduation. In this context, the school became one of six undergraduate institutions with a Sustainable Business Program in 2008. The size of the school, approximately 350 students, has allowed the program to redefine the boundaries of entrepreneurship education quickly by preparing students to succeed financially and to pursue their dreams of creating social and environmental change effectively.

COA’s Sustainable Business Program both tears down traditional walls and expands the entrepreneurship discipline. It is guided by the following core principles:

- Leveraging sustainable business practices as a means of building financial, environmental and social capital.
- Using of sustainability as a new driver of value creation and innovation.
- Combining the study of both for-profit (traditional entrepreneurship) and nonprofit (social entrepreneurship) business models and practices to promote cross-pollination of ideas, operations, and best practices.
- Including experiential elements, such as student projects, consulting for collaborating companies, internships, and venture creation.
- Drawing on knowledge from the multiple intellectual disciplines represented by COA faculty.

The culmination of the program is COA’s sustainable enterprise incubator, called the “Hatchery.” In the Hatchery students from across the campus apply entrepreneurial principles to start sustainable ventures in diverse areas such as community planning, food systems, anthropology, urban agriculture, international development, bio-fuels and the arts. A quick case study on the bio-fuel company, Gourmet Butanol, shows how academic interests from across the campus came together to spark sustainable innovation.

The team of students creating Gourmet Butanol came together in a social entrepreneurship course that was focused on identifying problems and devising entrepreneurial solutions to improve life on Mount Desert Island, where COA is located. Students on the team had radically different interests. One was obsessed by solid waste reduction. Another was interested in community organizing and actively working on a project studying the use of cord wood as an alternative to oil in rural communities. The third was a chemist, specifically interested in fermentation. For a few weeks, the group struggled to find common ground between these seemingly disparate interests. The innovative common ground they found was using food waste to create butanol through the process of fermentation, which could potentially solve a myriad of problems the community faced. It could reduce solid waste issues by turning food waste into both compost and a valuable fuel that was a direct substitute for gasoline, thereby reducing carbon emissions, closing the nutrient cycle, and creating economic development in this traditionally depressed region. In addition, by using food waste instead of the traditional feedstock of corn or other agricultural crops, their process had the potential to cut the cost of production more than 50 percent. These innovative solutions were a direct result of taking a problem apart with a multitude of perspectives and struggling through reassembly with students speaking fundamentally different academic languages. To assemble this, the students had to not only be open to embracing others’ views, they also had to be eager to seek them out, and able to voice their own.

While this idea (fondly referred to by the team members as an “octopus’) was born in a social entrepreneurship course, it expanded and reached its tentacles into other courses, academic disciplines, and the administration. The entire team took Gourmet Butanol into a venture planning course, conducted customer research, and wrote a full business plan. One student took an independent study with a chemistry professor to develop the protocol for making the butanol. In fact, in a faculty meeting it was the chemistry professor who announced that the student team was competing in a business plan competition. In addition, they wrote and received a NASA Space Grant and start-up funding from the Sustainable Business Program to purchase equipment. Another student was paid by the administration to explore funding for a test plant to produce butanol to reduce COA’s carbon emissions and allow the school to eliminate fossil fuels. In addition, the students reached across campus to engage other members of the student body. To continue advancing the project, Gourmet Butanol has been accepted into the sustainable enterprise incubator, the Hatchery, where they will create a rapid prototype and further refine their business plan.

Engaging these multiple stakeholders and their perspectives continues to shape the students’ venture. It has sometimes created frustrating roadblocks and continues to make the enterprise stronger. Without engagement across the curriculum and the merger of social and traditional entrepreneurship, these ideas may never have been more than a highly regarded classroom presentation.

**Conclusion**

This article conveys the urgency regarding the “sustainability revolution” and the relative complacency exhibited by scholars and practitioners in entrepreneurship education. Gladwin, Kennelly and Krause (1995, p. 874) repeated Gareth Morgan’s (1980) warning that "organizational scientists were..."
“imprisoned” by a constricted range of assumptions about the ontological status of social reality and human nature and needed a more cosmopolitan outlook in theorizing in order to advance the field. Now, more than ever, entrepreneurship educators need to remove their intellectual straightjackets that allow them to cling comfortably to outdated “mental models” (Senge, 1990) and “industry recipes” (Spender, 1989). Larson (2011) is among the first to publish a text that incorporates elements of sustainability and entrepreneurship. In a newer edition of a popular entrepreneurship textbook, Spinelli and Adams (2012) have added a section on “sustainability and impact” to their business plan framework. However, the field is fertile for opportunities to advance sustainable entrepreneurship as the new “business as usual” (Amatucci and Grimm, 2011).

The start-up phase is the ideal stage for incorporating sustainability capabilities into the business model and organizational culture. Doing so can create a competitive advantage that results in long-term survival and maximizing value. Start-ups cannot afford not to pay more attention to sustainability practices. Thus, it is important that academics in entrepreneurship education include sustainability in the entrepreneurship curriculum, and that consultants and counselors in entrepreneurial support organizations begin to incorporate sustainability topics in their business advising services. The case study of the College of the Atlantic provides an example of one school’s successful effort.

It is time to accept that a paradigmatic shift is occurring in our discipline and that the need for a new perspective in entrepreneurship education could not be greater. Entrepreneurship educators need to practice what we teach regarding opportunity recognition, and recognize that current curricula, based on the old economic model, are not adequately preparing students for the future. We hope this article will not only raise awareness about the need for change in the field, but also serve as a catalyst for innovations in both curricula and practices that facilitate this change.

References


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We utilize a sample of New Jersey schools to explore the relationship between entrepreneurial orientation (EO) and school performance. The results indicate a significant relationship between several dimensions of EO and performance after controlling for a number of relevant variables. Charter schools were found to have higher EO than traditional schools. The implications of these findings for education and entrepreneurship research are discussed.

Keywords: entrepreneurial orientation; education; performance; charter schools; policy

Over the last 20 years, educational policy in the United States has attempted to introduce more competition into the public education system (Ball, 1998; Burch, 2009; Lubienski, 2005; Power & Frandji, 2010). Supporters of such measures have argued that allowing consumers to choose where to spend their educational dollars spurs schools to become more innovative, thereby improving student outcomes (Hoxby, 2003a). To date, the evidence linking competition to improved student achievement has been decidedly mixed, not least because of the heterogeneity in programs across local and state boundaries and the paucity of quality data (Teasley, 2009).

Previous research suggests that organizations that exhibit an entrepreneurial orientation (EO) tend to perform better than their peers and that the effect is particularly pronounced in more competitive environments (Lumpkin & Dess, 1996; Miller, 1983). While originally applied to for-profit organizations, studies of EO have recently been extended to nonprofit organizations, such as hospitals and religious organizations, after appropriate modifications for the unique aspects of the nonprofit context (Blau, Menguc, & Bell, 2005; Morris, Webb, & Franklin, 2011; Pearce, Fritz, & Davis, 2010). These studies have also found a positive relationship between EO and performance.

Introducing more competition between schools presupposes that schools are able to respond to the challenges in innovative and creative ways. In reality, there is likely to be heterogeneity among schools in their level of entrepreneurial orientation, with the more entrepreneurially minded schools likely to perform better. In this article we seek to test this intuition. The next section provides the background for the research, provides justification for its importance, and situates the hypotheses and research questions within the wider context of education and entrepreneurship. The article then goes on to outline the development of an EO scale for schools and presents the results of testing in New Jersey schools. The article concludes by examining the implications of the current research for scholarship, policy, practice, and society.

**Background**

In 1983, the Reagan administration released a report entitled “A Nation at Risk,” which created a crisis atmosphere by arguing that the quality of education in the United States had declined precipitously from earlier years and that the nation was slipping in international comparisons as well (National Commission on Excellence in Education, 1983). Although the statistics in the report have subsequently been questioned, the perception that schools are under-achieving has remained and has had a profound effect on educational policy.

**Accountability**

The No Child Left Behind (NCLB) Act, introduced by the Bush administration in 2002, is a key part of the reform movement in public education. The NCLB act mandates that schools report their performance on statewide, standardized tests to receive federal funding. Penalties are applied to schools with scores that fall below state targets. The penalties are meant to incentivize school personnel to improve their efforts over time. As discussed below, the NCLB data at the state level provides useful archival data on school performance. Transparency of information is also an important factor in school choice.

**The School Choice Movement**

The default arrangement in the United States is the school district, which administers all schools from kindergarten through 12th grade (K-12) within a given geographic area. A district is primarily funded from property taxes, which are based on the value of properties in the district, and these
funds are supplemented from state and federal sources. A democratically elected school board typically governs the district with the day-to-day operation in the hands of a superintendent. Teachers in the public school system tend to be unionized and are often protected by tenure arrangements and other collective bargaining mechanisms, which some have argued act as a barrier to reform.

Students within the district are zoned to schools and typically have little say in the school they wish to attend. However, some competition exists even in the default system, as families are often willing to relocate to better school districts (Hoxby, 2003a). This has led to an escalation in housing prices in the better school districts and zones, often preventing less affluent families from accessing a quality education (Warren & Tyagi, 2003). Coincidentally, this arrangement also provides a disincentive to establish private schools, as families are acutely aware that they are paying for the public system through their property taxes.

The concept of “school choice” lies at the heart of recent attempts to introduce more competition into the default public system and boost educational outcomes (Hoxby, 2003a). School choice is an umbrella term that encompasses a wide range of institutional arrangements, including open enrollment, vouchers, charter schools, and home schooling. For instance, open enrollment allows students to move to other schools within (intradistrict transfer) or outside their districts (Hoxby, 1998). A typical example would be the provision of a magnet school for talented students. In practice, when the demand for better schools exceeds the supply of seats, then districts are usually required to allocate places by lottery. This minimizes competitive pressures on underperforming schools. In addition, funding may not follow a student that moves outside the district. Voucher systems enable parents to “vote with their feet” and move their educational dollars to better, often private, schools (Friedman, 1955). In practice, voucher systems have been slow to gain acceptance, with Milwaukee generally credited as starting the first large-scale program in 1990.

According to the American Federation for Children (2012), only around 200,000 students in 16 states across the nation make use of a voucher or scholarship program (from a total school-age population of around 50 million). Home schooling, on the other hand, is legal in all 50 states and an estimated 1.5 million children are home schooled. Legal challenges to the use of voucher funds at religious (parochial) private schools, which represent 85 percent of private school enrollments, are one of the factors that have slowed the adoption rate of these programs, but a recent Supreme Court ruling has removed this restriction, and voucher programs are expected to grow in the future.

Charter schools, on the other hand, cater to around 1.7 million children in 41 states. The first charter school regulations were created in Minnesota in 1991. Regulations for charter schools vary by state, but generally a school receives a charter to operate independently from a school district while agreeing to meet state accountability requirements in exchange for public funds (often a combination of district rebates and state subsidies). A charter school then operates relatively independently of district curriculum and staffing policies with its own board of trustees. Some states also allow charter schools to be owned and operated by for-profit corporations. Most states require charter schools to adhere to state regulations on student testing and teacher licensing.

Extensive research has been conducted on whether charter schools improve the performance of their students (Bettinger, 2005; Ni, 2009; Teasley, 2009; Toma & Zimmer, 2012). To date, panel studies of fixed effects show little difference in achievement between students at traditional public schools and charter schools (Teasley, 2009; Toma & Zimmer, 2012). However, charter schools that are oversubscribed are required to choose their students by lottery. This creates a natural experiment between students who are admitted to a charter school and those who are not (Tuttle, Gleason, & Clark, 2012). Lottery-based studies have found a positive performance effect for students attending charter schools from disadvantaged populations and urban areas (Hoxby & Murarka, 2009) but negative effects have been found for those from suburban and more affluent populations (Gleason, Clark, Tuttle, & Dwoyer, 2010). In all cases, there are significant variations in student achievement that are systematic and not purely random. Some schools are able to generate large performance gains while others are not. Researchers have been urged to investigate this “black box” of micro-level processes to understand these performance variations (Teasley, 2009).

**Entrepreneurial Orientation**

According to Teasley (2009), educational researchers “. . . rarely drill down into the areas of school organization, curriculum, instruction, and resources that are argued to provide the largest rationale [for school choice]” (p. 210). The observed heterogeneity in school performance is prima facie evidence that not all schools are equally efficient and effective at producing student achievement. While family background and student ability are important factors, variations in school operations are also believed to play a significant role in determining student outcomes. For instance, a recent study found charter schools were more efficient than traditional schools but also displayed a wider variance between best practice and average performance (Preston, Goldring, Berends, & Cannata, 2012).

This is not surprising given the relative novelty of the charter form in the educational arena. The market process does not automatically produce best practice. Rather, these
solutions evolve over time through a process of creative destruction that rewards successful adaptation, whether through innovation or rapid imitation, and punishes poor decisions through loss of market share and, ultimately, failure of the organization or even an organizational form. As the level of competition increases in public education, the need to innovate and absorb best practices will likely intensify. It is thus credible to expect that a school's EO will influence its performance.

EO is a firm-level construct that seeks to measure the degree of entrepreneurial behaviors and dispositions within an organization on a number of dimensions, including innovativeness, proactiveness, and risk-taking (Covin & Slevin, 1991; Miller, 1983). EO represents how an organization is prepared to discover and exploit opportunities (Wiklund & Shepherd, 2003). Moreover, the level of EO has been shown to predict organizational performance (Lumpkin & Dess, 1996). This direct relationship has been shown to be moderated by a number of factors, including elements of the external environment (e.g., industry life cycle and dynamism) and internal factors (e.g., culture, firm size, structure, and strategy) (Becherer & Maurer, 1997; Covin & Slevin, 1991).

To date, more than 50 studies have empirically examined the EO-performance relationship in business organizations and a recent meta-analytic study has determined the existence of a moderate positive correlation between EO and financial performance in this population (Rauch, Wiklund, Lumpkin, & Frese, 2009). The strength of the relationship appears to be moderated by industry type and firm size, with the effect being stronger for smaller firms in more dynamic industries, such as information technology. Interestingly, similarly strong correlations were found for different operationalizations of the EO construct and different measures of performance (financial vs. nonfinancial, archival vs. perceived). The relationship was also found to be equally significant across different countries.

Scholars have also started to consider the role of an EO in nonprofit organizations. Morris et al. (2011) document 10 EO-performance studies from a variety of nonprofit contexts dating back to 1995. They make the salient point that the focus of a nonprofit lies in its social mission and that performance is seldom measured simply by financial indicators. As such, nonprofit studies have adapted the basic EO instrument to account for these differences in their mission. For instance, in a study of religious congregations, Pearce et al. (2010) describe innovativeness as “an organization’s willingness to support new ideas, novelty, and experimentation, and to depart from existing technologies and practices” (p. 225). There is no doubt that advocates of school choice expect increased competition to spur innovation and improve outcomes (Peterson, 2010). Other scholars have warned that choice and competition may lead either to conformity (Lubienski, 2003) or needless innovation for innovation’s sake that might actually suppress performance (Preston, et al., 2012). Nevertheless, school choice initiatives have been developed with the belief that innovation can positively affect performance.
H3. Innovativeness will be positively associated with school performance.

Proactiveness has been described as "the emphasis on being the first to take action" (Pearce et al., 2010, p. 226) and "the tendency of an organization to anticipate future wants and needs and to pursue change ahead of the competition" (Morris et al., 2011, p. 949). Proactiveness refers to all actions taken to maintain competitiveness, whether innovative or not. Thus, it includes not only experimenting with new ideas but actively seeking to incorporate best practices into a school. As such, we expect

H4. Proactiveness will be positively associated with school performance.

Risk-taking has been defined as "the willingness to commit significant resources to uncertain projects where outcomes are unknown and there is a potential for meaningful loss" (Morris et al., 2011, p. 949) and "the willingness to take risks, and to act outside of accepted practices and norms" (Pearce et al., 2010, p. 227). In the financial world, larger risks are often associated with larger rewards but also increased variation in performance, therefore

H5. Risk-taking will be positively associated with school performance.

Competitive aggressiveness "is a strategic behavior focused on expanding an organization’s market share at the expense of competitors" (Pearce et al., 2010, p. 226). It is unclear how much individual principals consider themselves in a battle for market share with other local schools. However, studies of competition in education often use relative shares of a traditional, charter, and private schools as a proxy for the degree of competition suggesting, at the very least, implicit competition among organizational forms. Indeed, there is evidence to suggest increased competition on this level leads to higher student achievement scores (Hoxby, 2003b). Conceivably, schools that focus on matching or besting their competitors will be more driven to produce better results, therefore

H6. Competitive aggressiveness will be positively associated with school performance.

Autonomy “is the ability to take independent action that affects strategy” (Pearce et al., 2010, p. 227). In small organizations, it may mean becoming highly centralized under a focused leader, most likely the principal in a school. In larger organizations, autonomy often involves senior managers shielding innovators from organizational norms by bending the rules and bypassing procedures and budgets (Lumpkin & Dess, 1996). School choice advocates see autonomy from centralized bureaucratic control as a key ingredient of innovation and improved outcomes (Chubb & Moe, 1990). Therefore

H7. Autonomy will be positively associated with school performance.

Control Variables

Following Pearce et al. (2010), we collected data on a number of control variables in order to control for known (and unknown) sources of variation in school performance. These variables included school age, school size (number of students), tenure of principal, level of school, and proportion of disadvantaged students. We know from the Rauch et al. (2009) meta-analysis that larger and older organizations tend to have a lower EO. A lengthy tenure might also contribute to a less dynamic organization. Level of school refers to elementary (K–5), middle (6–8), and high schools (9–12). We had no specific expectations on the level of school although we suspected that high schools may have more financial resources and thus more flexibility to experiment. Finally, many educational outcomes in the United States depend on socioeconomic status. It is important that this variable is controlled in any analysis.

Performance

The federal NCLB statute requires students in every school receiving federal funding to undergo standardized testing at a state level in grades 3–8 and at least once in high school. This provides ample archival data for determining relative student achievement from schools across a given state. In the current study, we collected performance measures from the highest tested grade in a school (i.e., 8th grade for middle schools, 11th grade for high schools). We were also interested in exploring intermediate performance variables that are known (or suspected) to influence student achievement, such as curricular innovations, teacher retention, extracurricular activities, and fund raising. By necessity, many of these performance variables were collected through self-report (although New Jersey schools also report the funding per pupil for extracurricular activities). Respondents were asked to rate their performance relative to peers in the district and state. We also asked for self-reported estimates on student achievement. Both Rauch et al. (2009) and Pearce et al. (2010) report similar correlations between EO and performance measures collected via self-report and archival sources.

Data Collection and Methodology

Sample

The target population for the study was schools in the state of New Jersey. The New Jersey statute authorizing charter schools was passed in 1995 and implemented in 1996, just five years after the first program in the United States. As one of the largest teacher preparation and professional doctorate
(EdD) programs in the state, it was thought that this name recognition would elicit participation in the study by principals and principal associations. Participants were contacted through their respective state organizations (e.g., the New Jersey Charter Schools Association, New Jersey Principal and Supervisor’s Association, and New Jersey Association of Independent Schools). All three associations agreed to participate in the study.

**Procedure**

An email link to an electronic survey was emailed to all participants through their respective associations. The instrument contained three sections. The first section solicited common demographic items from the respondent, including his or her role in the organization, school level, type, name of school, years with organization, zip code, enrollment, and age of organization.

The second section solicited respondent impressions of their school’s EO using a 7-item Likert scale. The EO instrument was adapted for education by the researchers using the religious organizations’ EO instrument developed by Pearce, Fritz, and Davis (2010). Pearce et al. (2010) used three questions for each of the five EO subscales. The questions were modified slightly for the educational context. Several professors of education reviewed the survey instrument during its development and feedback was also sought from a number of principals and assistant principals taking EdD classes at our institution. The questions on the final survey are included in Appendix A. The third section of the survey asked respondents to use a 7-point scale to rate their school relative to other schools in their district and state on five measures: student achievement, teacher retention, innovative teaching methods, extracurricular offerings, and fund raising.

After the survey responses were received, additional data on school performance was collected from the New Jersey Department of Education’s New Jersey School Report Card (New Jersey Department of Education, 2011). The report presents 35 fields of information for each school in the following categories: school environment, students, student performance indicators, staff, and district finances. The availability of this data enabled us to match respondent perceptions with archival data on performance on a number of dimensions, including math and language proficiency and extracurricular funding per student. We were also able to determine the percentage of disadvantaged students at a school and the proportion of the budget received from federal sources (a close proxy for disadvantage given targeted federal funding of disadvantaged schools).

**Results**

A total of 91 usable surveys were received—80 from public schools, 9 from charter schools, 1 from a private school, and 1 from a public magnet school. This translates into a response rate of 3.2 percent from public schools and 12 percent from charter schools. Private schools and magnet schools were excluded from subsequent analysis given the low response rate. Principals completed the majority of surveys (73%) with the remaining surveys (27%) being completed by assistant principals. More than half of the respondents were employed at elementary schools (52%), with high schools (27%), middle schools (17%), and hybrids (4%) making up the remaining responses.

**Aggregate Measures**

Two aggregate measures of EO were calculated. The EO3 measure was the sum of scores for the proactiveness, innovation, and risk-taking items, while EO5 added the autonomy and competitive aggressiveness items to the base EO3 measure. Cronbach’s alpha was 0.88 for EO3 and 0.90 for EO5 with item-total correlations ranging from 0.86 to 0.90. Although these scores may seem high, the mean inter-item correlation for the EO5 scale was just 0.38 suggesting good discrimination among the items.

On the performance side, the variable DP represented the sum of the relative district performance items, while SP was the sum of relative state performance items. Cronbach’s alpha for the DP scale was 0.61 with a value of 0.72 for the SP scale. Item total correlations ranged from 0.50 to 0.61 for the DP scale and 0.63 to 0.75 for the SP scale. The SP scale displays an acceptable level of reliability that is slightly above the traditional cutoff of 0.70, while the DP scale falls slightly below the cutoff.

The information in Table 1 displays the means, standard deviations, and correlations among the aggregate variables. The EO variables are highly correlated with strong correlations also evident between the two performance variables. The EO and performance variables were moderately correlated together. All correlations were significant at the p < 0.01 levels. Common methods bias is always a concern using similar methods to measure independent and dependent variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). One test for this bias is to use a principal component analysis to see if the variables load

<p>| Table 1. Correlations, Means, and Standard Deviations among Aggregate Variables |
|---------------------------------|---------|---------|---------|---------|---------|---------|</p>
<table>
<thead>
<tr>
<th>N</th>
<th>EO5</th>
<th>EO3</th>
<th>DP</th>
<th>SP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>68.72</td>
<td>42.94</td>
<td>24.99</td>
<td>23.35</td>
</tr>
<tr>
<td>Std Dev</td>
<td>14.12</td>
<td>9.38</td>
<td>4.93</td>
<td>5.67</td>
</tr>
<tr>
<td>Correlation</td>
<td>1.00</td>
<td>0.96</td>
<td>0.26</td>
<td>0.30</td>
</tr>
<tr>
<td><em>Note:</em> Cronbach’s alpha was 0.88 for EO3 and 0.90 for EO5. Cronbach’s alpha was 0.61 for the DP scale and 0.72 for the SP scale. Item total correlations ranged from 0.50 to 0.61 for the DP scale and 0.63 to 0.75 for the SP scale. The SP scale displays an acceptable level of reliability that is slightly above the traditional cutoff of 0.70, while the DP scale falls slightly below the cutoff.</td>
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highly on a common factor. The five EO subscales and 10 performance measures were entered into such an analysis and a two-factor varimax rotated solution was obtained.

The results indicated that the EO measures loaded predominantly on one factor while the performance measures loaded on a second factor (see Table 2 for rotated factor loadings). We concluded that common method bias was not apparent in the data.

**Archival Data**

For each school, we captured the proportion of students who were proficient or above proficient in language and math on either the High School Proficiency Assessment (for 11th Grade) or New Jersey Assessment of Skills and Knowledge (at 5th grade for elementary schools and 8th grade for middle schools). Data were available for 72 of the 89 schools in the sample. The report card also provided the proportion of disadvantaged students taking the assessment at each school but data were only available for 49 schools. Luckily, the proportion of disadvantaged students was highly correlated (r=0.77, p<0.001) with the percentage of total school budget received from federal sources. Data were available for 79 schools on this measure and this proxy was substituted for disadvantage in multivariate analysis. Additionally, we were able to determine the per capita spending on extracurricular activities for 79 schools. Table 3 details the basic statistics for the archival measures including means and correlations with self-reported aggregate data. The four archival measures all exhibited a degree of skewness that was corrected using logarithmic transformations.

**Differences in EO between Traditional and Charter Schools**

A number of t-tests for unequal variances were conducted to test the hypothesis that charter schools scored higher on EO and its components than traditional public schools. The results of these analyses are presented in Table 4 and show that charter schools scored significantly higher than traditional schools on all measures except innovativeness. These results tend to support hypothesis 1 although it was surprising that innovativeness was not significant given the importance that school choice advocates place on this dimension.

<table>
<thead>
<tr>
<th>Table 2. Rotated Factor Loadings of Aggregate Variables</th>
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<tbody>
<tr>
<td><strong>EO Subscales</strong></td>
</tr>
<tr>
<td>Innovativeness</td>
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<tr>
<td>Proactiveness</td>
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<tr>
<td>Risk-taking</td>
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<tr>
<td>Competitiveness</td>
</tr>
<tr>
<td>Autonomy</td>
</tr>
<tr>
<td><strong>District</strong></td>
</tr>
<tr>
<td>Student Achievement</td>
</tr>
<tr>
<td>Teacher Retention</td>
</tr>
<tr>
<td>Curriculum Innovation</td>
</tr>
<tr>
<td>Extracurricular Activities</td>
</tr>
<tr>
<td>Funding</td>
</tr>
<tr>
<td><strong>State</strong></td>
</tr>
<tr>
<td>Student Achievement</td>
</tr>
<tr>
<td>Teacher Retention</td>
</tr>
<tr>
<td>Curriculum Innovation</td>
</tr>
<tr>
<td>Extracurricular Activities</td>
</tr>
<tr>
<td>Funding</td>
</tr>
</tbody>
</table>

Table 3. Descriptive Statistics and Correlations for Archival Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Language</th>
<th>Math</th>
<th>Fed Rev</th>
<th>Extra</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>72</td>
<td>72</td>
<td>79</td>
<td>79</td>
</tr>
<tr>
<td>Mean</td>
<td>0.76</td>
<td>0.72</td>
<td>0.03</td>
<td>303.01</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.19</td>
<td>0.19</td>
<td>0.03</td>
<td>225.78</td>
</tr>
<tr>
<td>Min</td>
<td>0.13</td>
<td>0.13</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language Proficiency</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math Proficiency</td>
<td>0.59</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal Revenue</td>
<td>-0.60</td>
<td>-0.79</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Extracurricular Funding per Capita</td>
<td>0.53</td>
<td>0.37</td>
<td>-0.39</td>
<td>1.00</td>
</tr>
<tr>
<td>EO3</td>
<td>-0.04</td>
<td>0.00</td>
<td>0.12</td>
<td>0.09</td>
</tr>
<tr>
<td>EO5</td>
<td>-0.02</td>
<td>-0.03</td>
<td>0.14</td>
<td>0.03</td>
</tr>
<tr>
<td>Relative District Performance</td>
<td>0.39</td>
<td>0.32</td>
<td>-0.21</td>
<td>0.22</td>
</tr>
<tr>
<td>Relative State Performance</td>
<td>0.42</td>
<td>0.43</td>
<td>-0.30</td>
<td>0.27</td>
</tr>
</tbody>
</table>

Note: If |r| > 0.20, then p < 0.05
**The EO–Performance Relationship**

A series of regression models were constructed to explore the EO–performance relationship in our data. The base model included a set of control variables (school size, school age, principal tenure) that closely match those used on a previous study of religious congregations (Pearce, et al., 2010). Again, following Pearce et al. (2010), we constructed a composite measure of performance based on self-reported and archival data using a principal components analysis. The first principal component explained 36 percent of the variance in performance, with 12 of the 13 measures having factor loadings between 0.52 and 0.75. Extracurricular funding per student only loaded 0.34 and was subsequently dropped from the composite score. The average factor loading for the remaining 12 variables was 0.61.

Four distinct models were created (see Table 5). The first model contained a series of control variables, including title of respondent, level of school, type of school, age of school, number of students, tenure of respondent, and degree of disadvantage (measured by proportion of district funds from federal sources). The control model was able to explain almost half of the variance in the sample with disadvantage being the dominant explanatory variable. The second model added EO (EO5) into the regression model. EO was significant at the \( p < 0.01 \) level and explained an additional 6 percent of the variance thus supporting hypothesis 2. The third model is actually a set of models that iteratively adds each of the dimensions of EO to the regression model. The most significant variable is proactiveness but innovativeness and autonomy are also significant supporting hypotheses 3, 4, and 7.

Risk-taking and competitive aggressiveness failed to reach significance so hypotheses 5 and 6 were not supported. Entering proactiveness instead of EO explained 8 percent more of the variance than the control model, slightly more than EO as an aggregate construct.

The final model uses a stepwise approach to select only a small subset of the variables that explain the most variance. Using this approach, disadvantage and proactiveness emerged as the most significant variables. Schools with principals with longer tenure performed better as did high schools over elementary and middle schools. The stepwise model is able to explain 52 percent of the variance with only four variables thus yielding a very strong \( F \) statistic for the model of 17.72.

**Conclusion and Implications**

The results indicate that aspects of entrepreneurial orientation, specifically proactiveness, innovativeness, and autonomy, were significantly associated with the performance in the sample of New Jersey schools that responded to our survey. Charter schools were also found to have a significantly high-

---

**Table 4. Differences in EO between Traditional and Charter Schools**

<table>
<thead>
<tr>
<th>Variable</th>
<th>t-score</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovativeness</td>
<td>1.29</td>
<td>n.s.</td>
</tr>
<tr>
<td>Proactiveness</td>
<td>2.26</td>
<td>*</td>
</tr>
<tr>
<td>Risk-Taking</td>
<td>2.89</td>
<td>**</td>
</tr>
<tr>
<td>Competitive Aggressiveness</td>
<td>2.28</td>
<td>*</td>
</tr>
<tr>
<td>Autonomy</td>
<td>3.05</td>
<td>**</td>
</tr>
<tr>
<td>EO3</td>
<td>2.84</td>
<td>**</td>
</tr>
<tr>
<td>EO5</td>
<td>2.36</td>
<td>*</td>
</tr>
</tbody>
</table>

\* - \( p < 0.05 \), ** - \( p < 0.01 \)

**Table 5. Results of Regression Analysis: EO and Performance**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite Performance</td>
<td>Control</td>
<td>EO Dimensions</td>
<td>Stepwise</td>
<td></td>
</tr>
<tr>
<td>Controls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>0.02</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>-0.15</td>
<td>-0.13</td>
<td>-0.19*</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>0.11</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenure</td>
<td>0.24*</td>
<td>0.21*</td>
<td>0.21*</td>
<td></td>
</tr>
<tr>
<td>Number of Students</td>
<td>0.04</td>
<td>0.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Age</td>
<td>0.04</td>
<td>-0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disadvantage</td>
<td>-0.60**</td>
<td>-0.58**</td>
<td>-0.56**</td>
<td></td>
</tr>
<tr>
<td>Independent Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EO</td>
<td>0.26**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovativeness</td>
<td></td>
<td>0.21*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk-taking</td>
<td></td>
<td>0.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proactiveness</td>
<td></td>
<td>0.31**</td>
<td>0.28**</td>
<td></td>
</tr>
<tr>
<td>Competitiveness</td>
<td></td>
<td>0.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td></td>
<td>0.27**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model R2</td>
<td>0.45</td>
<td>0.51</td>
<td>0.53</td>
<td>0.52</td>
</tr>
<tr>
<td>Adj. R2</td>
<td>0.37</td>
<td>0.43</td>
<td>0.45</td>
<td>0.49</td>
</tr>
<tr>
<td>Model F</td>
<td>5.38**</td>
<td>6.06**</td>
<td>6.65**</td>
<td>17.72**</td>
</tr>
</tbody>
</table>

\( N=69, \ * - p < 0.05, \ ** - p < 0.01 \)

Standardized regression coefficients are reported.
er EO than traditional schools on all dimensions except innovativeness. The results seem to indicate that EO is a useful construct for understanding performance heterogeneity between schools, explaining 6 percent to 8 percent of the variance in our sample. Our modified EO instrument for schools also worked well with a high level of reliability among items and moderate correlations between the underlying dimensions.

These performance gains are evident for all schools with an entrepreneurial orientation. That is, charter schools do not perform better than traditional schools in the aggregate. This lends support to Teasley’s (2009) argument that understanding the processes within a school is critical to understanding performance differentials. One does not have to be a charter school to realize performance gains through EO although charter schools as a class tend to be better placed to act entrepreneurially. This reinforces the view that charter schools are not all equally efficient. Schools can improve their performance and more entrepreneurial schools appear to be doing just that.

In fact, the results seem to indicate the developing a culture of proactiveness would be the single most important thing a school could do. However, innovativeness and autonomy seem to covary with proactiveness. In other words, these traits seem to arise in a cluster or configuration that is independent of risk-taking or competitiveness. It is hard to determine if one aspect precedes another. For instance, does autonomy allow schools to be more innovative and proactive? Further research is needed to delve into the mechanisms underlying this effect. Similarly, understanding why risk-taking and competitive aggressiveness have decoupled from other parts of EO in this context is also worth exploring.

Of course, the focus on one state and relatively low response rate (there are 2,500 public schools in New Jersey and almost 100,000 schools in the United States) means that it is difficult to generalize our results to entire populations. However, the authors are working to expand the sample to other states and nations to explore the effect of different institutional contexts on the EO-performance relationship. If the previous work on EO is any guide, the results are likely to persist across geographic boundaries and variations in institutional context.

In conclusion, this study provides support for the contention that EO is a useful construct for understanding variations in school performance. For educational theory, it helps to explore inside the “black box” of school practice that has often eluded educational researchers. For entrepreneurship theory, it helps to confirm the notion that EO is a construct that transcends the world of business and allows us to explore the effects of entrepreneurial behavior in new ways.

References


Appendix A. School Entrepreneurial Orientation Survey

Instructions: Please select a single number to indicate which of the two statements is most true for your school. Selecting a one (1) indicates strong agreement with the first statement, while a seven (7) indicates a strong agreement with the second statement, and a four (4) indicates both are equally true. The numbers in between represent differing degrees of agreement with one of the two statements.

<table>
<thead>
<tr>
<th>First statement more true</th>
<th>Equally True</th>
<th>Second statement more true</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(Innovativeness) I1 In general, the leadership in our school favors . . .</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A strong emphasis on tried and true teaching methods/techniques and extracurricular programs</td>
<td></td>
<td>A strong emphasis on new and innovative teaching methods/techniques and extracurricular programs</td>
</tr>
<tr>
<td>(Innovativeness) I2 How many new activities, teaching methods/techniques, or extracurricular programs has your school offered in the last 3 years?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very many</td>
<td></td>
<td>Very few</td>
</tr>
<tr>
<td>(Innovativeness) I3 At my school . . .</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes in activities, teaching methods/techniques, and extracurricular programshave been mostly of a minor nature</td>
<td></td>
<td>Changes in activities, teaching methods/techniques, and extracurricular programs have been quite dramatic.</td>
</tr>
<tr>
<td>(Proactiveness) P1 My school . . .</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is very seldom the first school to introduce new policies and practices</td>
<td></td>
<td>Is very often the first school to introduce new policies and practices</td>
</tr>
<tr>
<td>(Proactiveness) P2 My school . . .</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We position ourselves to meet existing demands</td>
<td></td>
<td>We position ourselves to meet emerging demands</td>
</tr>
<tr>
<td>(Proactiveness) P3 My school . . .</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We rarely make changes due to perceived changes occurring in the community</td>
<td></td>
<td>We continually make changes due to perceived changes occurring in the community</td>
</tr>
<tr>
<td>(Risk-taking) RT1 In general, the leadership of my school has . . .</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A strong tendency to adopt low-risk teaching methods/techniques and extracurricular programs with normal and certain results</td>
<td></td>
<td>A strong tendency to adopt high risk teaching methods/techniques and extracurricular programs with chances of very dramatic results</td>
</tr>
</tbody>
</table>

*continued*
## (Risk-taking) RT2 In general, the leadership of my school believes that . . .

| **Owing to the nature of the environment, it is best to explore changes gradually via cautious incremental behavior** | **Owing to the nature of the environment bold wide ranging acts are necessary to achieve the school’s objectives** |

## (Risk-taking) RT3 When confronted with the decision making situations involving uncertainty, our school . . .

| **Typically adopts a cautious, wait-and-see posture in order to minimize the probability of making costly decisions** | **Typically adopts a bold aggressive posture in order to maximize the probability of exploiting potential opportunities** |

## (Competitiveness) C1 In dealing with other schools, my school . . .

| **Rarely responds to changes and actions that other schools initiate** | **Always responds to changes and actions that other schools initiate** |

## (Competitiveness) C2 When dealing with other schools, my school . . .

| **Typically seeks to avoid competitive clashes with other schools** | **Typically adopts a very competitive strategy toward other schools** |

## (Competitiveness) C3 At my school . . .

| **Our actions toward other schools can be termed accommodating** | **Our actions toward other schools can be termed aggressive** |

## (Autonomy) A1 At my school . . .

| **Very many changes suggested by teachers, board members, or parents are implemented** | **Very few changes suggested by teachers, board members, or parents are implemented** |

## (Autonomy) A2 At my school . . .

| **Identifying new school activities, teaching methods/techniques, and extracurricular programs is the responsibility of a small number of individuals** | **Identifying new school activities, teaching methods/techniques, and extracurricular programs is done by all members, including teachers, board members, and parents** |

## (Autonomy) A3 My school . . .

| **Discourages independent activity to develop new teaching methods/techniques and extracurricular programs** | **Encourages independent activity to develop new teaching methods/techniques and extracurricular programs.** |
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Common pedagogical approaches to entrepreneurship education include business plan writing, case studies, consulting, and simulations. Yet, in effect, these learning vehicles are simply proxies for the venture launch process. Operating under the assumption that learning entrepreneurship is a complex endeavor best addressed by a portfolio of pedagogical techniques, some instructors have experimented with launching student businesses in addition to traditional approaches. The challenge is how to do this with inexperienced undergraduate students within the confines of a 15-week semester. Included in the article are an outline of the process, a qualitative assessment of student learning, and suggestions for further research.

Keywords: entrepreneurship education; student ventures; experiential learning

Although starting primarily in the United States (Katz, 2003) university-level entrepreneurship education has become a world-wide phenomenon (Lautenschläger & Haase, 2011), including—but not limited to—Scandinavian (Rasmussen & Sorheim, 2006), Asian (Lee, Lim, Pathak, Chang, & Li, 2006), Eastern European (Mitra & Matlay, 2004) and Latin American (Tiffin, 2004) regions. Its popularity stems from several factors, including venture creation’s potential to create jobs (Fölster, 2000), spur innovation (Audretsch, 2002; Fritsch, 2008) and mitigate social problems (e.g., Martin & Osberg, 2007). A fundamental assumption driving much of the popularity of university-based entrepreneurship education (EE) is that it will help students develop the mindset, skills, and knowledge needed to create new enterprises; in other words it can provide, “education for entrepreneurship” as well as “education about entrepreneurship” (Kirby, 2004; Rasmussen & Sorheim, 2006). The hope is that this, in turn, will increase the number of new firms and nonprofit organizations created by these students after they graduate, or perhaps even before.

For several decades, the foundation of a majority of university entrepreneurship education classes was based on writing a formal business plan. This approach made sense because it lent structure to the course, enabled systematic coverage of relevant entrepreneurship topics (e.g., pro-forma financial statements, marketing plans, product development, industry analysis, etc.), and seemed integral to venture success. Indeed, a number of entrepreneurship scholars have presented evidence indicating that having a formal written business plan was associated with a number of positive outcome measures like revenue growth (Orser, Hogarth-Scott & Riding, 2000; Upton, Teal, & Felan, 2001; Schwenk & Shraeder, 1993), and avoiding business termination (Perry, 2001).

More recent work, however, is mixed. While some studies do find positive correlations between formal business planning and measures of entrepreneurial success (e.g., Delmar & Shane, 2003; Shane & Delmar, 2004), another group of respected researchers argues that the jury is still out; their data provide no empirical support for the premise that formal planning is directly correlated to a number of performance variables, including survival or profitability (Honig & Karlsson, 2004); revenue, net income, and number of employees (Lange, Mollov, Perfmutter, Singh, & Bygrave, 2007). Indeed one article explicitly stated that “unless a would-be entrepreneur needs to raise substantial start-up capital from institutional investors or business angels, there is no compelling reason to write a detailed business plan before opening a new business” (Lange, et al., 2007, 237).

Some faculty have come to the conclusion that although knowing how to write a formal business plan is a good tool to have in the entrepreneurial skills toolbox, it is not the only tool needed, and perhaps it is not even the most important. With this new perspective as the founding premise, alternative approaches to introductory entrepreneurship education are needed to ensure the curriculum is still relevant. “Relevance is important to entrepreneurship pedagogy because it influences the perceived legitimacy of courses and programs among stakeholders, including students, administrators, and parents” (Edelman, Manolova, & Bush, 2008, 57). For this, and likely other reasons, some instructors have been moving toward other pedagogical approaches, such as field trips, guest speakers, case studies and experiential learning (Daly, 2001; Jones & Iredale, 2010). In particular, experiential learning has been getting traction since it is based on the assumption that learning a skill-based process is best accomplished by doing the activity.
A review of experiential learning techniques used in entrepreneurship education listed a wide range of alternative pedagogies, such as role-playing, consulting, computer simulations, and internships (Solomon, Duffy, & Tarbishy, 2002). Yet, while all of these can be useful active learning vehicles, they are still, in effect, proxies for the actual process of starting a new venture. Students do not have “skin in the game,” do not build real relationships or experience any real consequences (Bilimoria, 1998). Neck and Greene have recently proposed that since entrepreneurship is “a continuous cycle of action, learning, testing, and experimenting, developing students as reflective entrepreneurs requires reflection-on-practice and reflection-in-practice as part of a pedagogy portfolio (Neck & Greene, 2011, p. 66).

The ideal would be for students to start their own business as an integral part of the course, and reflect periodically on the experience. This would give them opportunities to build self-efficacy, learn from failure, practice value creation and opportunity development, among many other potential learning outcomes. The challenge is, however, how can faculty members do this, especially with inexperienced undergraduate students within the confines of a traditional 15-week semester?

After analyzing the situation, some faculty members have acknowledged that the length of time typically needed for start-up and operations does not fit the academic calendar. One institution, Babson College, offers a two-semester course spanning an academic year in which student teams plan, launch, and close a business. Unfortunately, that approach is not feasible for many business schools that are limited to single-semester courses. Therefore, some schools have moved the experience “outside the curriculum, even outside the university institution” (Daly, 2001, 204). However, this solution, in effect, moves the start-up experience closer to “entrepreneurial training” than “entrepreneurial education” (e.g., Lautenschläger & Haase, 2011). Extracurricular activities, in general, do not provide as much structure, support, or reflection as activities assigned as a part of formal coursework.

What is described here is a “bridge” model that acknowledged the limitations of a traditional 15-week semester when designing and launching a business, while at the same time not losing the tangible outcomes and the potential for reflection generated by students over the course of an academic semester. In this model, the entire class creates and develops one new venture and brings it as far along the supply chain as possible, preferably to market. When the semester is over, it is officially handed off to the Entrepreneurship Club to fill in any remaining gaps and to run the business on an ongoing basis. While this idea was developed independently by the author, subsequent research revealed a similar approach has been successfully implemented at another institution of higher learning as well, although that was an Internet-based business (Daly, 2001). What is presented below is a blueprint of how the course was run, followed by a preliminary assessment of learning outcomes, and suggestions for other entrepreneurship faculty interested in using this challenging but highly rewarding technique. The article concludes with suggestions for additional research on entrepreneurship education.

**Before the Semester Began**

While designing the course, I had to keep in mind the institutional constraint of a traditional 15-week semester with 2.5 hours of contact time per week. Launching a business in the “real-world” often takes a considerably longer timespan even when the entrepreneur works on it full time. Several techniques were used to fit the project to the constraints, including pre-selling, leveraging existing resources, and limiting the students’ product options.

First, prior to the start of the semester, I reached out to the key players in the project, including the bookstore manager, the Entrepreneurship Advisory Board, the Entrepreneurship Center Director, the supplier, and, of course, the Dean of the Business School. My goal was to pre-sell the concept to them and ensure their support. From the bookstore manager I sought her support for stocking the product in the campus store, which is run by a national chain. We also discussed specific issues, such as shelf set—which is usually done at the store’s corporate headquarters—pricing, and the need for a bar code on the product label. Approaching her before the semester started gave her an opportunity to reach out to her regional manager to get answers to potentially “deal-breaking” issues. Fortunately she got permission from her management to stock the product and sell it on a consignment basis, which meant that the normal rules (such as having the usual price mark-up and the need for a bar code) would not apply.

Our business school has a Center for Entrepreneurial Studies with a very active Director and Advisory Board. The board helps develop curriculum (two members also teach as adjuncts in the program), hosts the annual Entrepreneurship Hall of Fame dinner, raises funds for scholarships and the student business plan competition, and its members serve as frequent guest speakers in classes and at Entrepreneurship Club events. I approached them to see if they would be willing to offer technical advice to the students if needed, provide “external” oversight, and most importantly loan us funds for working capital. They were very enthusiastic about the project and quickly authorized a budget that was more than sufficient for our needs.

I met with a very active alumnus who, along with partners, owns a successful contract manufacturing firm in the state. This company fabricates and manufactures health and beauty products for many well-known clients in the United States and around the world. I toured the factory and as we
walked we discussed the project. We agreed that, given the significant time constraint, the students could only work with nonproprietary products that the firm had already produced and tested for quality and safety (such testing typically takes several months). She scanned the inventory, looking for overages, products produced “on spec,” and orders that were subsequently cancelled by the client. What resulted was a diverse list of potential products that included body powders, cosmetics, perfumes, lotions, shampoos and conditioners, body sprays, and air fresheners in various scents. Some of the products were “all natural” or contained botanicals. In total there were about seventy different products among which the students could choose. While allowing the participants to explore any opportunity would have perhaps been more realistic since real-world entrepreneurs are free to start any kind of legal business they would like, it just was not feasible in this case. However, given the range of products available, I felt confident that the students would still get a realistic feel for the process of finding an opportunity to exploit in their target market.

Finally, I spoke at length with the Dean of the Business School. My primary concern was the legal structure of the course. An advisory board member offered to form a limited liability corporation (LLC) for the class, but we ultimately decided not to go that route, mostly due to the ongoing reporting requirements. Our logic was that the company was being launched under the auspices of the university and solely for pedagogical purposes. We were selling the product only on campus and to the university community. Therefore any liability issues we encountered should be covered by the university’s existing legal structure. If we earned any profits after paying all our expenses, the monies would be either remitted to the school (perhaps to be allocated to scholarships or Entrepreneurship Club activities) or donated to charities.

Fortunately each person or entity contacted during the pre-sell phase enthusiastically embraced the idea and pledged their assistance. The students were still expected to engage with these partners (as outlined below), but I wanted to ensure, to the extent possible, that the partners would be active and supportive participants. I tried to anticipate and mitigate any factors that would significantly delay the project, such as getting an official bar code and doing shelf-life and other product quality testing.

In addition, I contacted a few university departments that I thought might be useful to the project, namely the Public Relations Department, Debit Card Services, and the Print Shop. I wanted to learn the policies and procedures my class would need to follow to access services. Given the supply chain delays that ultimately ensued, we did not avail ourselves of the PR Department’s services (although the business school’s PR manager did speak to the class about Public Relations and how it is implemented at the university). And, since finals were rapidly approaching, the team decided not to sell their product at nonbookstore campus locations, so we did not need to draw money from students’ campus debit accounts through Card Services. Our product labels, however, were printed at the university’s print shop, so understanding the department’s procedures was useful.

Also, prior to the semester I carefully reviewed a wide range of entrepreneurship textbooks. Had this been a graduate-level course, I might have attempted the course without a book at all, but for undergraduates I felt the book would provide a much-needed “course anchor” (Edelman, Manolova & Bush, 2008, 59). Unfortunately, finding a textbook to support the course’s aims was quite difficult. Most undergraduate textbooks either focused on writing a formal business plan, which we were not going to do in the course, or they presented a broad overview of the field, including topics like social entrepreneurship, corporate entrepreneurship, family business, buying an existing business, franchises, etc. I settled on the book *Launching New Ventures* by Kathleen R. Allen, which did not focus on formal business plans, but instead focused on such things as proof of concept and developing a viable business model.

**During the Semester**

The class was oversubscribed, with 32 students on the roster; upper-level undergraduate classes are usually capped at 30. All the students were from the business school. The students’ motivations for registering for the course were mixed: for students earning an Entrepreneurship Certificate, this course was required; another subset was counting the course toward their management major; finally, for still others, the class was serving as a general business elective. The students’ primary majors were as follows: accounting (1); finance (2); management (which houses the Entrepreneurship Certificate program; 2); and marketing (7).

To start a company in this short period on a part-time basis, it was critical that the work be delegated to the “partners.” Thus, I set up a self-managed team structure. In an effort to keep the teams small—I wanted the students to get to know each other well, since working with others is a critical entrepreneurship skill—I created 11 different work groups with 3 members each (except for one team with 2 people): (1) Accounting, (2) Advertising, (3) Graphic design, (4) Investor Relations, (5) Legal, (6) Market Research, (7) Pricing, (8) Public Relations, (9) Project Management, (10) Sales, and (11) Supply Chain. At the beginning of the term each student designated their top 3 team assignment choices; fortunately there were enough divergent interests that all the students got either their first or second choice with only one exception. That student indicated she was happy to serve where she was needed. The teams were assigned tasks periodically throughout the semester (see Table 1 for examples
<table>
<thead>
<tr>
<th>Team</th>
<th>Examples of Team Assignments</th>
</tr>
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</table>
| Accounting           | • What kind of financial reporting is required for an LLC?  
• Compile a list of the information you are going to need from the various teams to create a Profit & Loss Statement (P&L).  
• Investigate borrowing a scanner so students can use their Campus Debit cards to pay for our product if we sell it in nonbookstore locations.  
• Put together a preliminary P&L in Excel so we can do “What if analyses.” State the assumptions.                                                                                                                                                                                                                                                                       |
| Advertising          | • Design a prototype of an informational ad that classmates can post on their Facebook wall. Draft a poster that could be posted around campus.  
• Contact the college radio station & get the student advertising rates. Write a 30-second radio commercial announcing our product launch.  
• Create a storyboard for a YouTube-type video.  
• Brainstorm other advertising ideas and present to class.                                                                                                                                                                                                                                                                                                                                 |
| Graphic Design       | • Investigate Food & Drug Administration (FDA) rules about labels for health & beauty aid products.  
• What are the university rules regarding using the university logo on products?  
• Using the sketches we all generated in class, create 2 or 3 logos for our product (so we can vote).  
• Create a few different label layouts so we can vote. Overall label size will be about 7.5” by 3.75”, but there will be about a 0.5” overlap.                                                                                                                                                                                                                     |
| Investor Relations   | • Attend the next Advisory Board meeting to describe the project and answer questions.  
• Write an executive summary as described in Chapter 9 in the textbook for the members of the Advisory Board.  
• Write a status report for the Advisory Board.                                                                                                                                                                                                                                                                                                                                 |
| Legal                | • What is an LLC (Limited Liability Corporation)?  
• Check the availability of the proposed product and fragrance names (at uspto.org).  
• Search for examples of legal issues regarding our product. What risks might we be facing?                                                                                                                                                                                                                                                                                                                                 |
| Market Research      | • Use the market research questions generated by the class to do an electronic survey. Then compile the results. What product type would most likely be successful?  
• Do an electronic survey of the proposed names listed above to see what students find most appealing.  
• Do an electronic survey of how students learn about things on campus: Facebook, college radio station (what shows do they listen to?), posters/flyers, message board in front of Student Center, etc.                                                                                                                                 |
| Pricing              | • What are the prices of the HBA products in the university Bookstore? How do they compare to the prices at the drug stores in town? Also, take a few pictures of the HBA shelf sets at both locations.  
• Propose about three possible price points for our product, and justify why you recommend each one. Assume the labels cost $.90 each and the product itself costs $1.50 per unit.  
• What does it mean to sell a product “on consignment”?                                                                                                                                                                                                                                                                                                                                 |
| Project Management   | • Collect project deliverables from all teams.  
• Use project management software to layout the project.  
• Monitor project progress.                                                                                                                                                                                                                                                                                                                                                                                                 |
| Public Relations     | • Write a press release (with the entire class as the “entrepreneur”) describing our efforts. Assume this is for the university newspaper.  
• Write a press release for an external audience (e.g., local newspaper).                                                                                                                                                                                                                                                                                                                                 |
| Sales                | • Create an elevator pitch for our product.  
• Plan our sales meeting with the bookstore manager. Write a sales pitch (5-10 minutes long). Include all benefits to the consumer and the customer. Remember a good sales pitch tells an interesting story!  
• Investigate other potential locations for selling our products.                                                                                                                                                                                                                                                                                                                                 |
| Supply Chain         | • Tour the manufacturing facility and report back to your classmates.  
• How do we get a bar code?  
• Get bids & lead times for 1- and 2-color labels from three or more printers. The labels will be about 7.5” by 3.75”, quantity 350.  
• Contact our supplier to let them know our production estimate (350). Confirm that we will be using the bottle that we were given at the start of the semester. Ask for our estimated production date!  
• Contact the bookstore manager and ask how many cases of product she would like on hand.                                                                                                                                                                                                                                                                                      |
of work assignments), and then they presented their progress or results to the class. Other tasks were done by the class as a whole, such as naming the company, selecting and naming the product, and designing the logo. Aside from external relations and some coordination, I tried not to do any of the work, including making decisions.

To facilitate making class decisions, I used our university’s proprietary survey software, sometimes even creating a survey on the fly if a decision came up during a class session. Students used their laptops to vote in the classroom, and I was able to post the survey results in real time. This meant the decision-making process was transparent (in fact, students were sometimes surprised at the distribution of responses—a good learning outcome in-and-of itself), yet kept the individual votes of the students anonymous. Thus, the more extroverted students did not inadvertently suppress the quiet students’ perspectives, and students were not subjected to as much pressure to vote a certain way simply to please the instructor or their peers, as might occur with a simple show-of-hands approach, for example.

The class met twice a week for an hour and 15 minutes per session. Typically, one session a week was devoted to lectures, which covered basic course concepts, reviewed material from the textbook and introduced various tools, such as nominal group technique, project premortems and mind-maps. During the other session, we either applied those tools to our project—for example, we used the nominal group technique to generate our product name—or reported on the work teams’ results.

The original course schedule called for us to launch our product just prior to the Thanksgiving break. However, we had two glitches related to the supply chain that caused us to postpone our launch. First, our first prototype was not what the class expected, and it did not seem like it would appeal to our target market. Therefore, we had to “go back to the drawing board” and select a more appropriate formulation. After that issue was resolved, we then faced some production delays that caused us to miss our revised deadline of the first week of December. Our supplier was a tremendous resource and a generous benefactor. However, this firm was also growing very rapidly (over 75% last year) and had just recently added a new layer of management. Upon reflection, it was an unplanned, but valuable lesson for students to learn that an unknown start-up with no track record will often slide to the bottom of a supplier’s priority list when the supplier’s reliable, established customers or a hot new prospect needs attention.

The original goal was to launch the business by the end of the course; however, as of finals week, the product was produced and labeled but was not yet available in the Bookstore. Instead of letting the project drop, it was decided that it would be “bridged” over to the Entrepreneurship Club on campus. Members of the club took the materials generated by the class, including the product itself, advertising materials, and press releases and then completed the launch at the start of the following semester. Of course, all the students from the course were invited to participate in this final phase, and many enthusiastically did. However, several had graduated, a few were working at internships and some were simply not interested.

**Student Learning and Reflection**

Given this was the first time I taught the class using this method, I asked for a lot of feedback from students. In addition, reflection was an integral part of the course on a periodic basis. For example, in a written, in-class reflection assignment toward the end of the semester many students were very positive regarding their evaluation of the course. For example, one student wrote, “The experience of launching [our product] was one of the most beneficial projects I took part in at business school” (Student #6, Senior, Marketing). Another student shared, “I don’t think there is a better way to be better prepared as a future entrepreneur than to create an actual company and product (Student #24, Senior, Management). Finally, a student wrote, “This was a great experience that I heavily valued (Student #22, Senior Management).

A common theme was the hands-on, experiential nature of the course. For example: “From the first choices we made as a team, till the last choice we made, it has been a very ‘hands-on’ experience that gave me more knowledge and insight into entrepreneurship than I would have gotten simply out of a textbook” (Student #7, Junior, Management). Another agreed, “This [class] was so useful because unlike an exam or an essay, this semester was a real experience. It allowed me to learn what entrepreneurship is all about with real hands-on experience (Student #13, Senior, Management). A participant similarly reflected, “The development of [our product] allowed me to put these valuable concepts to use and view the effectiveness of them in a real-life, business atmosphere” (Student #20, Senior, Management). Finally, one student drew a parallel between the course and fieldwork: “[Our product] was actually a great experience for me. I am getting my certificate in entrepreneurship and we invented a product! The main reason why this was so useful was because I witnessed a product from start to end, seed to plant. The experience I obtained almost felt like fieldwork.” (Student #21, Senior, Marketing).

But not all was wine and roses. Some students were a bit surprised about how complex and difficult the process of launching a business can be: “The most important idea that I learned from the creation and launch of [our business] is how much actually goes into creating a company and product. It was truly amazing to me to learn how much coordination and effort went into creating this one product” (Student...
This was a common theme: “Only through starting from scratch in class with a brand new product was I able to see how much is truly involved in selling a single product in a controlled environment” (Student #16, Senior, Management). Another student concurred: “Our new product was not a failure but the course made us students realize that in the real world there will be delays, confusion and hurdles, which may at times be out of the entrepreneur’s control” (Student #24, Senior, Management). This perspective was also shared by another participant: “The most important thing I have learned about launching a [business] is how unpredictable the whole process can be. Before seeing the actual process firsthand, I had a bit of a misconceived notion that launching a product would not be too difficult and the people involved would be cooperative and punctual. I have learned that patience is essential to launching a product as is your network” (Student #32, Senior, Management). Finally, a student observed: “Starting a new company within a class was a very ambitious and experimental endeavor on behalf of the students in our entrepreneurship class. I do not think anyone involved had the slightest clue of how many moving parts there would be throughout the whole process (Student #25, Senior Management).

Interestingly, the realism of the project also seemed to bolster self-efficacy for some of the participants, as was shared by this student: “I gained confidence and know what to expect” (Student #26, Junior, Management). Another student wrote: “These ideas are useful to me. [The course] showed that the concepts I learned... help [launch a business] and [will] prove to be effective if I were to start a venture like this on my own” (Student #28, Senior, Management). Another confident participant shared: “The most important idea that I learned is how everyone has the opportunity to become an entrepreneur and that it does take time so do not get frustrated. We came into this class with little knowledge and by the end we have what it takes to make it in the entrepreneurial world. We did everything an entrepreneur did except actually [manufacture] the product” (Student #29, Junior, Management). In another example a student observed: “Throughout the process we faced many difficulties and we saw firsthand how we needed to improvise on the spot to get things done when we were presented with setbacks” (Student #7, Junior, Management). Another noted, “If I ever need to launch a product in the future, I now know all the steps” (Student #13, Senior, Management). Finally, a student reflected, “This semester gave a good insight into the steps and processes that it takes to launch a business, which has helped to develop my own business skills. Experiences like these are very useful to me because I someday want to launch my own business. Doing these things hands-on and seeing the importance of each step has given me a better understanding of how to launch a business” (Student #31, Senior, Management).

While many students were inspired by actually launching a business, others realized that entrepreneurship may not be for them. This, too, is a valuable outcome. For example one student confessed, “In the end, I realized that I’m still not positive whether or not I’d like to become an entrepreneur” (Student #16, Senior, Marketing). Better to learn this in the university setting, than to learn it after quitting your job and mortgaging your house!

At the end of the course, all the students were asked to respond to the following prompt: “What was the most important thing you learned this semester in this course? Why was it important to you?” What was fascinating was the wide range of responses, everything from the importance of contingency planning to the concept of bootstrapping. See Table 2 for a complete listing.

## Instructor Learning and Reflections

This approach to entrepreneurship education is challenging, but it was not much more involved than preparing for any new course. The difference is that it would be a “new course” every time you taught it. Teaching a class like this is difficult to plan, except, perhaps, for the certainty that something will go wrong at some point in time. Therefore the flexibility to switch to contingency plans and the ability to see failure as an opportunity for reflection and learning are necessary qualities of the instructor, as well as the students. This approach to entrepreneurship education is not recommended for faculty who dislike ambiguity. However, if you do decide to pursue it, the major benefit will be that the course will be fresh and exciting each time you teach it.

What was surprising—and upon reflection I’m not sure

<table>
<thead>
<tr>
<th>Table 2. What Was the Most Important Thing You Learned in this Class?</th>
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<tbody>
<tr>
<td><strong>Course Concept, Process, or Tool</strong></td>
</tr>
<tr>
<td>Analytical &amp; decision-making skills</td>
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<tr>
<td>Bootstrapping</td>
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<tr>
<td>Collaboration &amp; team work</td>
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<tr>
<td>Contingency planning</td>
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<tr>
<td>Coordination &amp; communication</td>
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<tr>
<td>Developing a marketing/branding strategy</td>
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<tr>
<td>Entrepreneurship/business launch process</td>
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</tbody>
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why this was surprising to me after decades of undergraduate teaching—about this course was how much supervising the supposedly self-managed work teams needed. In addition, perhaps because they are so used to “academic” exercises, they needed constant reminders to follow through. For example, the Public Relations team wrote a press release for the university newspaper, presented it to the class for approval, and then never sent it. I speculate that they thought, as per their other courses, once it was submitted to the professor or presented in class, it was done. Next time I will be more explicit throughout the semester about the importance of taking initiative and following-through to completion. This course is not just another “academic” exercise.

Overall the experience was very rewarding for both me and the students. However, there are a number of things I would do differently, if I were to teach it again. In the next few paragraphs I reflect on the aspects of the project that needed improvements, especially the need to (1) decrease the number of work teams & better balance the workload, (2) leverage more outside resources, (3) require more updates and formal reporting, and (4) shift the instructor’s role to include less “teaching” and more “consulting.”

First, I would have fewer teams with slightly larger membership per team. The problem with the team structure I designed at the start of the semester was that it did not smooth out the workload across the semester very well. For example, until the market research results were available, several teams had nothing to do. In addition, some teams just had more work to do overall than other teams. For instance the sales and pricing teams only contributed a small portion to the overall project, while the marketing research and advertising teams did more than their fair share of the work. This was not a function of the teams’ motivation or efforts; rather it was primarily due to the kinds and numbers of tasks assigned to them. Therefore, in the future I would organize the following teams: (1) Accounting & Pricing, (2) Public & Investor Relations, (3) Project & Supply Chain Management, (4) Advertising & Sales, (5) Market Research, and (6) Graphic Design (which would include research into trademarks). This would result in teams of approximately five to six students each—still a manageable size, but with a more balanced and evenly distributed workload.

Second, I would better leverage my outside resources. The two times I had guest speakers—the print shop manager and the public relations manager—were very effective. The speakers provided concrete advice and real-world perspectives, much of which was directly related to our project. Next time I will invite members of our Entrepreneurship Advisory Board to speak to the class, even if what they are sharing is not directly applicable to what we are doing. For example, one board member is a lawyer who specializes in start-up and small to medium-sized businesses. In the future I will invite him to speak even if we do not plan to incorporate the business. In addition, despite her heavy schedule, I would invite the supplier to speak to the class mid-way through the term, to share her perspective of the project and perhaps even to speed up decision making. While two students did tour our supplier’s production facility, the experience would have benefited all the students, many of whom have never been in a manufacturing plant. With all guest speakers, I will encourage a two-way dialogue, with the students asking the experts for mentoring and specific guidance on the project.

Although the student teams did “report out” their results on a periodic basis, I would, in the future, have them give weekly updates. This would keep the other teams informed, while also serving to keep the project top-of-mind. Our students are very busy with internships, job interviews, part-time jobs and full-time coursework, not to mention social lives. Sometimes, I suspect, the project sank down on their list of priorities. Finally, this semester I was the de facto project manager, but going forward I would require the Project & Supply Management team to use project management software to keep track of what work has been accomplished, what still needs to be done, and who will be responsible.

**Conclusion**

Launching a new enterprise is considered the heart of entrepreneurship (e.g., Gartner, 1988; Delmar & Shane, 2004). It requires three major skill sets for success: the ability to “create a needed product or service, sell it, and work with people” (Aronsson, 2004: 290). Unfortunately, few of the pedagogical approaches used in entrepreneurship education today encompass all of these skill sets in a holistic manner. Many common entrepreneurship techniques are focused on proxies or abstractions where student decisions do not have impact on the “real world” and are based on non-experiential methods (see Figure 1). Such pedagogies can be efficient and effective means of conveying entrepreneurship content—

![Figure 1: Pedagogical Approaches to Entrepreneurship Education](image-url)
such as the elements of a business plan, types of financing available to entrepreneurs, how to incorporate, the product development process, and so on. These techniques actively involve students in entrepreneurial cognition, “the knowledge structures that people use to make assessments, judgments or decisions involving opportunity evaluation and venture creation and growth” (Mitchell, et al., 2002, p. 97. However, becoming an entrepreneur requires more than acquiring the right knowledge structures; it involves a holistic combination of motivation, skills, and experience as well.

By not providing a venture experience in class, students must wait until they launch their own business to have this kind of multidimensional, holistic experience, and, hopefully, learn from it. Yet, students in the “real world” might just move on to the next challenge, issue or opportunity, without taking the time to learn from their successes and failures, especially since they would not be required to do course reflection assignments. And even if they do reflect, learning from these experiences would probably be facilitated through coaching and mentoring offered by faculty members.

As a result, “a change in curriculum is needed” (Aronsson, 2004: 290). Indeed, there have been several calls for entrepreneurship education to highlight “the process by which people [actually] go about transforming an idea into something tangible” (Gendron, 2004). Given that entrepreneurship is a practice-oriented discipline, we need to be sure to include teaching techniques located in the upper left-hand quadrant of Figure 1 in our portfolio of entrepreneurship pedagogy.

Multiple learning outcomes were experienced by the students who participated in the venture creation project during the semester, as indicated by their unprompted reflections (see Table 2). In particular, I propose that self-efficacy, which has been defined as “the strength of a person’s belief that he or she is capable of successfully performing the various roles and tasks of entrepreneurship” (Chen, Greene, & Crick, 1998: 295), is more likely to be developed through a course-related business launch experience than another activity in the pedagogy portfolio. An additional benefit to this technique would be that students would also likely have a better idea if they “really [want] to take the entrepreneurial career path” (Aronsson, 2004: 291), or would prefer to pursue other employment options. But both suppositions are empirical questions that need further research.


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**About the Author**

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**Relationship Between Students’ Grades and School Year and Their Intention for Entrepreneurship: Some Pioneering Findings**

Narendra C. Bhandari

This is the first study of its kind to explore the relationship between students’ year of education and their intention to start a business once they have completed their undergraduate studies. The article also examines students’ cumulative grade point average and their intention to start a business once they have completed their undergraduate studies. These pioneering findings are based on an extensive title review (including their summaries) of hundreds of articles related to these factors listed in EBSCO.

Keywords: Lubin School students; year of education; cumulative grade point average; undergraduate studies

This article determines whether there is a relationship between the Lubin School students’ current year of education and their cumulative grade point average and their intention to start a business once they have completed their undergraduate education. This analysis also looks at the statistical relationship between the students’ cumulative grade point average and their intention to start a business once they have completed their undergraduate education.

**Research Methodology**

A six-page questionnaire containing 91 questions (variables) was designed for this study, which was distributed among selected undergraduate students at the Lubin School of Business, Pace University, New York, during the December 2004–December 2005 period.

Copies of the questionnaire were sent to the author’s faculty colleagues who agreed to allow their students to participate in the study. Of the 435 responses completed by the students, 390 were included for further analysis. Forty-five of these were found unusable for the study for various reasons.

**Purpose of Research**

The overall purpose of this continuing research is to determine whether there is a statistical relationship between a number of independent variables and Lubin School of Business students’ intentions to become entrepreneurs after they have completed their undergraduate education.

This article is limited to analyzing selected variables as stated in the following hypotheses:

**H1a. Null Hypothesis:** There is no statistical difference between the Lubin students’ current year of undergraduate education (first, second, third, or fourth year)—and their intention to start a business once they have completed their undergraduate studies.

**H1b. Alternate Hypothesis:** There is such a statistical difference.

**H2a. Null Hypothesis:** There is no statistical difference between the Lubin students’ cumulative grade point average as of the preceding semester (As, Bs, Cs, or lower than Cs)—and their intention to starting a business once they have completed their undergraduate studies.

**H2b. Alternate Hypothesis:** There is such a statistical difference.

The independent variables (students’ year of education and students’ cumulative grade point average) were tested against the dependent variable (intention to become entrepreneur). Figure 1 lists the exact questions related to these variables as included in the questionnaire.

**Limitations of Study**

This is a study of the Lubin students who were taking undergraduate business courses (accounting, information system, management, or marketing) at different class levels (first, second, third, or fourth year) during the study period. The 390 students chosen for the study were all different individuals. This is not a study of the same individuals as they progressed from their first year of study through to their fourth year.

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1. This is an adaptation of the article presented by the author at the Academy of International Business Northeast (AIBNE)’s 2012 Annual Conference; and published by the AIBNE in its Proceedings (pages 268–276).
2. Much of material presented in this section is identical to Bhandari (2012).
3. The author is very thankful to his faculty colleagues who helped collect students’ responses for this research and to Dr. Vasantha K. Bhat, who helped in the statistical analysis of the data. Thanks are also due to Mr. Mihir Trivedi and to Mr. Pratik Shinde for their research assistance; and to Pace University for its support of this study.
Definition, Requirements, and Education

This following sections provide a brief overview of the definition, requirements, and educational aspects of entrepreneurship.

Entrepreneurship Definition

According to Wikipedia, the free Encyclopedia, the term “entrepreneur” first appeared in the Dictionnaire Universal de Commerce, Jacques des Bruslons’ French dictionary, published in 1723. In English, the term applies to a person who is willing to help launch a new venture or enterprise and accept full responsibility for the outcome (Wikipedia 2012). Other definitions include the following:

• 1934: Schumpeter: Entrepreneurs are innovators who use a process of shattering the status quo of the existing products and services, to set up new products, new services (Wikipedia 2012).
• 1961: David McClelland: An entrepreneur is a person with a high need for achievement [N-Ach]. He is energetic and a moderate risk taker (Wikipedia 2012).
• 1964: Peter Drucker: An entrepreneur searches for change, responds to it, and exploits opportunities. Innovation is a specific tool of an entrepreneur; hence an effective entrepreneur converts a source into a resource (Wikipedia 2012).
• According to a European Commission report (2008), “entrepreneurship refers to an individual’s ability to turn ideas into action. It includes creativity, innovation, and risk taking, as well as the ability to plan and manage projects in order to achieve objectives.”

Entrepreneurs: Born or Made

Like the traits theory of leadership that argues leaders are born and cannot be made, there are those who contend that entrepreneurs are also born and cannot be educated and trained to become them.

Birch said that if you want to teach people to be entrepreneurs, you can’t. To them, entrepreneurship, like leadership, is a function of some invisible personality attributes (in Aronsson 2004). According to Thompson (2004, quoted in Fayolle 2008), talent and temperament cannot be taught.

On the other hand, Peter Drucker noted that “It is becoming clear that entrepreneurship, or certain facets of it, can be taught. Business educators and professionals have evolved beyond the myth that entrepreneurs are born not made. The entrepreneurship is not magic, it’s not mysterious, and it has nothing to do with the genes. It’s a discipline. And, like any discipline, it can be learned” (Drucker 1985 in Kuratko 2005).

I maintain that entrepreneurship, like leadership, is a function of certain skills and attitudes that can be acquired and improved upon through education and experience. If one can learn to become a medical doctor, he or she can also learn to become an entrepreneur. Actually, it is sometimes easier to become an entrepreneur than to be qualified as a physician or physicist. If Birch were opining today, I am sure he would have entirely different thoughts.

Entrepreneurship Education

The merits of entrepreneurial education have been cited by several people. Entrepreneurship education could help students establish and manage a business properly. It could also help them prepare for working for someone else.

In a 2009 article describing an academic program focusing on innovation and entrepreneurship at a French engineering school, students’ educational activities were studied to assess how they wanted to attain their goals (either by creating a firm, or by being creative within an existing firm), as well as
how they create connections, form partnerships outside established fields, organize the distribution of tasks, and receive financial support, among others (Mustar 2009).

The significance of an entrepreneurship education is evidenced by the fact that a growing number of institutions, other than the business schools, are offering courses and programs in the various fields of entrepreneurship. These include, among others, the schools of arts, engineering, medicine, nursing, and sciences.

In its March 2008 report, the European Commission recommended that the teaching of entrepreneurship should be integrated in more curricula, not just in the curricula of business or economic studies.

Research Findings and Discussion

Several statistical techniques, such as chi-square, regression analysis, and t-test, are available to test the validity of a set of data. Only the chi-square technique has been used to test the validity of data used in this research because the data gathered amply satisfied the following four primary assumptions of the Pearson’s chi-squared test: (1) independence of observations, (2) large enough expected cell counts, (3) randomness of data, and (4) sufficient sample size (Yates, Moore, and McCabe, 1999).

Research Findings

A summary of the statistical analysis of data related to the two hypotheses is presented in Figure 2. The figure also shows the decisions reached based on this analysis.

This analysis endorses the acceptance of the Null Hypothesis 1a: That there is no statistical difference between the students’ current year of education (first/second/third/fourth year)—and the students’ intention to start a business once they have completed their undergraduate studies. The calculated value of \( X^2 \), 1.61729, is smaller than the tabulated value of \( X^2 \), 9.49, with 3 degrees of freedom with alpha=.05.

This analysis also endorses the acceptance of the Null Hypothesis 2a: That there is no statistical difference between the students’ cumulative grade point average—and their intention to start a business once they have completed their undergraduate studies. The calculated value of \( X^2 \), 2.18879, is smaller than the tabulated value of \( X^2 \), 7.82, with 3 degrees of freedom with alpha=.05.

Discussion

This is the first study of its kind to explore the relationship between (a) students’ year of education and their intention to start a business once they have completed their undergraduate studies and (b) students’ cumulative grade point average and their intention to start a business once they have completed their undergraduate studies. My claim about these pioneering findings is based on an extensive title review (including their summaries) of hundreds of articles related to these factors listed in EBSCO.

Due to the lack of similar studies to review and compare, the survey of literature presented below is limited to a study of some other variables that reflect upon the students’ intention for entrepreneurship.

In his study of students at a university in India, Bhandari (2006) found that “luck” and “to lead other people” have a statistical relationship with the intention to start their own

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Total No. of Respondents</th>
<th>No. of Respondents Who Want to be Entrepreneurs</th>
<th>( X^2 ) Calculated Value</th>
<th>( X^2 ) Critical Value</th>
<th>Degree of Freedom, ( a=.05 )</th>
<th>Decision on Null Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no relationship between Students’ Current year of education (1st year to 4th year) and Their Intention for Entrepreneurship</td>
<td>391</td>
<td>177</td>
<td>1.61729</td>
<td>9.49</td>
<td>3</td>
<td>Accept</td>
</tr>
<tr>
<td>There is no relationship between Students’ Cumulative GPA and Their Intention to Become Entrepreneurs</td>
<td>380</td>
<td>169</td>
<td>2.18879</td>
<td>7.82</td>
<td>3</td>
<td>Accept</td>
</tr>
</tbody>
</table>

Figure 2. Relationship between Selected Variables and Students’ Intention for Entrepreneurship
business after completing education.

In another study of students at Pace University’s Lubin School of Business, Bhandari (2012) noted that there is no statistical difference between these students’ gender and their intention to start a business once they have completed their undergraduate studies.

Research by Wilson et al. (2004 in Shinnar, Pruett, and Toney 2009) also concluded that men expressed higher entrepreneurial interest than did women, a relation that was consistent across Hispanic, black, and white youth (Wilson et al. 2004).

In a study of secondary school students enrolled in the Young Achievement Australia (YAA) enterprise program, Peterman and Kennedy (2003) found that the participants, after completing the enterprise program, reported significantly higher perceptions of both desirability and feasibility of starting a business.

According to Crispeels et al. (2008), the drive toward (or away from) entrepreneurship comes from the potential entrepreneur’s perception of his or her own skills and the environment. The more confident the potential entrepreneur is about these factors, the more likely the step toward nascent entrepreneurship becomes.

Suggestions for Research
This research shows that Lubin School of Business students’ intention to become entrepreneurs is not related to their undergraduate year of education (first, second, third, or fourth year). Likewise, their cumulative grade point average has no statistical relationship with their intention to become entrepreneurs.

The following are suggestions for further research:

1. Relationship between grades and intention for entrepreneurship among undergraduate/graduate-level students enrolled in the various areas of business such as, accounting, economics, finance, insurance, management, and marketing.
2. Relationship between grades and intention for entrepreneurship among undergraduate/graduate-level students enrolled in the various areas of English, geography, history, law, mathematics, and philosophy.
3. Relationship between grades and intention for entrepreneurship among undergraduate/graduate-level students enrolled in the various areas of science, technology, engineering, and mathematics.
4. Relationship between grades and intention for entrepreneurship among undergraduate/graduate-level students enrolled in the various areas of medicine and nursing.
5. The intention for entrepreneurship of the “same” students as they progress from their first year to their second, third, and fourth years of college.
6. The intention for entrepreneurship of the “same” students as they progress from their first, second, third, and fourth years of undergraduate education and, if they continue, through their graduate years of education.

References


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**About the Author**  
NARENDRA C. BHANDARI (nbhandari@pace.edu) is a Professor of Management at Pace University, New York. He teaches courses in small business and general management. His research interests include the areas of entrepreneurship and trade equilibrium to protect and create jobs.
This case study examines the background, start up, and growth of one of the fastest-growing companies in the United States, AdRoll. It explores the various strategic factors related to the growth of AdRoll and how these issues must be addressed in order to maintain its level of growth. This case study is especially interesting not only because it focuses on one of the fastest-growing firms in the country, but also because it addresses an understudied topic within the field of entrepreneurship, entrepreneurial growth.

Keywords: entrepreneurship, technology, Internet, entrepreneur, entrepreneurial growth

In 2013, AdRoll was the fastest-growing online advertising company in the United States. Its founding team consisted of CEO Aaron Bell, President Adam Berke, COO Peter Krivkovich, and Chief Architect Valentino Volonghi. This innovative company provided customers with critical information that could benefit their bottom line through advertisement retargeting. AdRoll had the capabilities to track each person’s online browsing behavior on certain websites. For example, if a consumer looked at a pair of Nike running shoes online and then went back to that same site to look at colors, AdRoll would recognize this information. This information would then be sold and that consumer would experience Nike advertisements specifically targeted at them as they navigated through other websites. The potential market for services such as this was enormous. As a result, AdRoll was ranked the seventh fastest-growing private company in the United States by Inc. Magazine in 2013. Forbes Magazine ranked it as the number one fastest-growing company in San Francisco.

Despite AdRoll’s unbelievable success, the company faced challenges related to growth. The founders knew that uncontrollable growth could lead to disaster. They had to figure out a plan on how to grow the company. They did not want to get into the same type of situation that other companies, such as Google, which grew so fast, and caused a significant amount of problems.

AdRoll was founded in 2007 as a means to make advanced display advertising techniques available for brands of all sizes. In 2013, the original founders were still at the company along with two additions—Suresh Khanna, Vice President of Sales, and Greg Fulton, Senior Product Director—and 150 employees. It was projected that AdRoll would have 450 employees by January 2014.

The company’s focus was on retargeting, which kept track of consumer’s online browsing behavior. Once this information was collected, AdRoll would then display ads of interest to the customer as they traveled around the web. Without retargeting, only 2 percent of potential customers return to a site. Using retargeting, AdRoll had the potential to bring back the other 98 percent who would have otherwise never returned. AdRoll also displayed ads for products the consumer had never seen but could potentially be interested in. For example, if a customer looked at a basketball online, ads for basketball shoes by that same site would follow that potential customer around the web.

At the beginning of 2013, AdRoll was in the growth stage of the industry life cycle. The company, which infiltrated the online marketing industry before the Great Recession of 2008, chose to enhance the quality and performance of its products versus focusing on sales. AdRoll’s exponential growth started in 2009 when it went into advertisement retargeting. In 2008, AdRoll’s revenue was $111,000 and by 2012 it had sales of $50 million—a 45,000 percent increase over four years.

AdRoll captured 500 new customers a month with a 97 percent customer retention rate. The company began a partnership with Facebook that allowed most of AdRoll’s clientele to advertise on the largest social networking site in the world. With the ability to advertise on Facebook, customers received a 1,600 percent return on their investment.

AdRoll received $15 million in funding in July 2012. With this injection, the company had plans to hire additional employees and expand its office space. AdRoll was also in the process of creating high-performance products in the mobile, video, and social markets.

AdRoll was a subsidiary of Semantic Sugar Inc., a technology company. Semantic Sugar, incorporated in 2006 and
based in San Francisco, California, provided online advertising services and owned more than 50 percent of AdRoll.

**SWOT Analysis**

**Strengths**
AdRoll’s strengths included a 97 percent customer retention rate along with cutting-edge display products. It also had products for all sizes of businesses. AdRoll was one of eight companies to advertise through the Facebook platform. The company had a high return on investment for customers and a skilled and experienced management team. In addition, the firm had a simple navigation platform.

**Weaknesses**
The weaknesses that confronted AdRoll included seven other competing companies that are also a part of the Facebook platform. Some feedback from consumers had been negative. The company could have a hard time sustaining its growth rate of 11,082 percent like it had in the past three years. AdRoll was a young company that did not have extensive experience in the growth process. The company had a lack of presence in the competitive mobile market.

**Opportunities**
Opportunities for AdRoll included possible expansion from retargeting retail into retargeting for movies, gaming, sporting events, business-to-business marketing, and other social media sites (Twitter, Pinterest, etc.). The company could partner with other search engines to track consumers’ searches and to get a more specific idea of the ads that would be effective, provide search retargeting (a product sold by most of AdRoll’s competitors), continue the development of RollFace in connection with Google glasses, and further expansion into international markets.

**Threats**
Threats to AdRoll included a possibility of lawsuits if consumers felt that their privacy had been infringed upon; competitors entering the market and replicating their products and services; and the possibility of Facebook’s presence in the social media world diminishing and the potential of an economic downturn.

**Strategies and Competitive Advantage**
AdRoll’s business-level strategy was overall low-cost leadership. Before AdRoll was founded, retargeting advertisements were primarily used by wealthy customers. AdRoll expanded its target market to include small businesses, retailers, and Fortune 500 companies. Furthermore, AdRoll had a heavy emphasis on customer service, always making itself available to customers to gain a competitive advantage through ease of use.

AdRoll had a “hands-on” management team that was not afraid of getting their hands dirty to make things work. Due to the smallness of the company there was a lot of transparency and a very creative and innovative culture.

AdRoll’s primary competitive advantage was the quality of its products. The company claimed that the ads it placed on Facebook were two to three times as effective as those of the other seven competitors involved in the Facebook exchange. Additionally, AdRoll showed an extremely high return on investment, which made existing customers unwilling to switch from AdRoll.

**Management Team**
AdRoll needed to continue building and attracting a quality management team as the company grew. Its management team was all young men who came from either Stanford or Harvard and who had worked on start-ups in some way or another in the past. They created a culture that could be described as “forward thinking, fun, and hardworking.”

AdRoll did not have a hard time finding employees; however, to keep up with its fast growth, the company needed to select the right future team members. If AdRoll chose the wrong people, it could be detrimental to the company. Because AdRoll already had smart, young, fun, and risky managers, it may have been beneficial to hire older and more conservative members for its management team. However, more conservative managers might not have worked well with the fast-growing and innovative starting team. Therefore, AdRoll put forth the effort to find managers with adaptability, an open mind, willingness to take risk, as well as those who were not afraid to ask the starting management team to give an idea or decision another consideration.

According to Erin Lockhart, AdRoll’s PR Manager, its mission was “to make powerful performance advertising techniques simple for businesses of all sizes.” Therefore, AdRoll needed to select managers who knew how to interact with small businesses and meet their needs while also knowing how to meet the needs of large Fortune 500 companies. The company also needed technical expert managers who had the ability to simplify its technology so any business or individual could use AdRoll’s services.

**Future of AdRoll**
Due to its success, AdRoll had a lot of room for growth. While the potential for increasing the customer base was exciting, it posed many challenges. Thus, AdRoll needed to manage the expansion of the company in a controlled way.

During the expansion stage, AdRoll opened a new office in New York. The company projected that by January 2014 it would have more than 450 employees. AdRoll was faced with the challenge of growing at a controlled rate without losing customers. In addition, the company faced competition.
against larger, more experienced companies that had already been through the kind of growth that AdRoll was experiencing.

AdRoll began to be recognized as a serious competitor. More established companies had the opportunity to steal many of AdRoll’s potential customers before AdRoll had the time to reach them because it could not keep up with the growing customer base. To survive in this market, AdRoll needed to continue to retain customers by providing excellent customer service. It needed to select a growth team to manage the expansion so that the rest of the company could focus on the customer base and creativity.

AdRoll’s expansion meant a lot for the company in terms of changes to its organizational structure and culture. AdRoll facilitated a creative culture in a fast-paced environment. Its office was set up in a large room with lots of young people and dogs. The company had plans to take over more of the building. The question for AdRoll was whether it would be able to maintain this structure and culture as the company expanded and grew.

As AdRoll expanded and grew, management realized they would have to either work hard to maintain this open-room structure or change to a more functional specialization structure. The problem with the latter structure was that it might result in less creativity. This was dangerous for AdRoll given that much of the company—and the resulting ideas—thrived on the allowance for creativity and innovation.

Big companies were starting to recognize AdRoll, and the company needed to focus on its product to keep customers. AdRoll needed to select a small team to focus on growth and the maintenance of the culture so it could simultaneously be successful at both things.

With continued growth, AdRoll faced several risks. One of which was that many of AdRoll’s competitors, such as Chango, offered search retargeting. AdRoll focused mainly on site retargeting and contextual retargeting, which were also done by many of its competitors. Therefore, potential customers could choose to go elsewhere if AdRoll did not have what they were looking for. This risk could have been managed by expanding and innovating AdRoll’s product line. The company needed to continue hiring qualified advertising experts who had experience in the social media industry. This would allow for AdRoll to stay competitive by introducing new and innovative approaches to retargeting.

Another risk facing AdRoll was the fickle nature of social media. Much of AdRoll’s success could be attributed to being part of the Facebook exchange. During this time, Facebook was the most popular and widely used social media platform. But that could change in the future.

Additionally, AdRoll was the exclusive retargeting partner on Google Glass, an unreleased glasses product that customers wear and use their personal vision as the screen. AdRoll was working with the company to develop EyeRoll and RollFace, which would retarget advertisements based on items consumers looked at and their interest level. For example, if a consumer’s friend was wearing a North Face jacket, EyeRoll would detect this item. Then, RollFace would identify the consumer’s interest in this product by their facial expression and advertise this product right in the view of their personal vision.

The list of competitors for AdRoll would only grow as others saw the potential in the industry. New competitors would imitate the retargeting techniques AdRoll had developed, and would attempt to narrow the gap between its products and others. If competitors figured out how to provide the same service for a cheaper option, it could really hurt AdRoll’s high customer retention rate. This was especially troubling for AdRoll since much of its focus was on small- to medium-sized businesses. If new competitors focused solely on small business, and provided a better product with better services, AdRoll was in trouble. However, AdRoll could combat that risk by staying up-to-date with its innovations in retargeting, and by ensuring that existing customers were pleased with the products and services they were receiving.

Regardless of competitors, AdRoll still needed to finance the company’s growth. Fortunately, AdRoll had a couple of key advantages on top of its amazing growth. The company had a highly regarded team and had already made crucial relationships with venture capital firms and the “movers” in the Silicon Valley and greater San Francisco area. AdRoll’s growth relied less on the money it was able to generate than on funds from venture capital investments.

AdRoll sought any necessary financing through relationships with venture capital firms including Foundation Capital, Merus Capital, and Accel Partners. AdRoll’s early attraction of these venture capital firms and the amazing return on initial capital put the company in a great position to acquire additional capital requirements. Yet, it was not financing that was AdRoll’s main obstacle to significant growth but rather being able to get the required talent on board.

This was a similar problem that confronted other high-technology companies such as Google and Facebook. Google became famous for its hiring processes and amazing employee benefits; Facebook earned very high remarks including the “Best Place to Work” by GlassDoor.com. It was crucial that AdRoll focused its attention on moving services forward and on the emerging technologies including the mobile spectrum.

Lastly, it was important that AdRoll’s founders be proactive in the potential harvest of the organization. Although it was typical for companies that have seen this amount of growth to eventually seek an IPO, this strategy did not turn out to be very valuable for some technology companies. To ensure its
growth, AdRoll could incorporate an employee stock ownership plan (ESOP), a strategy that would offer key talent a clear incentive for working for such a fast-growing company. Employees could be offered stock, which would give them ownership of the company and a vested interest in its success. This allowed AdRoll to stay away from the risks of an IPO and the regulation that comes from it.

Final Decision

AdRoll's founding management team met for dinner to discuss the issues related to growing pains in the company. Despite being the most successful and fastest-growing small company in the United States in 2013, they felt the stress that goes with growth. They talked well into the night on how to proceed.

References


Note: The instructor’s notes are available upon request from the author at finklet2000@yahoo.com.

About the Author

TODD A. FINKLE (finklet2000@yahoo.com) is the Pigott Professor of Entrepreneurship at Gonzaga University. His academic experience includes teaching entrepreneurship and strategy for more than 20 years at four different universities. He has consulted with hundreds of start-ups, governments, small businesses, and Fortune 500 corporations. Dr. Finkle has built two entrepreneurship programs. One of them became a nationally ranked program where he was the Director of the Center for Entrepreneurship. His industry experience includes growing up in a family business and working for a variety of small ventures and a Fortune 500 Corporation. He has also been an entrepreneur of four businesses and co-founded a nonprofit. This nonprofit won a national teaching award. He has published or presented over 190 articles on entrepreneurship including the book Lessons Learned from Leading Entrepreneurs, which focuses on significant entrepreneurs like Steve Jobs, Warren Buffett, Sergey Brin, and Larry Page. Warren Buffett invited Dr. Finkle to visit him twice. One of the visits led to an article on the front page of the Wall Street Journal. Other honors include runner-up for the most innovative entrepreneurship educator in the world by the Academy of Management and a MOOT CORP® Fellow through the IC_ Institute at the University of Texas at Austin. He has a B.S. in Life Sciences, an MBA, and a Ph.D. in Entrepreneurship/Strategy.