Volume 27, No. 2

Spring, 2016

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ISSN: 1042-6337

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Dear JBE Readership:

Welcome to the spring 2016 issue of the *Journal of Business and Entrepreneurship*. In this issue you will find a collection of three articles focused specifically on entrepreneurial pedagogy from members of the Entrepreneurship Education Project. These works compliment very well the philosophy of the Journal in improving the quality of entrepreneurial activities, especially those of entrepreneurial education.

Let me also include an apology for the two week delay in publication of this issue—there is a wonderful reason for this tardiness. The great news is that the Journal has changed homes—our new sponsor is Stetson University. Stetson University is one of the finest private schools in the nation and we are indeed fortunate to be affiliated with such a great institution. In fact, the three universities represented by our editors include some of the most entrepreneurial minded institutions in the nation—Stetson University, The University of Tampa, and the University of Wisconsin, White Water. We are indeed very fortunate for these relationships.

If you have not already submitted a paper, case, or workshop proposal for the Association for Small Business and Entrepreneurship Annual Conference to be held in New Orleans September 28-30, it is not too late. Please visit ASBE’s website at www.asbe.us for details. This year’s conference promises to be the best ever as the organization celebrates its 41st year.

Also, if you haven’t submitted a manuscript to JBE recently (or ever) make that a 2016 New Year Resolution. The journal will only grow its reach and reputation if we continue to receive quality submissions representing leading edge research in the field.

*William T. Jackson (Bill)*  
Managing Editor

*Mary Jo Jackson*  
Editor

*Eric Liguori*  
Editor

*Jeff Vanevenhoven*  
Editor
APPLYING ENTREPRENEURIAL ACTION TO EXPLORE ENTREPRENEURSHIP PEDAGOGY: THE ENTREPRENEURSHIP EDUCATION PROJECT

Susan Rushworth
Swinburne University of Technology

Jeff Vanevenhoven
University of Wisconsin, Whitewater

Doan Winkel
Illinois State University

Eric Liguori
The University of Tampa

ABSTRACT

Entrepreneurship remains relatively immature compared with other business, economic and social research disciplines. It lacks large scale, longitudinal studies with rigorous research methods and complex models that provide a foundational, empirical base, partly due to the resource-intensive nature of such studies. Through the lens of the Entrepreneurship Education Project this paper demonstrates how applying entrepreneurial methods to entrepreneurship research may help rapidly advance our understanding of entrepreneurship education. A history and analysis of the Entrepreneurship Education Project’s data initiative is provided, as is a glimpse into the future of the project.

INTRODUCTION

As an academy of scholars interested in the pedagogy of entrepreneurship we remain divided on the basic fundamental approaches to teaching entrepreneurship education. Great evidence of this divide was the very public discourse between Drs. Norris Krueger, Scott Shane, and Brian Nagy on the Academy of Management Entrepreneurship Listserv (cf., Krueger, 2015; Shane, 2015; Nagy, 2015). Krueger argued for the teaching of business modelling and reduction of lecture time to be replaced with action. Shane contended there was value and support for teaching business planning to graduate students. Nagy argued that some “newly minted scholars have to chalk and talk [lecture],” making the discourse more personal in the process.
While the dialogue may, in retrospect, seem petty and disconnected, consider that these are prominent, established scholars (Google Scholar shows Shane having over 40,000 citations and Krueger having over 8,000) debating the basic fundamental approaches of how we should teach entrepreneurship, and there is no consensus in sight. Given entrepreneurial activity has long been recognized as a global stimulant of economic development (Schumpeter, 1934; Stevenson & Sahlman, 1986; Birch, 1987; Mazzarol, Volery, Doss, & Thein, 1999; Baumol & Strom, 2007) and leads to improved quality of life (Zahra, Rawhouser, Bhawe, Neubaum, & Hayton, 2008), stronger public education systems (Peterson, 2010; Weaver et al., 2012), and lower dependence on natural resources (Sine & Lee, 2009), exploration of the effectiveness of entrepreneurship pedagogy is more relevant and critical than ever before.

This paper proceeds by providing a brief overview on the evolution of EEP from formation in 2009 to the present day. The EEP design and implementation processes are reviewed, demonstrating the entrepreneurial nature in which the research effort was undertaken. A review of EEP-based research to date is provided, and future directions of the EEP are discussed, including branching into new domains and making linkages to action.

THE EVOLUTION OF EEP

The People

Doan Winkel (Illinois State University) and Jeff Vanevenhoven (University of Wisconsin – Whitewater) first came up with the idea for EEP in 2009 and together developed the initial conceptual schema and surveys. Early assistance in assembling some U.S. and cross-national context was provided by Will Drago and Christine Clements (both from University of Wisconsin – Whitewater). Additional coding categories and procedures were developed and refined by Eric Liguori (The University of Tampa) who became heavily involved in EEP in 2011. Today EEP is co-directed by Winkel, Vanevenhoven, and Liguori, each focusing on different aspects of the organization.

The Idea

The Entrepreneurship Education Project (EEP) originated with one honest question: “Does what we do in the classroom (viz., teaching
undergraduate entrepreneurship courses) make any difference in terms of students actually starting their own business?” Certainly this was not the first time this question had been asked, but after a critical review of the literature surrounding entrepreneurship education little past research truly nor completely addressed the question. While a plethora of studies investigating an individual’s intention to start their own business exist (e.g., Audet, 2004; Krueger, Reilly, & Carsrud, 2000; Wilson, Kickul, & Marlino, 2007; Zhao, Seibert, & Hills, 2005), most of this body of literature focuses on the factors that influence the formation of entrepreneurial intentions, specifically limited to individual factors such as personality characteristics and/or attitudes. A separate body of literature, then, focuses on the linkages between entrepreneurship education programs and students’ entrepreneurial intentions (i.e., Kolvereid & Moen, 1997; Fayolle, Gailly, & Lassas-Clerc, 2006; Noel, 2001; Segal, Borgia, & Schoenfeld, 2005). However, these studies have been cross-sectional in nature, therefore not providing firm evidence of whether and how these education programs influence students’ career outcomes.

One longitudinal study (Souitaris, Zerbinati, & Al-Laham, 2007) did show that an entrepreneurship program increased science and engineering students’ entrepreneurial intentions over time, mostly as a result of providing inspiration. The EEP was founded to aid scholars in taking the incremental evidence supporting entrepreneurship education into a more complete context; to help connect the dots and fill in the blanks so we can not only identify IF entrepreneurship classroom effects carry through to students’ eventual career choices, but ALSO do they lead to career success in terms of forming a new venture and successfully growing that venture. Inherent to this inquiry is the question “what aspects of entrepreneurship education are most impactful, and what aspects need to be rapidly become relics of the past.”

Developing a Conceptual Schema

The first step in undertaking EEP was development of a conceptual schema (n.b. the word schema is used as this was never intended to become a fully specified model). Drafting the schema began by reviewing several existing theories of entrepreneurial motivation and intentions. More specifically, EEP built on the growing body of literature highlighting and informing the core role of self-efficacy and intention formation pioneered by many other scholars (e.g., Kickul et al., 2008; Kilenthong, Hills, & Monllor, 2008; Kolvereid & Isaksen,
Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994, 2000) was used as the unifying framework because it provided the most robust and well-established theoretical foundation focused on an individual’s motivational processes, as well as a clear means to investigate the linkages between educational experiences and career choices and success. Figure 1, adopted from Vanevenhoven & Liguori (2013), depicts the final EEP conceptual schema including all core components of SCCT (viz., self-efficacy, outcome expectations, intentions, contextual influences and individual factors).

**Figure 1: EEP Conceptual Schema**

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Figure 1: EEP Conceptual Schema

n.b. Adopted from Vanevenhoven & Liguori (2013)

**Testing the Model / Schema**

The conceptual schema is necessarily complex and, again, is by no means fully specified. Given the complexity, coupled with the economic imperative of gaining a thorough understanding of how to educate entrepreneurs, there was an obvious need for a very large number of responses in order to validate
relationships between constructs with any degree of rigour, as well as to be able to fully explore multiple facets of the schema. Extending the project beyond the researchers’ own institutions was requisite to achieve not only a critical mass but also global generalizability to the population of undergraduate business majors. The principal resources required to make the project feasible were other researchers (stakeholders). The main challenge was to identify and gain buy-in from entrepreneurship educators around the globe that exploration of this topic was of sufficient importance that it warranted their time and action, so guerrilla marketing techniques (Levinson, 1984) were used to locate, attract and select participants.

Use of general Internet searches, publication searches for scholars publishing in this area, multiple list servers and direct contacts increased both range of awareness and probability of receptive individuals hearing about it from more than one source, thus creating “buzz.” The effort involved in this stage should not be underestimated. The search for potential participants was exhaustive given that for each of the following target sources potential collaborator names had to be culled and sorted into a spreadsheet for contact:

- College guides showing institutions that offered entrepreneurship programs;
- Editorial review boards of entrepreneurship journals
- Entrepreneurship journals and networks publishing research on entrepreneurship education
- Entrepreneurship networks such as Global Entrepreneurship Week
- Listservs, organizations, and various groups/clubs focused on topics related to entrepreneurship and entrepreneurship education
- Websites of every entrepreneurship program we could find around the globe.

As the EEP leadership team began to send data collection requests to over 1,500 individuals representing nearly 1,200 different educational institutions, feedback began to circle back: many collaborators were not only interested but wanted to aid in refining the research design and developing tools to assess the conceptual schema across a variety of cultural and language barriers. EEP quickly snowballed into the sort of large-scale, collaborative research project with the potential to create foundational entrepreneurship research that many scholars have lamented for (Chandler & Lyon, 2001; Crook et al., 2010). That potential noted, the scale and scope of this global data collection became a

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venture in and of itself. Using Shane and Venkataraman’s (2000) entrepreneurial venture framework, Table 1 depicts just how multifaceted creation of the EEP was.

**Table 1: The EEP as an entrepreneurial venture**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Factor</th>
<th>Entrepreneurial venture</th>
<th>EEP Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existence</td>
<td>Sub-optimal situation</td>
<td>Gap in market</td>
<td>Gap in knowledge about the impact of UG entrepreneurship programs.</td>
</tr>
<tr>
<td>Discovery</td>
<td>Information asymmetries</td>
<td>Prior industry knowledge, networks, contacts, access to information sources.</td>
<td>Prior entrepreneurial experience Networks primarily through AOM and USASBE</td>
</tr>
<tr>
<td></td>
<td>Cognitive properties</td>
<td>Ability to conceive new means-end relationship; seeing opportunity rather than risk.</td>
<td>Willingness to question assumptions re the value of entrepreneurial education Intellectual curiosity to learn what others are doing in the entrepreneurship classroom, what’s working, what’s not Desire to link pedagogy to real-world outcomes</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Nature of opportunity</td>
<td>Value created compared with effort involved (relative to other potential opportunities)</td>
<td>No other research project with comparable complexity of framework and range of participants. Opportunity to create a foundational study. Different perspectives of founders: one OB, one Strategy; one conceptually-oriented, one methodologically-oriented; one takes institutional perspective (value to participating institutions), one student-focused (value to the students)</td>
</tr>
<tr>
<td></td>
<td>Individual differences</td>
<td>Individual perception of value: wealth; impact; power; prestige; mission.</td>
<td></td>
</tr>
<tr>
<td>Exploitation</td>
<td>Within existing organisations</td>
<td>Corporate venture; spin-off venture; joint venture; alliance etc.</td>
<td>Not possible.</td>
</tr>
<tr>
<td></td>
<td>Create new organisation</td>
<td>New independent venture, alone or with other individuals</td>
<td>Implemented as a new venture with the initial researcher as founder and collaboration and participation of other scholars (key stakeholders).</td>
</tr>
</tbody>
</table>

The next task was to convert expressions of interest into committed participants. Because the project founders (entrepreneurs) and the research partners (stakeholders) came from the same profession, potential stakeholder concerns were readily identifiable and could be proactively managed. Stakeholder risks identified included: research quality (methodology, research design, ethics, etc), opportunity cost compared with other potential research projects, fit with prior / planned research in this field, assured opportunities for publications, and assurance that commitment to the project is real and ongoing. Table 2 summarizes the stakeholder management process alignment with the selected frameworks.
## Table 2: EEP Stakeholder Management - Alignment with start-up models

<table>
<thead>
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<th>Activities (Stevenson)</th>
<th>EEP activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attracting stakeholders</strong></td>
<td></td>
</tr>
<tr>
<td>Testing market size and receptiveness (Timmons &amp; Spinelli)</td>
<td>Guerilla marketing: Messages to listservs, websites, organizations (ENTREP, AOM, USASBE)</td>
</tr>
<tr>
<td></td>
<td>Locate and contact universities with entrepreneurship programs</td>
</tr>
<tr>
<td></td>
<td>SSRN and Entrepreneurship journals to identify and contact authors and editors</td>
</tr>
<tr>
<td></td>
<td>Response confirmed large number of academics receptive to the project</td>
</tr>
<tr>
<td><strong>Selecting stakeholders</strong></td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td>Target participants already teaching and researching entrepreneurship</td>
</tr>
<tr>
<td>Excess capacity</td>
<td>Leverages existing commitment to entrepreneurship pedagogy and research</td>
</tr>
<tr>
<td><strong>Minimising stakeholder exposure</strong></td>
<td></td>
</tr>
<tr>
<td>Off-the-shelf inputs</td>
<td>Will the research be high quality?</td>
</tr>
<tr>
<td></td>
<td>Circulate conceptual model and proposed survey instrument</td>
</tr>
<tr>
<td></td>
<td>Established constructs, sources cited</td>
</tr>
<tr>
<td></td>
<td>Circulate ethics approval from home institution</td>
</tr>
<tr>
<td></td>
<td>Circulate list of prospective participants</td>
</tr>
<tr>
<td>Customer investment</td>
<td>Is this the best use of my research efforts?</td>
</tr>
<tr>
<td></td>
<td>Minimal additional effort involved.</td>
</tr>
<tr>
<td></td>
<td>Emphasise focus on generating publications for ALL participants</td>
</tr>
<tr>
<td></td>
<td>Release of local data to local participants within days of collection – supports further local research and collaborations</td>
</tr>
<tr>
<td></td>
<td>Release of full data to all participants after each wave completed – supports further global idea generation and collaboration</td>
</tr>
<tr>
<td>Trade-offs</td>
<td>What if I prefer to design my own research</td>
</tr>
<tr>
<td></td>
<td>Feedback from participants refines and improves research design</td>
</tr>
<tr>
<td></td>
<td>Emphasise opportunities arising from scale and diversity of research</td>
</tr>
<tr>
<td></td>
<td>Tailoring of survey instrument to meet local needs and research questions – unique web-based or hard copy survey for each university, with option to include additional questions</td>
</tr>
<tr>
<td><strong>Convincing stakeholders</strong></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial attributes</td>
<td>Proactive communication, projecting passion and determination</td>
</tr>
<tr>
<td></td>
<td>Rapid response to individual stakeholder concerns</td>
</tr>
<tr>
<td></td>
<td>Flexibility in tailoring survey instrument to local</td>
</tr>
</tbody>
</table>
The nature of stakeholder concerns and the EEP founders’ response to managing these issues fit well with the ‘managing stakeholder risk’ and ‘convincing stakeholders’ elements of the Stevenson, Roberts and Grousbeck (1994) model of stakeholder management. To minimize stakeholder risk a detailed research design was circulated with constructs identified (including supporting references) so prospective stakeholders could verify the quality of the design and provide feedback. The feedback received was then incorporated in developing iterations of the research design, further facilitating stakeholder buy-in. To further convince the stakeholders a partnership agreement was also developed, outlining rights and responsibilities of principal investigators (founders) and research partners (stakeholders; called ‘EEP collaborators’), emphasising mutual benefits. Tailored partner agreements to incorporate specific partner concerns were accommodated where possible and reasonable. Rapid response to any partner queries or concerns generated a relationship of trust between founders and stakeholders.

Finally, we turn to the ‘by whom’ aspect of entrepreneurship. Lumpkin and Dess’ (1996: 137) definition included these four characteristics: (1) “a propensity to act autonomously; (2) a willingness to innovate and take risks; (3) a tendency to be aggressive toward competitors; and (4) and proactive relative to marketplace opportunities.” Co-author Susan Rushworth was an early EEP collaborator who notes, “from the moment I started corresponding with the EEP leadership, I felt I was dealing with an entrepreneur”. Structured probing revealed high congruence with the definition of entrepreneurial orientation, as shown further depicted in Table 3.
If entrepreneurship is characterised by the outcome of creating an organization (e.g. Gartner, 1988), then the EEP is a successful entrepreneurial venture. As of 2015, there are over 400 individual universities participating spanning 70 countries around the globe. Over 20,000 students have participated in the Phase I data collection, which is still ongoing in some locations, and Phase II of the data collection has begun. The project has taken on an existence in its own right, though still at the early stage of the organizational life cycle, where it remains dependent on the founders (Churchill & Lewis, 1983). We believe the project has the potential to:

- Explore a new, comprehensive model of entrepreneurial intentions (original motivation)
- Measure the impact of individual entrepreneurship education programs on students using a well-established theoretical framework and psychometrically sound measures of well-established constructs

### EEP BASED RESEARCH TO DATE

<table>
<thead>
<tr>
<th>Orientation dimension</th>
<th>Illustrative behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propensity to act autonomously</td>
<td>Despite initial collaboration to confirm the gap and develop the model and survey design, the act of launching the project was autonomous</td>
</tr>
<tr>
<td>Willingness to innovate and take risks</td>
<td>Academics are a critical audience. Proposing a major new project while still early-career researchers invites criticism and, potentially, condescension or even hostility. Whenever the first author offered feedback, careful to state it was constructive in intent, the repeated response was “Don’t worry, I am very thick-skinned”</td>
</tr>
<tr>
<td>Aggressive toward competitors</td>
<td>“Aggressive” is not accurate, but aware of competing projects and confident that this work can and will be superior. Quote: “while there were competitors in terms of other projects to which scholars might be devoting their efforts, I think ours stands apart in many important ways”</td>
</tr>
<tr>
<td>Proactive relative to marketplace opportunities</td>
<td>When engaged in entrepreneurship education, it is obvious to ask what impact it has on entrepreneurial behavior. The question is not new. The fact that so many academics were willing to sign up as research partners confirms that it is a question of widely held interest. However, nobody else had sought to pursue this research on such a scale or with such a comprehensive model.</td>
</tr>
</tbody>
</table>

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Table 3: The Entrepreneurial Orientation of EEP
• Compare differences in experiences and impact between students from different “cultures” (i.e., public vs. private university, different regions/nations)
• Compare differences in impact between different programs on comparable student cohorts
• Compare differences in impact of the same program on differing student cohorts
• Through the pre-test wave of surveying, explore cognitive and affective differences between groups of students (e.g. different majors)
• Examine the cumulative effect of multiple entrepreneurship education programs on the same cohort of students

As of late 2015 EEP-based research had only begun to take off. In March 2014, the founders hosted its first annual meeting of EEP collaborators and interested parties thanks to the support of The Jim Moran Institute for Global Entrepreneurship and The University of Tampa. In late 2014, as a result of the success of the 2014 meeting, the *Journal of Business and Entrepreneurship* published a special issue on entrepreneurship education with a focus on EEP-informed research. The second EEP annual meeting was held in Orlando in September 2015 in partnership with the Association for Small Business and Entrepreneurship, and the special issue in which this paper is published is a direct result of that meeting.

Publications based on EEP data are continually emerging across a variety of outlets, including *Journal of Small Business Management* (Vanevenhoven & Liguori, 2013; n.b. this article outlines the EEP research protocols and is a good starting point for anyone exploring the EEP dataset), *International Journal of Entrepreneurial Behaviour and Research* (Kassean, Vanevenhoven, Liguori, and Winkel, in press), and *Journal of Business and Entrepreneurship* (Duval-Couetil and Long, 2014; Winkler and Case, 2014; Newbold and Erwin, 2014). Insights gained from the EEP dataset also heavily influenced content in the student-focused book *The Startup Student* (Liguori, 2016). EEP-informed research has also been presented at leading national and international conferences, including the ICSB Research and Policy Conference (Liguori, Vanevenhoven, Winkel, and Bendickson, 2013, 2012; Liguori, Winkel, and Vanevenhoven, 2011), U.S. Association for Small Business and Entrepreneurship Annual Meeting (Winkler, Vanevenhoven, and Liguori 2013), European Conference on Innovation and
Entrepreneurship (Vanevenhoven, James, Winkel, and Liguori, 2013), and the Small Business Institute Annual Meeting (Liguori and Bendickson, 2015).

FUTURE DIRECTIONS OF THE EEP

EEP began as a question (viz., “Does what we do in the classroom (viz., teaching undergraduate entrepreneurship courses) make any difference in terms of students actually starting their own business?”) and grew into a full scale global data collection of over 20,000 respondents. Progress continues to be made by scholars around the globe in exploring the global EEP data, further exploration of the multi-faceted dataset is encourage, and the data is available to interested parties by contacting Winkel, Liguori, or Vanevenhoven directly.

In addition to data collection, EEP has evolved into an umbrella organization supporting entrepreneurship education and entrepreneurial ecosystem development across the nation and around the globe. To date EEP has supported numerous experiential education projects, including: the Experiential Entrepreneurial Exercises Journal (founded in 2014), an Entrepreneurial Learning Academy for high school students (2015), the USASBE Launch! student business modelling competition (2014), Entrepreneurial Leaders of the Midwest (2014), and SOLD! An Entrepreneurial Sales Skills Bootcamp (2012-present). Looking forward EEP plans to continue to facilitate scholarly inquiry into entrepreneurship pedagogy and experiential learning, to support a national roll out the SOLD! program it piloted over the last three years in California and Florida, continue to support entrepreneurship education programs at non-traditional levels (e.g., K-12 education), and get much more involved in both entrepreneurial ecosystem research and action planning.

CONCLUSION AND IMPLICATIONS

We contend that employment of an entrepreneurial approach led to significant improvements in EEP, including but not limited to:

- Scale, and therefore improved confidence in the findings due to a larger and more diverse sample
- Research design quality, thanks to the range of feedback on research design from research partners, allowing wide consensus on which constructs should (not) be included, and which variants of established constructs were most reliable
• Commitment from participating researchers and access to their personal and professional networks, due to participative approach
• Ongoing opportunities for extension and enhancement, due to entrepreneurial sub-units forming within the research team

From the perspective of a research partner, the benefits have been:
• Access to a much larger and more diverse data set than would be available through research focused only on local students and programs
• Expanded knowledge of relevant models and constructs
• A potential network of researchers with common interests, education programs and comparable data
• Empirical research to inform ongoing program design

The entrepreneurial approach to EEP development and roll out presented here can be applied to many other types of research in many other disciplines. Whereas entrepreneurship researchers, unlike most academic researchers, are familiar with the principles of entrepreneurial behaviour, few still formally apply these principles to our own research activities. Yet, many of us remain despondent at the gap between exciting research questions and the resources available to us for pursuing them. Perhaps we should pause to think about the very behaviour we are researching and apply its lessons to our own research activities.

REFERENCES


EXPANDING THE FOCUS OF ENTREPRENEURSHIP EDUCATION: A PEDAGOGY FOR TEACHING THE ENTREPRENEURIAL METHOD

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Babson College

Danna Greenberg
Professor, Babson College

ABSTRACT

To date the measure of success of entrepreneurship education is often new venture creation. As such entrepreneurship pedagogy frequently focuses on teaching students either the skills or theory needed to launch a new venture. Yet, this emphasis on teaching skills and theory overlooks the fact that one of the distinguishing features of successful entrepreneurs is they engage a cognitive approach to problem solving that is different than that of traditional managers. This different cognitive approach is referred to as the entrepreneurial method. In this paper, we explore whether a pedagogy can be developed to teach students this method. We discuss the implications that this pedagogy has for expanding the practice and objectives of entrepreneurship education.

INTRODUCTION

Once academics and practitioners moved beyond the myth that entrepreneurs are born not made to the premise that entrepreneurship is a discipline that can be taught (Kuratko, 2003), the demand for entrepreneurship education erupted (Florin, Karri, & Rossiter, 2007). Over the past 25 years, the number of entrepreneurship departments, endowed chairs in entrepreneurship, and specialty undergraduate, graduate, and executive education programs has more than doubled (Katz, 2003; Sa & Kretz, 2014; Solomon, 2007). While most entrepreneurship education focuses on teaching potential entrepreneurs how to successfully launch a new venture, current pedagogy also emphasizes fostering an entrepreneurial mindset among all students regardless of their career
aspirations (Florin et al., 2008). Fueled in part by the wider social and political 
climate, there is growing interest among all organizations to hire individuals with 
entrepreneurial skills. In addition to start-ups, entrepreneurship students are 
finding their skills attractive to Fortune 500 companies in finance, consumer 
products, and healthcare among others (Neck, Greene, & Brush, 2014a).

Entrepreneurship education has typically embraced one of two 
pedagogical approaches – theory-based learning or practice-based learning (Neck 
et al., 2014a). A theory-based pedagogy centers on developing students’ 
understand of entrepreneurship theories. A practice-based pedagogy is focused 
on developing students’ self-efficacy and skill with being an entrepreneur. 
While there is an on-going debate in entrepreneurship pedagogy about the merits 
of theory versus practice, both perspectives are ultimately focused on increasing 
students’ interest in starting a business, entrepreneurial intent. Unfortunately, 
this emphasis on entrepreneurial intent has led some to conclude that current 
approaches to entrepreneurship education are falling short as there is limited 
evidence that entrepreneurship education does lead to new venture creation 
(Schramm, 2014; Griffiths, Kickul, Bacq, & Terjesen, 2012).

Yet, we suggest focusing on new venture creation as the penultimate 
outcome of entrepreneurship education may be mistaken particularly when one 
considers the growing need across diverse organizations for individuals with an 
entrepreneurial mindset. Many organizations need employees who are able to 
respond to uncertainty, make reasonable risk/rewards assessments, and create 
and implement new ideas and new ways of thinking (Carr, 2014). To help 
students develop this entrepreneurial mindset, entrepreneurial educators need to 
move beyond teaching students concepts and skills to consider an often 
overlooked element of entrepreneurship, and entrepreneurship pedagogy, the 
entrepreneurial method.

The term “entrepreneurial method” refers to how entrepreneurs go about 
solving problems as they create new markets and opportunities (Sarasvathy, 
2008). While this method is defined as “a logic that can be taught and learned by 
an increasing variety of individuals,” (Sarasvathy, 2008: 308), few 
entrepreneurship curricula have begun to focus on teaching this problem solving 
method. While this method is favored by serial entrepreneurs (Sarasvathy, 
2008), there is little research that examines whether the entrepreneurial method 
can be taught. Can an entrepreneurship curriculum be developed that teaches 
students to engage the entrepreneurial method and in the process helps them
develop an entrepreneurial mindset that is applicable across varied organizational contexts?

In this paper, we explore this question as we describe a pedagogy to teach the entrepreneurial method that also bridges the theory-practice dichotomy. We then evaluate the effectiveness of this curriculum in teaching the entrepreneurial method to first year undergraduate business students. Through a pre- and post-test design we assess student learning in a yearlong project-based course which is designed to introduce the entrepreneurial method to aspiring entrepreneurial leaders. Our findings provide insights regarding how we teach and what students learn in entrepreneurial education as well as increase our understanding of the entrepreneurial method.

**LITERATURE REVIEW**

The theory-practice debate that was mentioned previously has resulted in questions about how entrepreneurship education should be taught and what are the right learning outcomes (Duval-Coutil & Long, 2014). Below we discuss each of these perspectives in more detail as we explain how a move towards teaching the entrepreneurial method is one way to transcend this debate.

**Theory-Based Entrepreneurship Pedagogy**

A theory-based approach to entrepreneurship education engages rigorous theory to teach students how to be an entrepreneur. Stemming from the multi-disciplinary nature of entrepreneurship, a large number of theories have been developed which explore the what, how, and why of successful entrepreneurship education (Neck et al., 2014). A pedagogy that focuses on theory relies on both established strategy theory as well as nascent entrepreneurship theory to teach students the theoretical paradigm of entrepreneurship.

With a theory-based entrepreneurship pedagogy, the learning goals center on enhancing students’ conceptual understanding of entrepreneurship while cultivating their analytic skills. The assumption underlying these learning objectives is that by developing students’ analytical and theoretical understanding of entrepreneurship, students will have an increased likelihood of engaging and succeeding at starting their own venture. This objective is not without merit since 50% of startups fail within the first 5 years often due to poor planning and limited understanding of entrepreneurship (Cobham, 2000).
Practice-Based Entrepreneurship Pedagogy

In contrast, a practice-based pedagogy focuses on developing students’ skill at being an entrepreneur by teaching them about actions taken by prior entrepreneurs and enabling students to have their own entrepreneurship experiences within a course. The practice-based approach starts from the premise that since entrepreneurship is an applied discipline the only way to learn entrepreneurship is to do entrepreneurship (Neck et al., 2014). Given the scarcity of theory when entrepreneurship education was emerging, it is not surprising that lived experiences, both those that happen in the classroom and those that are told in the classroom, became a core pedagogy (Neck et al., 2014). With regard to learning outcomes, a practice-based approach to entrepreneurship education typically aspires to enhance students’ understanding of their own desire for and capability of being a successful entrepreneur. The assumption of the practice-based pedagogy is that if students’ entrepreneurial self-efficacy increases from then they will be more likely and capable of starting their own business.

As others have begun to point out this juxtaposition of theory and practice in entrepreneurship pedagogy is a false dichotomy. As Neck et al. (2014b, p. 6) note, “Good theory without action is busy work and action without theory is not worth learning.” In their research, Neck et al. (2014b) suggests that theory and practice could best be seen as a continuum that calls for integration. Further, they argue that both the theory and practice approach to entrepreneurship education are flawed in part because both present entrepreneurship as a process that is linear, predictive, data rich and perhaps even rationale. More recent research suggests that all too often, entrepreneurship is none of these. Rather it is a creative, action focused process requiring continual iteration which may make it data poor and unpredictable (Neck et al., 2014, Sarasvathy, 2001). Sarasvathy (2001) suggests that in this unpredictable context, entrepreneurship is a method that enables us to create the world rather than just understand, predict, and react to it. Below, we explain the entrepreneurship method more fully as we then introduce how entrepreneurship pedagogy could be enriched by focusing on teaching this method.
Teaching the Entrepreneurial Method

If we start from the assumption that the nature of entrepreneurship is neither linear nor predictable (Neck & Greene, 2010), then there is no single entrepreneurship process. Instead, in today’s unknowable world an approach is needed that enables individuals to create opportunity. The entrepreneurial method which relies on the integration of two modes of logic to respond to both knowable and unknowable situations is such a method.

Sarasvathy’s (2001) seminal work defines the entrepreneurial method as comprising two distinct logic forms, causation and effectuation. Causation assumes that a particular goal or outcome is given and the objective is to find the best means to achieve that goal. Effectuation, on the other hand, assumes the resources are given, and the question to be asked is what are the possible effects that can be created by that set of means (Sarasvathy, 2001). Causation is consistent with planned strategy, in which distribution of outcomes is predictable through calculation or statistical inference (Sarasvathy, 2001). Effectuation is consistent with emergent strategy, in which there is no feasible way to calculate an expected return. Thus, alternatives are selected by experimenting, by calculating affordable loss, by being flexible, and by getting pre-commitments from stakeholders (Mintzberg, 1978). Through effectuation, entrepreneurs co-create new opportunities with their stakeholders that most individuals could not have previously envisioned. Effectuation logic is used more frequently by expert entrepreneurs while causation logic is used more frequently by novice entrepreneurs and traditional managers (Sarasvathy, 2001; Woetmann, 2014). Nonetheless, both logic forms are needed to effectively pursue a new opportunity.

Chandler, Detienne, and Mumford (2011) expand our conceptual understanding of the entrepreneurial method by refining the measurement of causation and effectuation. Their research shows that causation is defined as a uni-dimensional construct. Causation refers to analysis such as learning how to define the final objective upfront, conducting competitive analyses to predict the market, and exploiting pre-existing capabilities and resources to maximize expected return. Effectuation is defined as a multi-dimensional construct comprised of four dimensions, “experimentation,” “affordable loss,” “flexibility” and “pre-commitments” (Chandler et al., 2011). Experimentation focuses on short-term experiments to identify business opportunities in an unpredictable future. Affordable loss focuses on consideration of loss in a worst-case scenario.
Flexibility focuses on responding to environmental contingencies by being nimble. Finally pre-commitments emphasize relationships with stakeholders and strategic alliance to control an unpredictable future. These dimensions map to the principles that comprise effectuation logic namely: 1) short-term experiments, 2) focusing on projects where the loss in a worst-case scenario is affordable, 3) exploiting environmental contingencies by remaining flexible, and 4) emphasizing pre-commitments and strategic alliances to control an unpredictable future (Sarasvathy, 2001, 2008).

The Entrepreneurial Method Pedagogy: Integrating Skills and Practice

We propose that teaching entrepreneurship as a method provides a potential pedagogical shift that enables us to integrate theory and practice. As the entrepreneurial method is rooted in the practice of real entrepreneurs it relies on skills that need to be developed (Neck et al., 2014b). Teaching entrepreneurship as a method requires students to engage in real experiences during which they practice this method. Students need to experience entrepreneurship and then process that experience to successfully learn the core principles of the entrepreneurial method.

At the same time, the theory behind the entrepreneurial method provides students with a clear framework which guides their practice. Causation logic, based on the scientific method, introduces a range of analytic concepts and tools that students can be taught. Similarly, effectuation relies on a set of teachable and learnable techniques that are empirically evident among those who pursue new opportunities (Sarasvathy & Venkataraman, 2011). Students can learn the principles that underlie effectuation as well as how and when to use effectuation logic.

In order for students to learn both the knowledge and skill of the entrepreneurial method, curriculum needs to be designed in which the practice of the entrepreneurial method is connected to the theory. In this way, the pedagogical conversation moves from theory or practice to theory and practice. Students’ learn to shift between theory and practice as they explore the problem at hand and evaluate the merits and limitations of each logic. In so doing, students don’t simply become knowledgeable about the theory of the entrepreneurial method but they also develop the skills and entrepreneurial drive that are needed to put this method into action.
The focus on teaching the entrepreneurial method as theory and practice shifts the learning objectives of entrepreneurship education to better align with the growing, and diverse, interest in entrepreneurship. By teaching students the entrepreneurship method, this pedagogy provides students with entrepreneurial knowledge, skills, logics and a mindset that can be used across diverse settings including government, established corporations, non-profits, social ventures, and of course traditional start-ups. In the face of ambiguous goals and an unpredictable future, which characterizes most organizational and national contexts, the entrepreneurial method empowers students to think and act more entrepreneurially.

While this is the aspiration of the entrepreneurial method pedagogy, there has been little empirical research that investigates whether this method can be taught. There is extensive empirical research that supports how and when it is best to engage causation versus effectuation logic when pursuing new opportunities and how entrepreneurs rely on these two logics, but there has been considerable less research that explores whether these logics can be taught to aspiring entrepreneurial leaders. In addition, most of the entrepreneurial method has concentrated on teaching this method to experienced entrepreneurs and MBAs. It is then an open question as to whether causation and effectuation can be taught to novice entrepreneurs. We now introduce a pedagogy that was developed to teach the entrepreneurial method to undergraduate students, novice entrepreneurs.

The Curriculum Design

This pedagogy was developed at a college where all first year students are required to take a year-long foundations course in entrepreneurship. This course was first created in the early 1990’s. It emerged from the faculty’s interest in teaching experiential learning activities that were focused on building students’ competencies rather than just on the acquisition of academic knowledge (Gruver & Miller, 2011). At the same time the college was responding to a growing interest in entrepreneurship. Drawing on the original work of John Miller (1991) at Hofstra University, the course was initially designed as an immersive experience in a startup business. Working in new venture teams, students would generate a business idea, study the feasibility of that idea, and solicit a loan from the College for up to $3,000 to start the
business, run the business for three months, and then close it down. All profits would go to a not-for-profit community partner.

While the course was quite successful and had won a series of awards as well as elevated the reputation of the college, in 2010 the college undertook a major curriculum revision. At that time, the college had made a strategic commitment to focusing on the development of all students as entrepreneurial leadership who have the ability to create social and economic value. Teaching the entrepreneurial method was considered central to developing entrepreneurial leaders who had the skills, knowledge, and drive to create said opportunities in the wider world.

The redesign of the course began with the following pedagogical goals. To design a course in which students:

- **Experience** the nature of business as an integrated enterprise
- **Practice** entrepreneurial thought and action (the entrepreneurial method)
- **Identify, develop, and assess** entrepreneurial opportunities that create social and economic value
- **Analyze** both the local and global context as it relates to entrepreneurial opportunities
- **Explore** the self, team and organization in relation to entrepreneurial leadership

These objectives, and in particular, the focus on teaching the entrepreneurial method, required a redesign of several major components of the course. Most importantly the entrepreneurship pedagogy was completely revised to focus on teaching students the two logics that underlie the entrepreneurial method (Sarasvathy, 2001). Second, organizational behavior was brought into the course as the second major academic stream. As co-creation is fundamental to the entrepreneurial method, organizational behavior naturally aligns with entrepreneurship. The organizational behavior curriculum was designed to teach students to understand who they are, how they work with others, and how to understand their broader network and context so that they can use this knowledge to engage others to explore an opportunity and to work more effectively with a start-up team (Greenberg & Hunt, 2015).

The pedagogical assumptions for teaching the entrepreneurial method draw heavily on the work of Neck and colleagues (2014b). Specifically, they propose that entrepreneurship education as a method “relates to the acquisition of
skills, knowledge, and mindset through deliberate hands-on, action-based activities that enhance development of entrepreneurial competencies and performance” (Neck et al., 2014b: 15). Neck and her colleagues (2014b) identify five specific practices of entrepreneurship education including: practice of play, empathy, creation, experimentation, and reflection. We elaborate in more detail here on their use in the curriculum.

**The practice of play.** The curriculum encourages students to practice “play,” which enables them to develop a free and imaginative mind, to see a wealth of possibilities, a world of opportunities, and a pathway to more innovative ways of being entrepreneurial (Neck et al., 2014b). The underlying assumptions behind two different categories of play are important in this regard. “Games to play” are typically problem-solving activities in that they are structured with fixed rules and are orderly processes leading to a known desired outcome (Schell, 2001). “Fun to play” games are more superfluous and voluntary, spontaneous, relatively unorganized, for pleasure and enjoyment with surprises (Huizinga, 1994; Piaget, 1962). Fun to play games may not have a recognizable goal or end point. These two categories of games align well with causation (games to play) and effectuation (games for fun). Both categories of games are used throughout the course as students learn to engage causation and effectuation to tackle unknowable opportunities.

**The practice of empathy.** Empathy refers to an individual’s ability to understand the emotions, circumstances, intentions, thoughts, and needs of others, and to offer sensitive perceptive, and appropriate support (McLaren, 2013). Empathy develops over time through interaction with others, through training, and intentional experiences (Decety & Jackson, 2004). In this curriculum, students learn to connect with one another in a meaningful, more empathetic way. Empathy is strengthened by drawing students’ attention to the diversity of their teams and the classroom itself. Likewise, empathy is an underlying foundation for effectively working with customers and ultimately understanding a market. Empathy is a basis of the entrepreneurial method which depends on bringing others along to pursue a new opportunity.

**The practice of creation.** The curriculum encourages students to practice “creation” which literally allows them to create new products, services, processes in the context of their startup ventures. Creation is the terminology used in this curriculum for approaching effectuation: to start with what you have, who you know, and what you can afford to lose. This all begins with developing an understanding of who you are with regards to skills, knowledge, style,
identity, etc. Students learn not to have a bias towards a particular end, but to create value through actions, using the resources at hand, and enrolling others in the process. Creation engages experimentation as it leverages design thinking to help move students beyond their often self-imposed creative road blocks (Brown, 2010). Creation also addresses the need to deal with the fear of failure, the value of chaos, and deferring judgment on what appear to be crazy ideas (Adams, 1986, Neck, 2010).

**The practice of reflection.** The practice of reflection, while often neglected, is the foundation for each of the other practices (i.e., play, empathy, creation, and experimentation). Reflection is defined as “thinking about thinking” (Schraw & Dennison, 1994). Reflection encourages students to deepen their understanding of their experience, to connect theory and practice, and to build their learning by examining what happened and why (Schraw & Dennison, 1994). Reflection is particularly important under conditions of high uncertainty which is when the entrepreneurial method is most likely to be used (Neck et al., 2014). Reflection is also the primary technique for teaching students to codify practice-based learning (Neck et al., 2014). Hence, reflection is paramount to students’ ability to integrate theory and practice.

By integrating these pedagogical practices into the curriculum, students learn and understand the entrepreneurial method in a sustained, meaningful manner. The goal is to teach students to synthesize theory with their experience-based learning to develop deep understanding and skill with the entrepreneurial method.

**Assessing the Effectiveness of an Entrepreneurial Method Pedagogy**

In the prior sections we outline both the conceptual frame of the entrepreneurial method as well as the pedagogy that was created to teach students this method. Critical to our own efforts to reflect on the pedagogy we were developing, we assessed the course redesign while it was underway. We put forth a set of hypotheses regarding the teaching of the entrepreneurial method and developed a methodology to assess these hypotheses. The hypotheses reflect our pedagogical objective to teach students to engage both causation and effectuation logics as part of the entrepreneurial method (Sarasvathy, 2001).

**Causation.** The curriculum incorporates a number of pedagogical practices to help deepen students’ understanding of causation. Surprisingly
perhaps to some, play is used to help students grasp the distinction between causation and effectuation. As described above, “games to play” have clear outcomes and work within known parameters, which facilitates the learning of causation logic (Schell, 2001). In addition, an important component of the course is teaching students traditional business analytical tools that support the venture team’s ability to assess market structure, track project progress, and assess the financial viability of their proposed business. As such, we expect students to deepen their understanding and skill in engaging prediction and analysis of expected business outcomes. The use of this pedagogy would suggest:

*H1: After participation in the year-long curriculum, students’ proficiency with causation logic will significantly increase.*

**Effectuation: Experimentation.** Experimentation is at the core of the curriculum instruction and the new venture itself. Teams are encouraged to utilize the act, learn, build cycle as they start small, with the resources at hand, and work within what they consider to be an acceptable level of risk or affordable loss (Schlesinger et al., 2012). Reflection is used to develop students’ understanding of the role and nature of experimentation.

To develop students’ knowledge and skill with experimentation, the first six weeks of the curriculum focus on teaching students to utilize design thinking methodology (Brown, 2010) as they explore and shape an idea into an opportunity. Design thinking is a human centric methodology for creating solutions to problems (Cross, 1982). Central to this process is engaging empathy to build an understanding of the problem in question from the point of view of those involved. Design thinking also supports experimentation as it centers on ideation which involves a process of working with solution ideas and experimenting and reshaping to eventually land on a blue-sky idea, one that is forward-looking, novel, unique, exciting, and thought-provoking. This customer centric approach relies on iterative interaction with those individuals as solutions are shaped and tested through experimentation and the results of those experiments understood through empathy and reflection.

Activities rooted in play also help students further develop their understanding of experimentation. As all entrepreneurs know experiments frequently fail. The ability to manage failure without losing one’s way can be aided through activities that allow for failure to be seen not as a descriptor of the individual experimenter but as an expectable byproduct of the experimentation
process. Professors assume that students’ initial venture “plans” are likely to fail, requiring them to pivot, generate a new idea, and ultimately launch a very different venture. The constructs of pivoting and incremental iteration, not failure, are central to developing students’ understanding of experimentation. This would suggest that:

\[ H2: \text{After participation in this year-long curriculum, students’ proficiency with experimentation will significantly increase.} \]

**Effectuation: Flexibility.** As was just noted, teams’ initial business launches frequently experience failure. Unforeseen competition, challenging team dynamics, and poor reception in the market place, the latter being driven by inadequate market research and/or a failure to sufficiently engage with a target market, are among the many reasons new ventures fail. Likewise, students’ initial organizational plans; who is responsible for what, who will be in which leadership roles, how will the team coordinate and all the other human challenges associated with running a business; also require changes as teams never run as smoothly as planned. The new venture drives students to learn to be more flexible when engaging in entrepreneurial activities.

Flexibility also requires a significant level of personal discomfort from time to time. Having organizational behavior as a complementary discipline with entrepreneurship supports students’ understanding of and growing competence in being flexible. Activities that encourage reflection throughout the course empower students to analyze their own discomfort with flexibility and codify how they are adapting to become more comfortable and confident with engaging this logic. This would suggest that:

\[ H3: \text{After participation in this year-long curriculum, students’ proficiency with flexibility will significantly increase.} \]

**Effectuation: Affordable loss.** The ventures that are created in this course take place in a context of high uncertainty. Once a new venture has been approved as potentially feasible by the faculty and fellow students, the team receives a loan of up to $3,000.00. While students must manage within this capital, there is no penalty for not repaying the loan as profitability is a tertiary learning goal to the course. Given their limited resources, affordable loss becomes central to students’ work in their new ventures. In order to expand a venture, experiment with new ideas, or pivot from a failing venture, students must consider how much they can afford to lose should the experiment fail.
Students assess and debate the possible financial scenarios of such action and learn to consider the possible impact of their decisions. It is up to the teams to define what they can lose and to work with the means at hand.

**H4: After participation in this year-long curriculum, students’ proficiency with affordable loss will significantly increase.**

**Effectuation: Pre-commitments.** Pre-commitments refer to the development of support from diverse stakeholders for a new opportunity. This is central to the successful launch of a new opportunity in an uncertain environment (Sarasvathy, 2001). Obtaining pre-commitments requires empathy to understand the needs and issues of diverse stakeholders. This is an obvious challenge for all entrepreneurs but particularly for young, novice entrepreneurs.

There are numerous opportunities for students to learn about the benefits of pre-commitments when engaging new stakeholders. When students decide to sell a product, they learn how to build relationships with suppliers to produce and ship their product. Much can be learned about pre-commitments when the product has poor quality or is delivered late. In service type business students learn about pre-commitments with other stakeholders. For example, in starting a food related business students are often surprised to find they must consider the public health regulations governing food handling in the surrounding towns. Running into regulatory hurdles forces students to consider why such regulations exist and to find new partners to help them work through these regulatory constraints. If stakeholders are approached with empathy and a creation orientation, these challenges are easier to move past as stakeholders help co-create new opportunities. We engage organizational behavior concepts to teach students how to approach stakeholders with this mindset. This would suggest:

**H5: After participation in this year-long curriculum, students’ proficiency with pre-commitments will significantly increase.**

In summary, by focusing on students’ learning of the components of the entrepreneurial method, this study investigates whether an integrated pedagogy can be developed that supports students’ learning of the entrepreneurial method and thereby supports the development of entrepreneurship leaders who can pursue new opportunities across diverse contexts.
METHODOLOGY

We use a pre- and post-survey design to evaluate the aforementioned hypotheses. The same survey was administered twice over the academic year. The first survey was administered during the first four weeks of the year-long course. The second survey was administered after the ventures were closed in the final three weeks of class. The time elapsed between survey one and survey two was approximately 8 months.

Participants

For this research, we sent surveys to all 540 students who took the revised curriculum in the 2012-2013 and 2013-2014 academic years. We obtained IRB approval prior to launching the survey using the Qualtrics software. All students were assured anonymity and teaching faculty did not have access to the survey results. Finally, all students under 18 were excused from the survey since we did not have informed consent from their parents or guardians.

The paired responses, where students met the age requirements and completed the survey in both the fall and the spring, totaled 267. The effective response rate was almost 50%. This high response rate can be attributed to the surveys being distributed to students as if it were an assignment. We removed 12 outliers from the data, providing us with 255 useable responses for our analysis. Normality and homogeneity of variance assumptions were assessed by examining histograms, Q-Q plots, and the skewness and kurtosis for each of the dependent variables and all were acceptable.

Regarding demographics, 51% of participants were male and 49% were female. With regards to racial background, 56% were Caucasian, 22% were Asian, 13% were Hispanic/Latino, 3% were Black, and 5% were other. Fifty-eight percent of the students identified as American citizens and 42% were international students. At the same time, approximately 80% of the students had attended high school in the United States. These numbers are consistent with the population of the school as a whole.

Measures

Dependent variables. The measures for the entrepreneurial method were taken from work by Chandler et al. (2011). There is one causation measure
and four effectuation measures: experimentation, affordable loss, flexibility, and prior commitments. The causation and effectuation measures were evaluated on a 7 point Likert scale. Chandler et al.’s (2011) measures were adapted slightly in how the items were introduced. As we were focused on learning versus usage we asked students to rate: “I feel comfortable with my ability to” rather than “To what level have you applied these in your past experiences.”

The causation measure is comprised of seven items such as “develop a strategy to best take advantage of resources and capabilities” “design and plan business strategies” and “design and plan production and marketing efforts.” The Cronbach’s alpha for these seven measures was .91 for the fall survey and .93 in the spring survey indicating a high degree of reliability.

The first effectuation measure, experimentation, is comprised of four items including “experimenting with different products and/or business models,” “create a product/service that can be completely different than is first imagined,” and “try a number of different approaches in order to find a business model that works.” The Cronbach’s alpha for this measure was .87 for the fall survey and .90 for the spring survey.

The second effectuation measure, flexibility, is comprised of four items including “allow the business to evolve as opportunities emerge,” “Adapt what we are doing to the resources available” and “be flexible and take advantage of opportunities as they arise.” The Cronbach’s alpha for this measure was .89 for the fall survey and .93 for the spring survey.

The third effectuation measure, affordable loss, is comprised of three items including “careful not to commit more resources than can afford to lose” and “careful not to risk more money than we are willing to lose with our initial idea.” The Cronbach’s alpha for this measure was .89 for the fall survey and .90 for the spring survey.

The fourth effectuation measure, pre-commitments, is comprised of two items “use a substantial number of agreements with customers, suppliers, and others to reduce uncertainty” and “use pre-commitments from customers and suppliers as often as possible.”

For all of the measures, the factor loadings were greater than 0.70 and the reliability was greater than 0.86, further validating the work by Chandler et al. (2011).
Control variables.

The survey also included demographic information (gender, race and location of high school education) and information about a student’s prior entrepreneurship experience (prior work experience and if their family owned or operated business). To consider entrepreneurial intent, students were also asked whether or not they wanted to start their own business. These demographic and background, interest factors were control variables for the analyses.

RESULTS

For our initial analysis, we used paired sample t-tests to compare the means of the pre- and post-course survey results for all 5 entrepreneurial method dimensions. As Table 1 indicates, there was a significant positive change in all five dimensions. Student’s comfort in engaging prediction logic was significantly more positive after the course ($M=5.86$, $SD=.67$) as compared to prior to the course ($M=5.44$, $SD=.80$); $t(252) =7.82$, $p<.001$. There was a significant positive change in student’s comfort with experimentation after the course ($M=5.89$, $SD=.68$) as compared to prior to the course ($M=5.26$, $SD=.88$); $t(252) =10.17$, $p<.001$. There was a significant positive change in student’s comfort in engaging affordable loss after the course ($M=5.81$, $SD=.86$) as compared to prior to the course ($M=5.63$, $SD=.96$); $t(252) =2.66$, $p<.01$. There was a significant positive change in student’s comfort in engaging flexibility after the course ($M=6.04$, $SD=.70$) compared to prior to the course ($M=5.81$, $SD=.78$); $t(252) =4.27$, $p<.001$. Finally, there was a significant positive change in student’s comfort in engaging pre-commitment logic after the course ($M=5.74$, $SD=.82$) as compared to prior to the course ($M=5.27$, $SD=.99$); $t(252) =7.82$, $p<.001$.

Supporting all five hypotheses, these results indicate that this curriculum results in a significant positive change in students’ proficiency with all the components of the entrepreneurial method.
Next, we considered whether these results were related to students' demographic background or entrepreneurial interests including: gender, race, prior work experience, family owned or operated business, plan to start a business, and high school in US. We conducted regression analysis for each causation and effectuation measure with the demographic variable as predictors. In all cases, there were no significant effects due to demographic differences. This suggests that the curriculum and learning was not biased based on students’ demographic background or work interests or experience.

Table 1:
Evaluation of Students' Learning of the Entrepreneurial Method

<table>
<thead>
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<th>Measures</th>
<th>Mean</th>
<th>N</th>
<th>Std. Dev</th>
<th>Mean Diff</th>
<th>Std. Error Mean</th>
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<td>253</td>
<td>0.67</td>
<td>0.04</td>
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<td>7.82**</td>
<td>252</td>
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<tr>
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<td>0.80</td>
<td>0.05</td>
<td>0.42</td>
<td>0.85</td>
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<tr>
<td>Posttest</td>
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<td>253</td>
<td>0.68</td>
<td>0.042</td>
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<td>10.17***</td>
<td>252</td>
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<tr>
<td>Pretest</td>
<td>5.26</td>
<td>253</td>
<td>0.88</td>
<td>0.05</td>
<td>0.64</td>
<td>1.00</td>
<td>0.06</td>
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<td>Afford</td>
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<td>Loss</td>
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<tr>
<td>Posttest</td>
<td>5.81</td>
<td>253</td>
<td>0.86</td>
<td>0.05</td>
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<td>2.66**</td>
<td>252</td>
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<tr>
<td>Pretest</td>
<td>5.63</td>
<td>253</td>
<td>0.96</td>
<td>0.06</td>
<td>0.18</td>
<td>1.08</td>
<td>0.06</td>
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<td>Flexibility</td>
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<tr>
<td>Posttest</td>
<td>6.04</td>
<td>253</td>
<td>0.70</td>
<td>0.04</td>
<td></td>
<td></td>
<td>4.27***</td>
<td>252</td>
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<tr>
<td>Pretest</td>
<td>5.81</td>
<td>253</td>
<td>0.78</td>
<td>0.049</td>
<td>0.23</td>
<td>0.85</td>
<td>0.05</td>
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<td>Pre Commit</td>
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<tr>
<td>Posttest</td>
<td>5.74</td>
<td>253</td>
<td>0.82</td>
<td>0.051</td>
<td></td>
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<td>7.23***</td>
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<td>Pretest</td>
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<td>253</td>
<td>0.99</td>
<td>0.062</td>
<td>0.48</td>
<td>1.06</td>
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</tbody>
</table>

Note: Significant (2-tailed) * p<.05, ** p<0.01, ***p<.001
Qualitative Analysis

To further evaluate students’ learning of the entrepreneurial method, we also analyzed student’s written responses to the open answer question “What is an entrepreneurial leader?” With this question, we were exploring how students’ conceptualized entrepreneurial leaders and if this conceptualization altered as a result of the course. We coded the responses using NVivo software to identify key differences between the fall and spring surveys.

At the start of the course, most students had a stereotypical view of an entrepreneurial leader similar to what is glorified in business journals. Students’ definitions portrayed the entrepreneurial leader as a sole, visionary leader who took on extraordinary risks to pursue opportunities. They also believed that the role of the entrepreneurial leader was to manage and direct employees.

In the spring, students’ description of entrepreneurial leaders became more complex. Students commonly used phrases such as using resources at hand, enrolling team members, using both creation (effectuation) and prediction (causation) ways of thinking, creating opportunities and taking small educated
risks to describe entrepreneurial leaders. While not an exact match to the work done by Sarasvathy (2008), these definitions include key concepts that connect to an increased proficiency with the entrepreneurial method. Table 4 outlines the common descriptors students used when defining entrepreneurial leaders and shows general differences between the pre- and post-curriculum responses. These definitions indicate that students developed a more complex understanding of an entrepreneurial leader. They also reinforce the quantitative data which shows that students did develop a greater proficiency with the entrepreneurial method through this curriculum.

Table 3:
Categories of Definitions of Entrepreneurial Leadership

<table>
<thead>
<tr>
<th>Category</th>
<th>Pre-Curriculum Survey</th>
<th>Post-Curriculum Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk</td>
<td>• Risk-take, courageous</td>
<td>• Educated risk taker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Learn from failure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Affordable loss</td>
</tr>
<tr>
<td>Innovation</td>
<td>• Innovative, creative person</td>
<td>• Applying creation &amp; prediction logics</td>
</tr>
<tr>
<td>Working with others</td>
<td>• Directing others</td>
<td>• Enrolling others</td>
</tr>
<tr>
<td>Opportunity-recognition</td>
<td>• Act on opportunity</td>
<td>• Create opportunity</td>
</tr>
<tr>
<td>Planning</td>
<td>• Following a plan</td>
<td>• Adaptable &amp; flexible to changes</td>
</tr>
<tr>
<td>Value Creation</td>
<td>• Making money</td>
<td>• Creating social, environmental and economic value</td>
</tr>
<tr>
<td>Resources</td>
<td>• Gather resources</td>
<td>• Working with resources on hand</td>
</tr>
<tr>
<td>Leader</td>
<td>• Visionary,</td>
<td>• Engaging others</td>
</tr>
<tr>
<td></td>
<td>• Passionate</td>
<td>• Learning from failures</td>
</tr>
<tr>
<td></td>
<td>• Highly motivated problem Solver</td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION

In this paper, we sought to extend entrepreneurship education beyond the dichotomy of theory versus practice by focusing on the entrepreneurial method. While the entrepreneurial method has been shown to be used by experienced entrepreneurs (Sarasvathy, 2008), it is less clear as to whether this method, which integrates theory and practice, can be taught and taught in particularly to novice, aspiring entrepreneurial leaders. We assessed novice entrepreneurs’ learning of this method by comparing their pre- and post-proficiency in a year-long experiential course. Our findings show that the entrepreneurial method, measured by five constructs established in the literature, can be taught through this pedagogy. Overall, several contributions emerge from our study.

The Entrepreneurial Method

Effectuation as a theory of entrepreneurship has drawn attention to the role that action plays in the entrepreneurial experience. It suggests that in essence, action is just as important as planning and prediction, if not more so (Sarasvathy, 2001; Schlesinger et. al., 2012). Effectuation theory suggests that the pursuit of “if… then…” should not be the only goal of entrepreneurship, and more broadly, management education. Rather, the real world is inherently unpredictable and is created by our actions hence students also need to be taught an action oriented logic.

While effectuation as a theory of entrepreneurship has been challenged and there are call for further testing and refinement (see Arenda, Sarooghi & Burkemper, 2015 among others), its popularity among entrepreneurs and many of those who teach entrepreneurship suggests at a minimum its face validity. As such, taking on the challenge of teaching effectuation, while not discarding predictive approaches to business management, seems worthwhile. Yet to do so requires faculty to engage a different pedagogical approach and potentially shed past assumptions about teaching theory or skills.

The findings from this study introduce such a pedagogy. We believe one critical component of such a pedagogy is the action-based experiential nature of this course in which students make mistakes and learn through experimentation. We also find that integrating design thinking concepts into the pedagogy helps students learn tools for engaging the effectuation dimensions of the
entrepreneurial method. Combined these principles contribute to a pedagogy that enables students to understand and use the entrepreneurial method.

**Novice and Experienced Entrepreneurs**

Existing entrepreneurship research often differentiates between novice and expert entrepreneurs and explores the most effective approach for teaching each group of entrepreneurs (e.g., Woetmann, 2014). Studies have shown that novice entrepreneurs lean toward causation (as they seek market research, calculate market size, and base decisions on predictions and expectations) whereas expert entrepreneurs emphasize effectuation (as they eschew market research, focus on action they know will yield outcomes, and consider what they can or cannot control and afford to lose). It is an implicit assumption that the effectuation dimensions of the entrepreneurial method can only be learned through real world experience or by teaching students who have prior entrepreneurship experience. Yet, our findings show that the entrepreneurial method can be taught to early-stage undergraduates who are clearly novice entrepreneurs. Teaching these novice students the entrepreneurial method early on may be one way to help them think and act like experts and to be more successful as they eventually pursue new opportunities.

These findings also have implications for how we think about the overarching objectives of teaching novice students the entrepreneurial method. As Duval-Coutil & Long (2014) discuss delivering entrepreneurship education to undergraduate students who have limited professional experience and career aspirations regarding new venture creation adds complexity to the development of such a pedagogy and our understanding and measurement of its value. The pedagogy outlined here may be one step towards solving this complexity. This pedagogy which integrates theory and practice provides undergraduate students with the experience they need to understand the complexities of new venture creation. Furthermore, students develop their proficiency with the entrepreneurial method which will enhance their ability to pursue new opportunities in a variety of settings. The learning objective for a pedagogy for novice entrepreneurs thereby shifts from new venture creation to developing an entrepreneurial mindset that can be used to respond to unknowable problems across diverse contexts including startups, established corporations, government agencies, and NGOs.
Evolving the Faculty Role When Teaching the Entrepreneurial Method

Our experience with this curriculum also provides insight into how faculty may need to adapt their teaching approach in order to support students’ learning of the entrepreneurial method. Specifically, we focus on two central challenges for faculty: (1) serving as a coach and (2) being comfortable with failure.

As faculty members we construct our role in different ways. Put simplistically, some professors see their role as imparting information while others see their role as developing the individual through the experience of the learning encounter (Greenberg, Clair, & Maclean, 2007). The latter requires professors to be coaches, advisors, and collaborators to facilitate learning. When teaching about uncertainty and the importance of acting to probe that uncertainty, the challenge of coaching can be hard to manage. Yet, the importance of professors remaining as coach, not player or content expert, is critical to students’ learning of this method.

For example, consider how a professor acts as a coach when students are asked to use design thinking to create a business idea. In all likelihood, many ideas are going to sound crazy and will be, we can predict, likely to fail. Professors have vast knowledge of the field and are well aware of problems, inconsistencies, and hurdles, that students cannot even begin to imagine. Yet, as a coach, professors have to hold their tongue and support the design thinking process as the idea is being reshaped, by the students, not by the faculty. Next, when students fail and are experiencing the emotional distress of this experience, professors must support their learning that failure is about the venture not the individual and that failure is good. Professors must coach students to develop this mindset. When students are struggling in ways that one anticipates, it is very difficult to remain as coach; as a professor one so often wants to shield students from such pain. This is a notoriously difficult challenge because faculty, like most successful players, have been successful at solving problems, not at letting them fester (Hunt & Weintraub, 2011). However, letting problems fester is what must happen if students are to develop their proficiency with the entrepreneurial method.

The other challenge for professors when teaching this pedagogy is that developing competence in teaching the entrepreneurial method very much mirrors the method itself. Hence, professors must learn not just how to teach the entrepreneurial method but how to develop their own proficiency with this
method so that it guides their teaching. Professors need to recognize that in a course where students are leading the process there can be extreme uncertainty. In this class context, traditional, organized, structured, pedagogical approaches may fail. Professors need to be prepared for the unexpected moments of learning that arise from these ventures and be ready to pivot with their pedagogy to adapt to these moments.

Furthermore, this is a course where professors will also experience failure. When a venture has to pivot, when teams experience interpersonal challenges, and when ethical challenges arise, professors often question their own teaching methods and may consider these events as a failure of themselves. Professors need to reset their own expectations of themselves and to recognize these are expected, be they unpredictable, venture failures and thereby opportunities for professors to teach in the moment. When professors learn to be open to this type of teaching, it is energizing and invigorating. Just as case teaching involved learning to relinquish some classroom structure, teaching the entrepreneurial method requires an even greater releasing of structure and lesson plans. Becoming an entrepreneurial educator provides a professor with an entirely new, and energizing, toolkit for supporting students’ learning.

LIMITATIONS AND FUTURE RESEARCH

The study of course has a number of limitations. Most importantly, we believe a longer-term longitudinal study needs to be conducted. While our goal is to develop students’ proficiency with the entrepreneurial method and we anticipate students will ultimately engage this method in a wide variety of work settings, we do not test this longer-term learning outcome. A key stakeholder in this effort is the employing organization and they are in a position to supplement students’ self-assessment of proficiency with observations of the actual results (Praslova, 2009). Hence, we would propose follow-up research is needed in the organizational context to evaluate whether students continue to engage this method as they encounter real organizational challenges.

Second, it is important to note this data are self-reported. Self-report data are useful but also are limited by a number of possible sources of bias (Paulhus & Vazire, 2009). As is true with all self-report data, there is a social bias that can exist among students. To further evaluate the effectiveness of this pedagogy, it might be useful to provide students with simulations or case challenges in which they encounter problems that require the engagement of the
entrepreneurial method. In this way, students’ proficiency can be assessed through more objective methods.

Finally, the context in which the course takes place is important to note. The course is taught to all first year students at the college. Discussions of entrepreneurship pervade the campus and are central to students’ co-curricular experience. Students’ proficiency with the entrepreneurial method may well be influenced by the larger context. From an educational goals perspective, we appreciate the alignment of the campus culture and the course goals. However, from a research perspective, it is possible that this context impacted the results. As such, we believe future research needs to further explore how both the curricular and co-curricular experiences facilitate students learning of the entrepreneurial method.

CONCLUSION

This study represents a first step in developing a pedagogy for teaching the entrepreneurial method. Our findings show that this method can be taught as they also introduce a pedagogy for teaching this method. While Neck et al (2014b) provide the conceptual outline for such a pedagogy, this study provides the empirical support. Furthermore, our findings support the view that the entrepreneurial method can be taught to aspiring, novice entrepreneurial leaders.

As interest in entrepreneurship education has grown there has been a concern among entrepreneurial scholars and educators that this interest may dilute the conceptual work that has been developed in the field. As the focus of entrepreneurship education expands beyond new venture creation to include developing an entrepreneurial mindset and entrepreneurial leaders we believe this expansion yields opportunity not dilution for the field. As this study shows, this change in focus enables us to think about entrepreneurship theory and entrepreneurship education in innovative ways that may solve past debates and expand current theory and practice.

REFERENCES


3D-DREAM IT, DESIGN IT, DEVELOP IT: A VENTURE DEVELOPMENT COMPETITION WITH A CO-CURRICULAR OPTION

Nathan A. Woolard
Emporia State University

ABSTRACT

The 3D Challenge is an experiential co-curricular venture competition intended to connect students with the business community while further developing entrepreneurial classroom constructs in a meaningful way. Students are challenged to dream, design, and develop (3D) their idea throughout an academic semester. The competition provides a creative outlet for students in an advanced entrepreneurial management course to make use of their education, while also providing non-business creative and technical students an opportunity to explore their interests and talents through the lens of an applicable self-employed career. Through creative partnerships with local economic development agencies, students are able to build their creative venture with assistance and counsel from successful entrepreneurs. The blended learning opportunity connects theoretical academic constructs with successful entrepreneurs.

Keywords: Venture Creation, Co-Curricular Entrepreneurialism, Venture Competition, Blended Learning, Entrepreneurial Education.

INTRODUCTION

In the fall 2001 a sophomore business administration had a simple idea for earning some pocket money between classes. The student began with a shipment of disc golf apparel, attempting to sale to local disc golf enthusiasts interested in conquering a course recently installed by the local municipality. What began as a small startup in a dorm room grew larger and relocated to a basement in an off campus house. From there, the business ballooned. After completing his bachelor’s degree in business, the new graduate launched a venture that is now world-renown in the disc golf community and one of the
largest manufacturers of disc golf equipment in North America. The business currently employs over 50 people and ships nearly 10,000 discs a week to disc golfers the world over. When asked about what courses he took to prepare for his business startup, he responded “I took the courses I needed to graduate and others that sounded interesting.” An opportunity had been missed.

The venture development contest began with this story in mind. We did not want to sit idly by while potential entrepreneurs simply navigated the business school curriculum; we wanted to aid in their development. The curriculum was born for an entrepreneurship minor, consisting of coursework deemed necessary for aspiring business owners. The entrepreneurship minor focused primarily on the theoretical skills associated with venture creation, the bones of which focused on four classes specifically: entrepreneurial management, small business management, entrepreneurial finance, and upper division marketing. A small cohort of students enrolled in the minor. At the end of their academic career most graduated with their entrepreneurial management minor and accepted entry-level career paths in corporate America. Although most self-identified with being an entrepreneur, somewhere there was a disconnect. In sync with current literature in the field, we asked a simple question, how do we connect students to the real world of entrepreneurialism?

In fall 2013, we considered entrepreneurship education one step further. We do not want prospective entrepreneurs to only learn it, we want them to live it. A business venture competition launched aimed at connecting students to the business community in a meaningful way. The competition was known as 3D: Dream It, Design It, and Develop It (3D). We identified a group of industry experts in the region to serve as judges. At the first meeting, the judges asked what the aim and scope of the competition was. Our response is fairly simple, “Make them feel uncomfortable.” Starting a business is scary. Staring at your business front door on the first day of operation is nerve-racking. We want students to feel that.

This paper is intended to describe and explain the development process of the 3D competition. In three short years the program has grown to be a signature event for the School of Business, with nearly 100 student participants representing 38 unique business ventures in 2015. $14,000 in prize money has since been given to competition winners and 5 businesses have launched since its inception, including: a hunting trail cam technology company, an ostrich ranch, a touring company, and two phone/tablet applications. Although it took a bit of
imagination and a whole lot of learning, the kindred spirit of entrepreneurialism has been lit in a community desperate for its fire.

THEORETICAL FOUNDATION

Gartner (1988) provided a very simple explanation of what an entrepreneurship is: the creation of organizations. He further explains that the difference between an entrepreneurs from non-entrepreneurs is that entrepreneurs create organizations. In the past twenty years, academic work on entrepreneurialism and entrepreneurial education has continued to emerge. Researchers on several occasions have questioned whether entrepreneurship education can be taught (Aronsson, 2004; Kirby, 2004; Henry, Hill, and Leitch, 2005), and if so, to what extent (Pribadi, 2005)? Aronsson (2004) suggested that,

Let us go back to entrepreneurship education. Can entrepreneurship be taught? If you want to teach people to be entrepreneurs, you can’t. If you want to teach people to work for entrepreneurs you could. If you want to encourage entrepreneurship, it should be through some kind of apprenticeship. That would be a wonderful experience.

The excerpt above is fairly compelling, questioning whether business schools have any place in the potential education of entrepreneurs. Hopkins and Feldman (1998) believed that university education should change the way entrepreneurs are trained and instructed. Additional research suggests that the ability to be entrepreneurs is impacted by attitudes, namely: preference for innovation, nonconformity, proactive disposition, self-efficacy, and achievement motivation (Rossiter, 2010). Of which, none are particularly easy to teach or build curriculum around. In addition, several researchers discovered the entrepreneurship education and training programs have had little impact on the growth of entrepreneurial activity (Henry, Jill, and Leitch, 2005; Raposo & do Paco, 2011). The argument is that entrepreneurship education and training programs tend to focus on the art and science of venture creation, rather than the actual process. The research suggests that if entrepreneurship can be taught, educators must be very purposeful in the way their programs are crafted.

Kickul and Griffiths (2010) suggested the need for an experiential classroom in entrepreneurship, arguing that education related to social innovation and impact has three main lessons: go real, go deep, get feedback. Kuratko
(2009) further believed entrepreneurs must learn to accept and expect ambiguity and uncertainty, but the experience is necessary before they are able to experience success. The intention therefore is that entrepreneurial education should be centered upon creating an experiences to engage, simulate, and connect. Students must not merely be subjected to academic principles, but find an opportunity to connect to entrepreneurs in a meaningful way. Hindle (2007) suggested that entrepreneurial educators should prepare to “think less of the specifics of today’s detail… [but rather consider an] exciting reciprocal apprenticeship’ approach” (p. 193). Hindle further compares entrepreneurial education to improvising music, suggesting that each members of the musical group should use the notes as a guide, rather than a set construct. Each should have the ability to play as they see fit, attempt to construct complimentary melodies and if a bum note is struck, the ability to reassess and adapt.

Although scholars in the field are attempting to create a single framework of entrepreneurial education, most identify the need to shift from cover the process of a startup to focusing on an attitude-changing perspective (Mwasalwiba, 2010). In other words, there is need for entrepreneurial education practices to attempt to create an environment where students can learn to experience and cope with ambiguity and uncertainty (Kuratko, 2009). Some educators have attempted to create a co-curricular environment for entrepreneurial education. Valliere, Gedeon, and Wise (2014) proposed a new conceptual model of entrepreneurial education at their home institution, demonstrating a shift from overly focusing on just the “What” by providing more attention to the “Why, Who, and How” (p. 115). In addition, Glackin (2014) provided an overview of a “Social Business Challenge,” noting “it is a method for undergraduate students to learn and material introduced in the classroom by thinking and doing the work to create and operate a business for a limited time” (p. 193). In a response to contemporary research in the field, we identified the need to provide a more a targeted effort in entrepreneurial education. In addition we give students the opportunity to participate in the competition and enroll in an entrepreneurial management course. The co-curricular entrepreneurial management course is intended to provide an applied and experiential environment for studying entrepreneurialism. The following is an attempt to detail the 3D Challenge, a co-curricular business venture creation competition.
PROGRAM OVERVIEW

The competition is a business venture development contest centered on the consideration of five distinct categories: concept, feasibility, market potential, business model, and competition. Interested students may enroll in MG 853: Entrepreneurial Management to develop the concept, although participation in the class is not required. Through the duration of the semester, students developed the concept and create what is the bones of a business plan while working with local entrepreneurs and economic development agencies. To be simple, the idea is that by the end of the semester, enrolled students should be able to visit a lender and discuss financing options.

The competition is limited to participant groups of 1-3 students. In order to enter the competition, the participant group must submit (1) a three page executive summary, (2) take part in a Sharktank style pitch to a panel of industry judges, and (3) attend and present an interactive poster at a community forum. The three page executive summary focuses specially on the five distinct aforementioned categories. The Sharktank style pitch is a 15 minute full presentation, followed by 10 minutes of questions and answers from our guest judges. For students who survive the first two steps of the process, twenty semifinalist are chosen for the community forum. During the community forum, in partnership with the local chapter of Main Street America and Chamber of Commerce, the business community is invited to attend. Guest are encouraged to visit with competition participants and ask questions and solicit advice. At the community forum, the three finalist are named and those participant groups have an opportunity to address a live audience. The winner of the competition is announced in front of the live audience and presented with a check for $4,000.

COMPETITION REQUIREMENTS

Participants

The 3D Challenge is open to all full-time and part-time undergraduate and graduate students at our university and a local technical college. Students from all majors and backgrounds are encouraged to participate. Although non-students may advise a team, only students may present the plan to the judges during the competition on campus. The concept and venture must demonstrate student management and ownership.
Written Executive Summary

The executive summary presents the idea for initial evaluation in a short and compelling form. This is not a research report, it is a sales pitch. The effort involved in preparing the concept requires the team to carefully and realistically assess the opportunity. This action is the first step in developing a business plan. The idea feasibility, when completed, will present the key information needed to evaluate the opportunity, without going into the depth that a full business plan requires. The completed executive summaries are no more than three pages. The type of information communicates to the reviewers include,

Concept
A compelling statement about what the group is proposing to do. Participants should demonstrate whether their idea is a product or a service and whether the idea solves a pain/frustration, or address a critical want or need.

Feasibility
Provides reasoning as to why the concept should be done. If the group is proposing something that is cutting edge, it is expected they provide some type of reasoning or proof that suggest it can be developed and where to get the expertise to do so.

Market potential
Participants must demonstrate there is a market need and target audience. Market potential is context based, participants must demonstrate size of market and potential for business.

Business Model
Participants must demonstrate their business concept is financially sustainable by providing consideration for projected sales, expenses, startup costs, cash flow, and reoccurring and fixed costs.

Competition
Participants must identify their competition and how they can achieve a competitive advantage over the competition.
Oral Presentation

A panel of judges select 20 semifinalist teams to advance in the competition. During the semifinal round, students have three weeks to redefine their big ideas (based on judge feedback) and students in the Entrepreneurial Management course work with faculty and local entrepreneurs in class to further develop their concept. The semifinalists have 20 minutes to pitch their final business plans to a panel of judges and go through a series of questions and answers. The top three teams will be chosen, and these teams will present at the community forum. The intention of the competition is to assist students in the development of a business venture. All teams must develop a visual aid to accompany their oral presentation.

Visual Aid. Participants are limited to 12 slides and are expected to cover the information outlined in the written executive summary. A common strategy is for one member of the team to give the bulk of the presentation while other members provide support in areas of their respective expertise. Each team may determine how they should present the material. During the semifinals, teams present in front of only the judges and the competition coordinator. No general audience or other teams are allowed to hear the presentation. Participants are reminded that presentations should be compelling and persuasive. Oral presentations are not intended to be research presentation, but rather a sales pitch to convince the judges as to why their idea could be successful.

COMMUNITY ENGAGEMENT AND MENTORSHIP

Our competition is predicated upon one major theme, connecting students to people in the community that can assist and provide supplemental instruction. The idea is that the best way for students to “feel” what is to be a business owner is to connect them with people who currently own and operate a business. The intention therefore is twofold, (1) provide classroom learning opportunities and theoretical business development practices and (2) hands-on, experiential learning in connection with proven business leaders. In 2016, we’re attempting to do something even better. We intend to have a mentorship program, connecting participant groups one-on-one with a business owner. The idea is that we want students to hear stories, much like the story used at the beginning of this
document. We want business owners to share the trials and tribulations, the heart and soul, and the successes and failures experienced through their personal journey. It is not just about a job or career, it’s an interwoven story on life and perspective entrepreneurs need to feel it.

Elevator Pitch Challenge

In spring 2015, in an effort to generate excitement for the challenge, we held a quick pitch competition. Our School of Business is five stories tall and it was discovered that an elevator ride took exactly 27 seconds from the first to the fifth floor. The idea was born! One week before three page executive summaries were due, perspective participants were able to compete for a $100 prize. Our illustrious business school dean welcomed 25 unique student groups to present their business idea in 27 seconds or less. On the way down, the dean provided one piece of advice for the group to consider for the competition.

Entrepreneurial Management

Participant groups are invited to enroll in an entrepreneurial management course. Once enrolled, the expectation is the student must enter the competition and take part in all three stages. If students are not successful in making it to the semifinalist stage, they are still expected to attend and present at the community forum. Although the course is not required for participants, the course does satisfy major curriculum requirements for both management and business administration students. The content displayed in the course for competition participants does not vary from traditional section, just the method of delivery. The intention therefore is that competition participants enrolled in the entrepreneurial management course have the same student learning outcomes as students taking the traditional section. Although the method and delivery is different, the content remains the same. The catalog entry for the class includes:

Analysis of management in the entrepreneurial venture during the start-up phase. Topics include characteristics of entrepreneurs, organization life cycle, the business plan, financial projections, product/service research, and the professional manager in the transition from start-up to growth stage.
Learning Goals

The major outcome of the entrepreneurial management course is to provide students with the ability to formulate a business venture idea, and advance understanding of entrepreneurial business development. Specifically, students should be able to:

- Develop the fundamental understanding of entrepreneurial practices related to business development, concept, feasibility, and business model.
- Understand the financial structures related to their business venture, specifically related to both fixed and variable costs, licensure/patent fees and costs, marketing strategy, legal, etc.
- Communicate business concept in an engaging and meaningful way
- Develop and adapt relevant strategies related to marketing, sales, and market niche.

Partnership with Technical College

The 3D challenge is open to all full-time and part-time undergraduate and graduate students at the university and a local technical college. Students must be enrolled in the spring term of each year. Furthermore, students are encouraged to work with students from the other institution and build alliances. We believe that entrepreneurial developments take all kinds. There is value-added in business students connecting with students who think and learn differently than they do. The local technical college provides several unique programs, such as: automotive technology, computerized machine-tool technology, graphic arts technology, interactive multimedia design, and computerized machine tool engineering. Students completing the aforementioned programs have a unique skill set that they can potentially capitalize on. We attempt to create an environment where business students can connect with individuals with technical expertise, presenting an opportunity to build a potentially profitable and unique business venture. For instance, the second place winner of the competition last year was a trail camera technology company, a partnership between technical and business school students.

Partnership with Chamber of Commerce and local Main Street America
An essential development in the early stages of 3D creation was the partnership with local economic development agencies. The Chamber has provided us a nice board room where local entrepreneurs from the community can meet, serve on committees related to the competition, and provide advice for the competition and class. The Chamber provides an essential network to the established business community where many members are eager for young entrepreneurs to join the ranks of the small business owner’s fraternity.

Main Street America is a national network of more than 2,000 older commercial districts operating off a “four point approach” related to increasing consumer business, strengthening related and professional institutions, assisting in the preservation of maintenance of the community’s heritage and promoting pride in the community’s institutions and achievement through design, promotion, business enhancement and organization. The local Main Street Association has been instrumental in the development of the competition, meeting with student groups individually, serving on the judging panel, and providing participants with a “How It’s Made” tour. The How It’s Made tour is a walking tour of area businesses to learn about their operations, production, and promotion. Last year’s participants had an opportunity to explore four businesses, including a: bike shop, brew pub, craft store, and fine chocolate shop.

**Partnership with Small Business Development Center**

A local regional chapter of a state small business development program is located in the region (SBDC). The Chamber and Main Street provided unique hands-on experiences for students to connect with area business, while the SBDC assists in helping students craft their business plan. The SBDC meets with participant groups to provide counsel on specific information necessary for crafting a business plan and connecting with financial lenders. The intention of the SBDC is to provide student groups with the knowledge, tools and resources necessary for their success. In addition to one-on-one consultation opportunities, the SBDC assists students with exploring their business idea, market research, reviews business plans, licensing, and establishing core accounting practices.

**WHAT WE HAVE LEARNED**

We undoubtedly learned many lessons throughout the development of the venture competition, many of which are in response to the amalgamation of
suggestions from entrepreneurs and students, academic research, observation, and consultation with our partners and other institutions. Below is a chronical of seven main themes and lessons learned after two years of the competition.

**Businesses are Launching**

After two years, five businesses have launched and two more are slated to open the doors next spring. Their ability to complete an entrepreneurship minor had little to no impact in the business launch but rather their ability to create positive relationships and build strategic knowledge networks. Unfortunately, prior to 2009 we did very little to track the entrepreneurial activity of our students unless there was potential gain (donors). Although it is great to see businesses launching, we have no barometer to measure. We suspect this is a heightened sense of activity, but cannot be certain. We intend to track progress over time, surveying past participants yearly to document their activity. It should not be expected that new graduates be immediately ready to operate a business; tracking activity longitudinally should provide a greater indicator as to the influence of the co-curricular education.

**Assessment is Key**

As discussed in the subsequent section, tracking students over time will provide a better indicator of the impact of the competition long-term. It should be unreasonable to suspect immediate results in terms of businesses launched, although we are excited to see so many having done so. We designed a survey that may be submitted anonymously. Student participants are able to provide feedback related to the competition in relation to the strengths, weaknesses, workload, instruction, and student preparation. Below is the survey findings and qualitative feedback:

- 4.7 on a 5.0 scale for summary evaluation
- 4.5 on a 5.0 scale in terms of personal development in relation to entrepreneurialism
- 4.25 on a 5.0 scale in demonstration of the importance and significance of subject matter
- 4.25 on a 5.0 scale in ability to connect students with entrepreneurial community
4.75 o a 5.0 scale in ability to connect students to multiple resources to improve understanding

*I think that the course should be a requirement for the entrepreneur challenge.*

*It's a good competition that really teaches you a lot, but involves a lot of outside work*

*Very finely taught us how to make business plans*

*Hands on. Puts you in real situations and guides you but you're gonna have to learn to swim*

*Huge workload but it's needed in order to make this really beneficial to us.*

*I was more interested in doing this competition for fun. It was too serious at times*

*I didn’t have a good mentor, but the judges gave me lots of good feedback.*

While most of the feedback was fairly positive in nature, comments and feedback did provide several opportunity for critical reflection.

**Technical Students Do Very Well**

Although most would assume that university students shine in this type of activity and that technical college students may struggle, it is quite the opposite. Last year, 89% of participants were university students compared to just 11% technical students. Most all of the technical students could not be characterized as traditional age college students and nearly all had previous experience with full-time employment. In addition, while it was not asked, it seemed that most technical college students had a real business timeline for business launch. Nearly all the groups were serious in the launch of their business, and that element of realism likely impacted the manner in which they approach the
competition. In the sharktank judging session for instance, technical college groups across the board had higher ratings in categories related to the business model and concept development. In addition, most seemed to have some experience within the intended sector.

**Business Students May Struggle**

The business college students as a whole seemed to struggle. Although many indicating there real interest in becoming an entrepreneur, their idea was seemingly less developed than their technical college counterparts. The average university participant in the competition had been at a higher education institution for 2.4 years, suggesting that most had completed few upper level business courses. While university students were rated higher than technical students in concept, they rated significantly below technical students in terms of feasibility. Most university participants lacked industry experience within their intended sector.

**Partnerships are Key**

Last year we were able to host 38 student groups as part of the 3D challenge. If we did not have partnerships with outside organizations we would have likely still had 38 participant groups. The necessity of their involvement cannot be measured in participation numbers, but can be measured by the value of the supplemental instruction provided. In addition, their involvement provides a reciprocal relationship by demonstrating the relationship between the university and business community. In addition to their supplemental instruction and helping students develop their venture in a meaningful way, the relationship bodes well with graduates and donors. We are able to teach theoretical concepts related to management and entrepreneurialism and give mentors an opportunity to reinforce practically, or opens the gateway for healthy discourse. The partners provide a gateway to an extended education.

**Non-Business Students are great at Telling the Story**

The elevator pitch challenge is a fun and entertaining exercise that generates some excitement in the competition. We enjoy hosting the pitch competition because it provides a gateway for non-business students to take a
step toward 3D in an easy and fun way. What we have also noticed is that non-business students are great at telling the story while business students are too methodical. Business students attempt to address concept, feasibility, market potential, business model, and competition in less than 30 seconds. That is not easy to do nor should be attempted. Non-business students tell the story, the focus less on the potential to be profit and are able to demonstrate their solution to solve a problem. Business students typically make the mistake of focusing too specifically on profit generation while non-business students focus on what problem their business intends to solve. It is a key characteristic that really shows up in the backstory.

**Have Tissues Ready**

The students that do well in the competition typically have their “phoenix” moment. That is to say no business idea is perfect and our judges, mentors, and evaluators should pick holes in their model or business plan. The students who do well with that adversity and are able to swallow their pride in the interest of personal and business development, use the coaching moment to springboard from. We constantly remind students to not become “too married” to any idea. In short, your business plan should be a living and breathing document, and good businesses capitalize on external market opportunities. Participant groups typically respond in one of a few ways, (1) they lose their cool and refuse to take advice, (2) absorb the information and use it to better their product or service, or (3) breakdown emotionally. For the latter, it is best to have a good cop throughout that continues to provide encouraging feedback.

**The Business Community Generally wants to Help**

As referenced in the proceeding section on partnerships, we have found that the business community is very receptive to helping. It is not uncommon for business schools everywhere to get the ivory tower reputation. The 3D challenge provided us with one of the most effective ways to bridge the gap with the community in the most meaningful way: the students. Although there may be difference philosophically that exist between business schools and the business community, most are willing to put down their swords in the interest of students. **Donors make great judges.** In addition, it is not uncommon for some of our more wealthy alumni to have business ownership experience. Those donors
who have the ability to give large sums of money are typically able to do so by having started or ran a successful business. In addition to that person being able to provide students with a wealth of business experience, they may also be willing to underwrite. Our 3D challenge gives away $7,000 in prize money each year to three participant groups. The money is intended to be startup capital for our budding entrepreneurs. Donors respond kindly to that activity, they can directly see where their money is going. For a donor that is also a judge, they have an opportunity to underwrite, mentor, and help choose a participant group their intending to help launch. It is a win-win-win.

**FUTURE CONSIDERATIONS**

We continue to make changes in the interest of developing a more complete challenges. Last year’s competition made a few considerable changes, most notably the partnership with the technical school. Our big idea for next year is to connect participant groups on a one-to-one basis with proven entrepreneurs. The idea is that the student group be able to lean on that entrepreneur in the crafting of both the business plan and presentation. That person would serve as an advocate for each group providing the necessary real-life entrepreneurial education necessary for co-curricular development.

We need more feedback! Last year we attempted to send an email survey to participants after the competition. That was a big mistake. We should have taken the time to require feedback as part of the competition before any winners were announced. We need to see real feedback during the height of the competition that is untainted by competition placing.

Not unsurprising, the competition is dominated by university business school students. Although we advertise to all students, many are still unaware or neglect to consider their interest long-term. For instance, if a person were interested in opening an art studio, music store, or develop a phone application, they are more likely to have a degree related to their business interests rather than a business degree. We intend to spend more effort this spring in playing matchmaker, attempting to connect creative minds to business minds in hopes that students develop unique and fortuitous relationships. We believe that relationships potentially made can generate a high impact learning opportunity for all involved.
RECOMMENDATIONS

There are several things lessons learned throughout the duration of the 3D competition we believe are instrumental in the competition development. For institutions that are interested in developing a competition at their institution, please consider the following recommendations.

First recommendation, make a deliberate attempt for the competition to be bigger than the business school. As indicated in proceeding sections, some of the best entrepreneurial minds are students from creative and technical disciplines. Developing a business takes a wide array of skills, connecting people with different backgrounds helps further develop the entrepreneurial process and generates some pretty cool outcomes.

Second recommendation, find an external economic development agency willing to take part in the competition. We are lucky to have three agencies assisting but it is not completely necessary. Creating a partnership with one agency is satisfactory and opens the door to connection with business leaders in the community and people who can share lessons. Although one-to-one mentorship programs are great, just being able to introduce students to a one-hour workshop with an entrepreneur in a classroom setting is valuable. While having 50 entrepreneurs willing to help is nice and allows for many different programming opportunities, just having a few provides students with the necessary supplemental instruction.

Third recommendation, there is no need to shoot for the moon in your first year. In our first year we had a black tie gala dinner hosted by the Chamber of Commerce. The gala was free to student participants but required a $50.00 ticket for everyone else. The top three participant groups presented and it was a nice evening but way too much. Last year, we traded the gala for the community forum that was free for everyone and that all semifinalists were able to take part in. The community forum generated more attendance, increased participation and learning, and was enjoyed by both participants and attendees. In addition, the forum opened up additional opportunities for donors that was more lucrative than the gala. All of the events should center on one primary purpose, to educate the students.
CONCLUSION

The 3D Challenge has been a fun and exciting addition to our business school. We have found that it really is enjoyable and faculty from all disciplines are willing to assist. The 3D Challenge has been instrumental in connecting the school with the business community and donors. In addition, it gave us a great opportunity to tell our story on impact and engagement in our latest AACSB packet. We know that the results of our competition are real and measurable. We hope to continue to grow the competition and give students a supplemental and co-curricular learning opportunity to feel what being an entrepreneur is all about.

REFERENCES


We studied the age of entrepreneurs at the time when they started companies that made significant contributions to the birth and growth of the micro/personal computer industry; we also looked at their birthdates. The main reason for our study was to test Gladwell’s widely disseminated assertion that paradigm changers in that industry were born between 1953 and 1955 and were 25 years old or younger when they started their ventures. In contrast to Gladwell’s sample of just three companies, Apple, Microsoft, and Sun Microsystems, and the seven entrepreneurs who founded them, our data set comprised 74 companies and 89 entrepreneurs. Unlike Gladwell’s seven entrepreneurs, all of whom were born between 1953 and 1955, our 89 entrepreneurs—including the Gladwell seven—were born between 1917 and 1965 and their average age when they started their ventures was 34.

Paradigm-shifting entrepreneurs in technology-based industries are often in their 20s. Examples are found in many segments including the personal computer industry (e.g., Jobs, Gates, Allen), biotech (Swanson), browsers (Andreessen), search engines (Page and Brin), and social networking (Zuckerberg). A popular Silicon Valley blog even claimed that the peak age for the “hottest technology entrepreneurs” was 26 and stated that some venture capitalists were not funding anyone over 30 years old who was launching a new technology company (Youngentrepreneur, 2007). We dub this the ‘whippersnapper theory’ of entrepreneurship. Gladwell (2008) in his best-seller, Outliers: The story of success, embellished the age conjecture by claiming that both chronological age and actual birthdate are important facets of game-
changing entrepreneurs. He illustrated his supposition with prominent, pioneering entrepreneurs in the microcomputer/personal computer industry: Allen, Bechtolsheim, Gates, Jobs, Joy, Khosla, and McNealy, who were all born between 1953 and 1955. Gladwell’s explanation is that when the microprocessor was introduced in the early-1970’s, computer engineers a few years out of college were working on mini- and main-frame computers; so anyone born before 1953 was locked into the old paradigm.

Implicit in Gladwell’s supposition are several issues that are important in entrepreneurship theory: How important is an entrepreneur’s age? What is the relationship between entrepreneurial activity and age? Does entrepreneurial activity reach a peak and then decline as entrepreneurs grow older? What is the role of higher education in entrepreneurship? How much work experience is optimum before launching a highly innovative business? Should an entrepreneur’s education and experience be in a technology domain or should it be general? The same questions about entrepreneurship need to be asked about creativity because new ventures that shift paradigms are started by extraordinarily creative entrepreneurs.

In this paper we first explore the literature for empirical evidence and theoretical constructs to help answer those questions. We formulate a general proposition and deduce hypotheses and test them empirically on innovative entrepreneurs in the microcomputer/personal computer industry.

This research is important for several reasons. It examines empirically the widely held belief that extraordinary entrepreneurship in technology is enacted for the most part by young people under 30 years old with limited domain-specific experience. In so doing it tests Gladwell’s ‘lucky birthday’ conjecture before it becomes ensconced in entrepreneurial mythology. Our findings have implications for educators, policy makers, would-be entrepreneurs, and investors. For instance, can would-be entrepreneurs have too much formal education? Richard Branson the renowned British entrepreneur who never went to university used to be fond of saying that no one became a self-made billionaire by going to Oxford University. On the other hand, two entrepreneurs, Gates and Zuckerberg, who are much wealthier than Branson went to Harvard… even if they didn’t graduate.
LITERATURE

Baumol, Schilling, and Wolff (2009) studied 513 super-star inventors and entrepreneurs beginning with Johan Gutenberg, born around 1400. Their superstar innovators made “breakthrough” discoveries or started organizations to exploit breakthrough discoveries or both. They categorized them as inventors, entrepreneurs, and innovative entrepreneurs. And they defined breakthrough innovation as the initial idea and its first successful model, which they illustrated with the Wright brothers’ airplane and the ENIAC computer. They classified subsequent improvements—for instance, the progressive steps from the ENIAC to the latest laptops—as incremental innovations. We take a broader view of innovation and classify innovations as ‘paradigm-shifting’ if they made noticeable contributions to moving a paradigm forward. For example, in our study of the early years of the micro/personal computer industry, we look at entrepreneurs whose innovations contributed noticeably to the evolution of microcomputers and personal computers.

We look at factors that explicitly affect innovative entrepreneurs. And we look at how those same factors affect creativity, which implicitly affects innovative entrepreneurs, especially ones who shift paradigms.

Age

“Seldom does a very old person get outside the limits of previous habits. Few great inventions, artistic or practical have emanated from really old persons, and comparatively few from middle-aged… The period from twenty years up to forty seems to be the most favorable for inventiveness (Woodworth, 1921).”

Entrepreneurial activity for the overall population peaks when an individual is between 30 and 35 and then steadily declines (e.g., Reynolds, 2002). This applies approximately to all types of opportunity-pulled entrepreneurs. Sarachek (1978) studied a non-random sample of 187 Schumpeterian entrepreneurs born before 1899 and found that 60% launched their ventures before they were 30. Kahn and Sokolof (1993) studied 160 entrepreneurial inventors from 1790 to 1865 who made “great” inventions; he found that 31.2% were 29 years old or younger when they made their first major invention and 26.3% were between 30 and 35, which put the median age at 30-35.
In modern times, Hsu, Roberts, and Eesley (2007) in an extensive random sample of MIT technology-based entrepreneurs found that the median age of first-time entrepreneurs had gradually declined from about age 40 in the 1950s to 35 in the 1970s, to 32 in the 1980s, and to 28 in the 1990s; part of the explanation for the drop in age in the 1990s may be the entrepreneurial activity stimulated by the Internet bubble when there was a startup stampede. In contrast to the MIT study, Wadhwa, Freeman, Asherman, and Rissing (2008) found that the “vast majority” of U.S.-born entrepreneurs who founded high-tech companies from 1995 through 2005 were older than twenty-five with an average (and median) age of 39 when they embarked on their ventures; but unlike Hsua et al., they did not distinguish first-time entrepreneurs from repeat entrepreneurs. A study of a comparatively small sample of entrepreneurs in Italian technology incubators found the entrepreneurs were 35-36 years old when they started their companies (Colombo and Delmastro, 2002). And Ding and Choi (2008) in a study of university scientists who were granted PhDs between 1974 and 1984 found that 10 years was the peak professional age for founding technology ventures. No doubt some of the entrepreneurs in the above studies were or will turn out to be paradigm-shifting entrepreneurs, but most of them will be ordinary technology entrepreneurs.

Baumol at al. (2009) found that that both inventors and entrepreneurs came overwhelmingly from engineering backgrounds, with the second most common fields being physics and chemistry. Hilditch (1911) presented the chronological ages of 244 chemists when they made 993 significant contributions to chemistry; the curve rises rapidly to a peak at around 35. Somewhat similarly, Wallmark and McQueen (1991) in a study of one hundred major Swedish technical innovations from 1945 to 1980 found that the age of innovators at the time of their innovations peaked between 35 and 40. In a study of 544 Nobel laureates in physics, chemistry, medicine, and economics, Jones (2009a) found that their average age at the time of their great discovery was 38.6. That supreme innovative entrepreneur, Thomas Edison, had his most productive year measured in terms of patentable inventions when he was 35; between 32 and 36 Edison took out 312 patents, which comprised 28% of all his patents over an inventive career that spanned more than 60 years (Lehman, 1953). And Tim (now Sir Timothy) Berners-Lee was 34 in 1989 when he invented and operationalized the World Wide Web.
Education

U.S. Founders of high-tech companies tend to be highly educated. Wadhwa et al. (2008) found that 92% had bachelor’s degrees and 47% had advanced degrees (Master’s, PhD, MD, or JD); 47% had terminal degrees in science-, technology-, engineering-, and mathematics-related fields; and 34% held degrees in business, finance, and accounting. When all the degrees that a founder has are considered, 55% of the founders had at least one degree in science, technology, engineering, or mathematics; some of them, for example, had a bachelor’s degree in engineering and an MBA. The average time from receiving a terminal (highest) degree and founding a company was 16.4 years; the time was shortest for MBAs (13.1 years) and longest for PhDs (20.9 years); it was 16.7 years for those with bachelor’s degrees. The proportion of MIT entrepreneurs with advanced degrees (Master’s or PhDs) has increased from 46.8% in the 1950s to 74.7% in the 1990s (Hsua et al., 2007); and the median time lag from graduation to starting their first company for holders of Master’s and PhD degrees was 5 years in the 1950s, 8 years in the 1960s and 1970s, 10 years in the 1980s, and 8 years in the 1990s. Again as with the age of MIT alumni, the 1990s number was probably lowered by the Internet bubble.

In his study of Nobel Laureates in the physics, chemistry, medicine, and economics, Jones (2009a) found that they had an average of 12.1 years experience after the date of their highest degrees (almost entirely PhDs) when they made their greatest discovery.

Expertise

The innovative entrepreneur Sir Henry Bessemer, who had no connection with the iron and steel industry and knew little or nothing about metallurgy when he invented the steel-making process that revolutionized the steel industry, said this (Jeans, 1884):

“...persons wholly unconnected with particular businesses are the men who make all the great inventions of the age. I find persons wholly unconnected with a particular business have their minds so free and untrammeled to view things as they are, and as they would present themselves to an independent observer, that they are the men who eventually produce the greatest changes.”
Bessemer was reflecting on the frustration he experienced in his attempts to persuade existing steel manufacturers to adopt his revolutionary steel-making process. He found that the existing manufacturers made incremental improvements based on their existing operations in which they had substantial investment and ignored his revolutionary invention. Their indifference to his invention was the reason he founded his own steel manufacturing company. As a result, he became very wealthy, and his investors earned 81 times their original capital. It’s not unlike what happens sometimes in high-technology innovations today. For example, Larry Page and Sergey Brin were unable to interest the portal players of the day in their Google search engine so they decided to set up their own company financed by angel investors and venture capitalists (Google history). Likewise, it is said that Steve Jobs and Steve Wozniak were unsuccessful in attempting to interest their employers, Atari and Hewlett-Packard, in their invention before they launched their own microcomputer company, Apple.

Is the experience of Bessemer, Page, Brin, Jobs, and Wozniak and others typical or are they the exceptions? It raises fundamental questions about what domain expertise is needed to be an extraordinary entrepreneur in a technology-based industry, how much of it is sufficient, and how long does it take to get it? Bessemer’s domains of expertise were invention and entrepreneurship. When he invented his steel-making process at the age of 42, he was already an accomplished innovative entrepreneur with 20 years of experience. He did not have a university degree—which was much more common in the early Victorian era than it is today. Page and Brin were Stanford University doctoral students when they founded Google; their domain was computer science. Neither Jobs nor Wozniak had university degrees when they launched Apple, but they were working for high-tech companies, Atari and Hewlett Packard. Wozniak’s domain was computer engineering. It’s not clear what Jobs’ domain was at the time of Apple’s founding, but with hindsight, we can say that it was a profound understanding of what consumers want when it comes to functional design.

**Technology domain.** Simonton (2000) stated that recent research had amply demonstrated that exceptional talents are less born than made (Ericsson, 1996) and that it takes 10 years of dedication to become world class in any domain. Pioneering work in this area by Simon and Chase (1973) in their study of chess grand masters and other experts found that it requires 50,000 interconnected “chunks” of information accumulated during 10,000 hours of dedicated effort to
become an authority in any domain. There are no short cuts on the road to mastery of a discipline to the point where a person can make noticeable contributions. As Simonton (2000) writing about creativity put it, there is no escaping this laborious apprenticeship. Ideas do not come in isolation from nowhere; rather they arise from years of tireless endeavor in a domain (Hayes, 1989). Careful scrutiny of the experience of some of the Gladwell seven, shows that contrary to Gladwell’s conjecture, they were steeped in experience with mini- and main-frame computers before they launched their micro/personal computer ventures. For instance, Paul Allen’s (2011) resumé when he was not quite 20 years old listed “…familiarity with ten computers, ten high-level languages, nine machine-level languages, and three operating systems.” Allen (2011) proposed that his successes were the product of preparation and hard work. As Thomas Edison famously said, “Genius is one percent inspiration and 99 percent perspiration.”

Pattern recognition is closely related to opportunity recognition by entrepreneurs (Baron, 2006). As the domain knowledge of experts increases, the more patterns they see and the more they understand about how different ideas are connected; and as experts become better at recognizing patterns they are more likely to find new interconnections (Harlow, 1959; Dosi, 1988). A good example of this is the invention of the microprocessor by Ted Hoff in 1968, which subsequently triggered the microcomputer industry in 1974. Hoff, who was employee number 12 at the newly launched Intel, saw the connection between the architecture of Digital Equipment Corporation’s PDP8 minicomputer and the calculator processor that he was planning to put on a chip. Paul Allen (2011) said that his own moments of insight came from combining two or more elements to galvanize a new technology and bring breakthrough applications to a potentially vast audience, as when a few months after Intel introduced the 8008 microprocessor he asked himself “what if it could run a high-level language, the essential tool for programing a general purpose computer?”

The downside to this is that experts can know so much that seeing patterns and their interconnectedness becomes routine and they tend to solve problems incrementally in a standardized manner rather than seeking creative solutions (Luchins, 1941; Mayer, 1995). They draw on their repertoire of methods that worked for them in the past when they saw similar patterns (Gick and Lockhart, 1995). Thus too much knowledge in some circumstances inhibits creativity (Wertheimer, 1945/1959). It is the underlying reason for Gladwell’s
argument that engineers get locked into the paradigm in which they are working; add to that the pressures from the company to stay within the extant paradigm and imagination is stifled (McLaughlin, 2001). It explains why Bessemer found that the engineers in the existing iron and steel companies continued to make incremental improvements to the old manufacturing process instead of seeing the advantages his entirely different process. Or why the existing portal companies were indifferent to Page and Brin’s overtures. It also explains why companies fail to embrace what Bower and Christensen (1995) called disruptive technologies that threaten to displace the existing technology. There are numerous examples of this throughout many industries. For example, with the advent of semiconductor memory, scientists and engineer became increasingly adept at keeping hard-drive memory ahead of semiconductor memory both in technical performance and price (Bygrave, Lange, Roedel, and Wu, 2000). Now almost three decades after it was introduced, semiconductor memory in the form of flash cards is seriously challenging magnetic memory (hard drives) for supremacy in the computer mass storage space.

**Entrepreneurship domain.** Peter Drucker (1985)—one of the legendary management philosophers of all time—wrote, “The entrepreneurial mystique? It’s not magic, it’s not mysterious, and it has nothing to do with genes. It’s a discipline. And like any discipline, it can be learned.” And presumably if it can be learned it can be taught. Nonetheless, there has been a good deal of skepticism about what makes entrepreneurship a separate discipline and whether that can be taught (e.g., Matlay, 2006). However, a quarter of a century after Drucker made his proclamation, there is convincing empirical evidence that entrepreneurship can indeed be taught effectively (e.g., Lange, Marram, Jawahar, Yong, and Bygrave (2011); but the question of the role of genes in the making of an entrepreneur is still not settled (Nicolaou and Shane, 2009).

The domain of entrepreneurship is not nearly as well-defined as domains in the natural sciences and engineering, which raises the question of what an entrepreneur needs to know. A partial answer can be found in the content of the most popular textbooks dealing with the starting a business (e.g., Bygrave and Zacharakis, 2014, Timmons, 2008, and Kuratko, 2013). But starting a business in the USA is easy; it’s growing a fledgling venture into healthy adulthood that’s so hard; and that is where educators come up short as there is not one textbook dealing exclusively with how to grow a new venture. vi
We cannot specify how much experience it takes to become an expert entrepreneur because we are unaware of any empirical studies into experience in the entrepreneurship domain comparable to ones we have cited for the technology domain. But we do know that venture capitalists recognize that neophyte high-tech entrepreneurs, especially very young ones, do not have enough experience, so they often recruit seasoned entrepreneurs to guide them. An example is Google, where Eric Schmidt was hired as CEO to guide Page and Brin. Then after 10 years at the helm, Schmidt announced he would be stepping aside to allow Page to take over the reins as CEO in 2011.

Lazear’s (2004) theory, which he tested on a sample of Stanford Business School alumni, indicated that the breadth of the student’s curriculum is an important factor in entrepreneurship, implying that entrepreneurs need to be generalists rather than specialists—the Jack-of-all-trades (‘but not master of none?’) theory of entrepreneurship. It is reminiscent of what Steve Jobs (2006) said, “I was very lucky to have grown up in this industry. I did everything coming up—shipping, supply chain, sweeping floors, buying chips, you name it. I put computers together with my own hands. As the industry grew up, I kept on doing it.”

We should keep in mind that Jobs was the entrepreneur and Wozniak was the inventor at Apple, and that when Apple was still a fledgling they hired a seasoned entrepreneurial executive, Armas Markkula, Jr., to guide them in raising money and growing the business. Thus Jobs honed his entrepreneurial and management skills under the guidance of a Silicon Valley veteran. As Bygrave (1994) wrote, “Perhaps the ideal combination is a beginner's entrepreneurial mind with the experience of an industry veteran. A beginner's mind looks at situations from a new perspective, with a can-do spirit.”

Also, we should note that the best known Stanford entrepreneurs just like their MIT counterparts are educated in the science and engineering schools not the business school from which Lazear (2004) drew his sample, so specialist expertise in the technology domain is more relevant initially than their general expertise in the entrepreneurship domain.

In the next section we will look at creativity because it is a crucial ingredient in the attributes of both entrepreneurs and innovative entrepreneurs who shift paradigms.
Creativity

Entrepreneurship and innovative behavior are associated with creativity (Amabile, 1996; Nyström, 1993). And according to Ward (2004) creative individuals are more likely to behave entrepreneurially. Yar Hamidi, Wennberg, and Berglund (2008) found that high scores on a creativity test correlated positively with entrepreneurial intentions of a sample of 40 students in three different graduate entrepreneurship programs in Sweden. Some might even say that every individual who starts a new business is creative. But there are degrees of creativity; for example, the creativity involved in starting a small bricks-and-mortar bookstore is tiny compared with the creativity required to start the first online bookstore. In this paper we are concerned with creativity that made a noticeable difference in the micro/personal computer industry, which we argue was extraordinary creativity not ordinary creativity. The extraordinary creativity of innovative entrepreneurs who shift paradigms is multi-dimensional as it involves technological innovation, new venture creation, and sometimes other forms of innovation such as new functional designs, new channels of distribution, and guerilla marketing.

Most of the psychological research on creativity has dealt with people in art, literature, and science, but not in entrepreneurship. We believe that most of the findings from that research also apply to extraordinary innovator entrepreneurs. If there is a difference, it probably lies in motivation, because financial reward is definitely a major motivator in the creation of almost every for-profit venture, whereas it is seldom a motivator for a beginning artist or a young poet.

In this section we will rely substantially on Simonton’s (2000) excellent review of the psychological research into creativity. He points out that progress has taken place on four fronts: cognitive processes, personal characteristics, life span development, and social context.

**Cognitive processes.** The mental processes involved in the creative act include expertise, insightful problem solving, and creative cognition. It must be stressed that creativity requires domain-specific expertise, which we have already discussed. To a certain extent, creativity demands a level of systematic training and practice comparable to that of domain expertise (Hayes, 1989; Simonton, 1991b). Creativity comes to the prepared mind—not out of the blue. But
perhaps the mind can be over-prepared; Einstein, for instance, thought that formal training inhibited imagination (Gardner, 1993).

**Personal characteristics.** Two important personal attributes that correlate with creativity are intelligence and personality. Empirical evidence, some dating back as far as Galton (1869) and Terman (1925), indicates a correlation between intelligence and creativity. But beyond a certain level, higher intelligence as measured by standard IQ tests makes very little difference (Barron & Harrington, 1981). It is fascinating to note the Richard Feynman’s high school records indicate that his IQ was around 125, which seems rather modest for one of the most imaginative physicists who have ever lived. On the other hand, his domain intelligence was as high as it could be; he obtained a perfect score on the graduate school entrance exams to Princeton University in mathematics and physics — an unprecedented feat — but did rather poorly on the history and English portions.

Creativity is as much dispositional as intellectual (e.g., Dellas and Gaier, 1970). The creative personality tends to be independent, non-conformist, and unconventional; has a wide range of interests, welcomes new experiences; has a more conspicuous behavioral and cognitive flexibility; and has more risk-taking boldness (e.g. Martindale, 1989; Simonton, 1999a). Some of those attributes are also typical of entrepreneurs.

Modern behavioral genetics appears to confirm Galton’s (1869) notion that exceptional creativity might have genetic roots (Lykken, 1998; Simonton, 1999c; Waller, Bouchard, Lykken, Tellegen, and Blacker, 1993). According to Simonton (2000) there is no doubt that certain intellectual and dispositional traits required for creativity display respectable heritability coefficients (Bouchard, 1994; Eysenck, 1995). It is becoming increasingly clear that both nature and nurture are involved a creative personality (Simonton, 2000). That being the case, it is hard not to believe that genetics plays a role in the creative personality of extraordinary innovative entrepreneurs.

**Life span development.** Creative activity is curvilinear with age; it peaks in an individual’s 30s and then declines. The life cycle effect has been investigated from many aspects including parental influences, education from kindergarten through tertiary levels, birth-order, parent loss, childhood poverty, and mentors. As Simonton observed perhaps the most striking finding is that exceptional
creativity does not always emerge from the most nurturing environments (e.g., Eisenstadt, 1978; Goertzel, Goertzel, & Goertzel, 1978; Simonton, 1984).

Creative potential seems to require diversifying experiences that help weaken the constraints imposed by conventional socialization. It also requires challenging experiences that help strengthen a person's capacity to persevere in the face of obstacles (Simonton, 1994). These developmental inputs may be especially important for artistic forms of creative behavior, but they are also manifest in entrepreneurial behavior, especially overcoming a disadvantaged childhood (e.g., Sarachek, 1978).

**Social context.** Until the late 1970s creativity was seen as taking place in the mind of one individual; it was researched from the perspective of the personal characteristics of the individual. Today, psychologists recognize that creativity takes place in a social setting (e.g., Harrington, 1990). According to Csikszentmihalyi’s (1990) systems view creativity has three components, the individual, the domain and its set of theories, concepts, and methods, and the field that comprises the persons working in the domain. From this point of view an act is not creative until those in the same field recognize it as making an original contribution to the paradigm (e.g., Gates and Allen’s development of BASIC that ran on the Intel 8088 microprocessor.)

Individuals create things for personal joy and sometimes for the recognition that it brings. But in some social settings there may be extrinsic motivation such as financial rewards (e.g., Amabile, 1996). There is no denying that personal gain is a prime motivator of innovative entrepreneurs in Silicon Valley.

Simonton (1984) developed a theoretical model that predicts the curvilinear relationship between creative activity and age. His theory, however, indicates that creativity may be largely the intrinsic outcome of cognitive processes rather than the extrinsic effect of sociological influences. His theory also predicts that professional age is better than chronological age in explaining creative activity.

**Summary**

Direct evidence on innovative entrepreneurs augmented with indirect evidence on creativity clearly indicates that extraordinary innovative entrepreneur activity peaks somewhere between 30 and 40 years of age. The age
depends on the amount of higher education: bachelor’s entrepreneurial activity peaks at an earlier age than master’s and PhD’s. Those with MBA degrees generally become entrepreneurs at a somewhat younger age than their counterparts with engineering and science degrees. It is in accord with Simonton’s (1984) theory which posits that professional age is a better predictor than chronological age.

THEORY

For the research reported in this paper we examined extraordinary innovative entrepreneurs who made noticeable contributions in the microcomputer industry from 1973 to 1983. So we are not developing a general theory that predicts startup entrepreneurs’ ages; instead we are developing a special grounded conceptual framework from which we can deduce hypotheses for the age of extraordinary innovative entrepreneurs who shifted the micro/personal computer paradigm in its first decade.

As we have noted there is very convincing empirical evidence that the age of extraordinary innovative entrepreneur activity reaches a peak between 30 and 40. We make the following proposition:

\[ P1: \text{Innovative entrepreneurs who shift paradigms are most prevalent in the 30-40 age group.} \]

Our study covers approximately 10 years in the 1970s and 1980s when the MIT study found that the median age of their technology entrepreneurs fell from 35 to 32. Taking the findings of our literature review into consideration, we think it is likely that the age of the innovative entrepreneurs in the microcomputer industry reflects the MIT pattern. That leads to the following hypothesis:

\[ H1: \text{Innovative entrepreneurs who shifted the micro/personal computer industry in the period 1973-1983 were most prevalent in the 30-35 age group.} \]

It is almost—but not quite—self-evident that first-time extraordinary innovative entrepreneurs are younger than those who are starting their second venture. But it may not always be the case, because some entrepreneurs start their first business when they are too young and lack adequate expertise; their first business turns out to be a mediocre ordinary business or an outright failure; in
the process they gain expertise, which includes learning from their mistakes, and subsequently start a second business (Minniti and Bygrave, 2001), which is some cases is extraordinary. Bill Gates, for example, was 17 when he and Paul Allen started Traf-O-Data; Gates was 19 when they founded Microsoft. (Allen 2011). Nevertheless, we propose the following hypothesis:

**H2:** First-time innovative entrepreneurs who shifted the micro/personal computer industry in the period 1973-1983 were younger than those who were starting their second business.

It is clear that the higher the level of the terminal degree, the older is the inventor entrepreneur.

**H3:** Innovative entrepreneurs with Master’s or PhDs who shifted the micro/personal computer industry in the period 1973-1983 were older than those with or without bachelor’s degrees when they started their businesses.

Expertise is crucial for extraordinary innovative entrepreneurs; and we believe that those who moved the microcomputer industry were most likely to have gotten that experience in the extant computer domain. That leads to H4.

**H4:** The most prevalent expertise of innovative entrepreneurs who shifted the micro/personal computer industry paradigm in the period 1973-1983 was computer-related.

Our final hypothesis bears directly on Gladwell’s ‘lucky birthday’ conjecture:

**H5:** The most prevalent birth dates of innovative entrepreneurs who shifted the microcomputer industry in the period 1973-1983 were from 1938 to 1953 (based on a most-prevalent age of 30 - 35).

**METHOD**

First we identified paradigm shifts in the microcomputer industry including hardware and software. Perhaps the best indicator of an emerging segment is that it cannot be classified into an existing four-digit SIC because there is a substantial lag before a new segment is assigned a new SIC number.
However, it says nothing per se about the importance of the segment; that is, whether or not it will be a major paradigm-shifter. Another indicator of an emergent sector is seed-stage venture capital investment. We used longitudinal analyses of the number and amount of seed- and early-stage venture capital investments to identify major paradigm-shifting new segments. Within each segment we identified pioneering entrepreneurs. The segments include desktop microcomputers, portable microcomputers, operating systems, floppy drives and hard drives, word processing, spreadsheets, graphics, and communications. The first commercial microcomputer was introduced in 1975 and the first IBM personal computer was introduced in 1981; it was estimated that 10 million PCs were in use in the USA by 1983. We examined paradigm-shifting independent startups that were founded in the microcomputer industry between 1973 and 1983. We chose 1973 as the earliest date so as to include startups such as Shugart Associates, which developed floppy drives that were crucial components of microcomputers, and Digital Research, which developed one of the first operating systems; and 1983 for the latest date because by then most of the important paradigm-shifting technologies were commercially available.

**RESULTS AND DISCUSSION**

The most important justification for our study was to see if Gladwell’s supposition had underlying scientific validation before it became entrenched in entrepreneurship folklore. In contrast to Gladwell’s sample of just three companies, Apple, Microsoft, and Sun Microsystems, and the seven entrepreneurs who founded them, our data set comprised 74 companies and 89 entrepreneurs. Unlike Gladwell’s seven entrepreneurs, all of whom were born between 1953 and 1955 and were 25 or younger when they started their businesses, our 89 entrepreneurs— including the Gladwell seven—were born between 1917 and 1965 (Figure 1); 84% of them born before 1953, and 87.5% were 26 or older when they founded their paradigm shifting ventures (Figure 2). The age of our micro/personal computer entrepreneurs mirrors the demographics of entrepreneurs in general (e.g., Reynolds, 2002).
In our sample, the average age of founders when they started their companies was 34.2 (median 34) and the most prevalent age group was 30-35; so we confirm H1. And their average birthdate was 1944 (median 1944) with 63.7% being born between 1938 and 1953; so we confirm H5. Hence, Gladwell’s supposition is not generalizable throughout the micro/personal
computer industry. What’s more H4 is confirmed, so his argument that paradigm-shifting technologies are commercialized by “outsiders” who are not locked into the old paradigm does not hold up in our sample. As a matter of fact, although some of Gladwell’s seven entrepreneurs were “outsiders,” others were ‘insiders’ steeped in the old paradigm of mini- and main-frame computers. Paul Allen, for instance, was an ‘insider’ working in the mini-computer division of Honeywell when he and Bill Gates founded Microsoft. We have not yet tested H2 and H3.

We conclude that Gladwell artfully selected a convenient sample that confirmed his supposition; why, for example, did he exclude Apple cofounder Steve Wozniak who was born in 1950? Had Gladwell expanded his data set he would have found other contradictory cases. Here are a few notable examples: Ed Roberts whose company MITS developed the Altair, which is usually regarded as the first commercial microcomputer, was born in 1941 and was 34 in 1975 when the Altair was introduced. Alan Shugart, whose companies introduced the first 5 ¼” floppy drive and subsequently the first hard drive for microcomputers, was born in 1930 and was 43 when he founded Shugart Associates in 1973. Adam Osborne, whose company introduced the first transportable microcomputer, was born in 1939 and was 40 in 1979 when he founded the company bearing his name. Gary Kildall, was 31 in 1974 when he founded Digital Research, which was the pioneering operating system for microcomputers. VisiCalc, the very first “killer app,” which turbocharged the emerging personal computer industry, was introduced by Software Arts; a company founded in 1979 by Dan Bricklin and Robert Frankston when they were 27 and 29 years old. Bricklin, born in 1951, previously worked at Digital Equipment Corporation, the leading minicomputer company at that time, and Frankston, born in 1949, had extensive experience with min- and main-frame computers. Robert Metcalfe, co-inventor of Ethernet, was born in 1946 and was 33 when he founded 3Com to commercialize his invention. And the chip that triggered the microcomputer revolution was introduced by Intel, a company founded in 1968 by 39 years-old Robert Noyce and 40 years-old Gordon Moore—both veterans of the semiconductor industry.

**CONCLUSION**

Our research demonstrates that the age distribution of paradigm-shifting entrepreneurs in the micro/personal computer industry was no different from the
age distribution in entrepreneurs in general. Although the Gladwell seven were 25 years old or younger, they were less than two standard deviations younger than the mean age, 34, of our 89 entrepreneurs; thus, they were not outliers on the age curve. Even the youngest of the Gladwell seven, Bill Gates, who was 19 when he cofounded Microsoft, fell just short of two standard deviations from the mean. We cannot resist pointing out that Jan Koum was 37 and Brian Acton was 34 in 2009 when they founded Whatsapp, the paradigm-shifting social media company that was acquired by Facebook in 2014 for $19 billion; both had at least 10 years professional experience working in the Internet/Web domain before they started Whatsapp.

Lange, Marram, and Bygrave (2011) made a comprehensive study of Babson College's alumni entrepreneurs; among other things, they found that the best performing new ventures were started by alumni with about 10 years of professional experience after graduation—which according to the authors indicates that the 'whippersnapper theory' gives a misleading view that in entrepreneurship youth trumps experience.

Unfortunately, the 'whippersnapper theory,’ which is so persistent in Silicon Valley, is leading to what some entrepreneurship educators and researchers regard as misguided schemes that encourage teenagers to become entrepreneurs. For instance in 2011, Peter Thiel, the co-founder of Pay-Pal and an early investor in Zuckerberg’s Facebook, paid 24 teenagers and 20-year-olds $100,000 each to quit school and embark on their technology-based entrepreneurial ventures with the potential to change the world. Vivek Wadhwa, director of research at Duke University's Center for of Entrepreneurship, harshly criticized Thiel's program for sending what he sees as the message that anyone can be Mark Zuckerberg (Daily Mail, 2011). According to Wadhwa, “Silicon Valley lives in its own bubble. It sees the world through its own prism. It's got a distorted view. All the people who are making a fuss are highly educated. They're rich themselves. They've achieved success because of their education. There's no way in hell we would have heard about Peter Thiel if he hadn't graduated from Stanford.”

It’s time to discard the ‘whippersnapper theory’ of entrepreneurship that has been popularized in the media (e.g., Youngentrepreneur, 2007) because it does not work for entrepreneurs in general. But we wonder why the ‘whippersnapper theory’ is so prevalent? Is it because some highly visible long-term successes such as Apple, Dell, Google, and Microsoft were started by entrepreneurs mostly under 25 years old? Do some very young entrepreneurs
have special attributes that enable them to emerge as the winners over the long haul? For instance, could it be that they have higher energy, more resilience, and greater persistence in the long run? It’s a topic well-worth investigating because it has important implications.

REFERENCES


Gick, M. L. and R. S. Lockhart, 1995, “Cognitive and Affective Components of Insight,” in


Jobs, S. *Business Week*, February 6, 2006. p. 66


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1 An earlier version of this paper was presented at the 2011 ICSB Annual Conference. sbaer.uca.edu/research/icsb/2011/52.pdf
The term “personal computer” was first introduced in the early 1980s with the introduction of the IBM personal computer before that they were commonly known as microcomputers.

Gladwell omitted Wozniak, who co-founded Apple with Jobs. Wozniak was born in 1950.

He seems to have overlooked famous Oxford entrepreneurial alumni that include among others Paul Getty (Oil), Rupert Murdoch (Media), Cecil Rhodes (Gold and Diamonds), and Wallace DeWitt (Readers Digest).

We use the adjectives ‘ordinary’ and ‘extraordinary’ to distinguish replicative from innovative entrepreneurs. Kuhn (1962) in his seminal book on scientific revolutions used the adjectives “normal” and “revolutionary” to distinguish science that makes incremental contributions to an extant paradigm from discoveries that shift a paradigm. We chose not to follow Kuhn’s classification scheme because most entrepreneurship that helps to move a paradigm forward is not revolutionary in the Kuhnian sense. Here are two examples of Kuhnian-like revolutions in entrepreneurship that are ‘extraordinary’ innovations in our simple taxonomy: The World Wide Web was invented and implemented by Tim Berners-Lee; it was a revolutionary innovation, which triggered the revolution in communications. Similarly, the microcomputer revolution was triggered by Ted Hoff’s revolutionary invention of the microprocessor. (Baumol et al. (2009 would classify Berners-Lee’s and Hoff’s inventions as breakthrough innovations.)

Some schools, but comparatively few, have a course dealing with how to grow new businesses. For example, Babson College has a course, Managing Growing Businesses.

It is also an excellent example of what venture capitalists call value-added.
THE EFFECT OF PRO-ENTREPRENEURIAL ARCHITECTURES AND RELATIONAL INFLUENCES ON INNOVATIVE BEHAVIOR IN A FLAT ORGANIZATIONAL STRUCTURE

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ABSTRACT

This research seeks to present and empirically examine a model of CE in a “flat” organizational structure. Building on the premise that pro-entrepreneurial architectures (PEA) – i.e., management support, work discretion, rewards, time availability for innovative activities and ease of development of cross-functional teams – facilitate innovative behavior, we contend that relational influences – i.e. leader-member exchange (LMX) relationships – also fundamentally impact innovative behavior, with creative self-efficacy (CSE) playing an mediating role for each. Tests of these relationships in a “flat,” IT company with the potential for innovation throughout the organization confirm the complementary role of LMX relationships but suggest the role of CSE may be more complex than postulated.

Key Words
Corporate entrepreneurship, creative self-efficacy, leader-member exchange, innovation

INTRODUCTION

Organizational citizens working in the high-tech infused IT industry are faced daily with a myriad of choices in which innovative solutions are sought. Thus, what precipitates individuals to act on the belief they can contribute to the innovative capacity of their organizations is a key question of interest. The Corporate Entrepreneurship (CE) literature has largely considered this question through the lens of cultural ubiquity, assuming that management efforts to support innovation through pro-entrepreneurial architectures (PEA) such as monetary rewards, time, and decision-making discretion (e.g., Hornsby, Kuratko, and Zahra, 2002) provide sufficient impetus for all organizational members. We
believe this is not always the case and seek to unravel the unique psychological mechanisms that give rise to one’s “impulse to act” (Krueger, 2000). Why it is some people are likely to engage in inherently risky, innovative behavior whereas others choose “safer” behaviors remains incomplete at least in part because CE theory has largely been developed in primarily hierarchical, top-down settings. Moreover, attempts to understand the nuances of individual innovation by primarily focusing on hierarchy tends to lead to an over-structuralized theoretical view of individuals’ intentionality (Hindle, Klyver, and Jennings, 2009) that underplays the potential motivating effects of relational influences on an entrepreneurial mindset. Our primary contribution to the literature is to develop and empirically investigate the premise that pro-entrepreneurial architectures (PEA) – i.e., employee perception of management support, work discretion, rewards, time availability for innovative activities and ease of development of cross-functional teams – in conjunction with relational influences – i.e. leader-member exchange (LMX) relationships – impact innovative behaviors. Further, creative self-efficacy (CSE) is postulated to have a mediating effect on the relationship between the perceived influences of PEA and LMX on innovative behaviors; the latter defined as percentage of time spent innovating inside and outside normal working hours. Framed pragmatically, organizational inner-workings might be intentionally constructed for innovation through building environments that support vision and creativity in concert with committed dyadic relationships between organizational citizens. Such an arrangement might presumably increase employees’ CSE, defined as an individual’s cognitive estimation of his/her abilities to produce creative outcomes (Tierney and Farmer, 2004), self-motivate, garner resources and experience autonomy over desired outcomes (Wood and Bandura, 1989), and ultimately impact innovative behaviors and organizational viability in a competitive and dynamic marketplace. Finally, we posit that investigating CE factors in a flat (rather than multi-layered) organizational structure might benefit CE research through examining the relational influences of Leader-Member Exchange or LMX and Creative Self-Efficacy or CSE variables in a context that allows for closer interaction and alignment with the CEO’s vision.

There is a small, emerging body of empirical evidence to support the conceptual underpinning of our position. For example, middle-managers arguably play important shepherding (i.e., championing, nurturing, and guiding) roles (Kuratko, Ireland, Covin, and Hornsby, 2005), cultivating the necessary individual volition to undertake innovative endeavors. Yet research focusing
explicitly on the role and quality of the relationship between leaders and followers in corporate entrepreneurial activity remains relatively sparse (Tierney and Farmer, 2004), despite evidence suggesting organizational-level factors are not equally motivating, supportive to all, or effective across corporate infrastructures (Covin and Slevin, 1988; Hornsby, Kuratko, Shepherd and Bott, 2009).

Of particular interest to us in the entrepreneurial leadership literature is the noticeable shift from the transactive nature of leader behavior to one with a transformational quality, a shift which suggests that visionary scenarios are used as a means to assemble and mobilize a “supporting cast” of participants committed to the vision and exploitation of strategic value creation (Gupta, MacMillan and Surie, 2004; Shane and Venkataraman, 2000). El Tarabishy, Solomon, Fernald, and Sashkin (2007) propose that the transformational leadership components of visionary leadership, creative leadership, and principled leadership are positively associated with a CEO’s entrepreneurial orientation – that is, the CEO’s ability to align entrepreneurial goals with the actions of followers. Thus, entrepreneurial leadership may be viewed as a transformational means through which leaders may support and nurture an intentional, creative mindset necessary to fully embrace CE activity (Ling, Simsek, Lubatkin, and Viega, 2008). Transformational leadership behavior may function through high quality dyadic relationships between leaders and followers, thereby acting as an additionally important influence on innovative behaviors, alongside the structural design of PEA.

Finally, CSE is an important psychological mechanism that may empower organizational participants to act as “motivated tacticians” (Sorrento and Roney, 2000) seeking to utilize creative thinking skills to impact perceived entrepreneurial activities in a corporate context. CSE from this perspective becomes an action-based construct that fosters organizational change even in non-supportive conditions (Brunsson, 1985).

In this study, we examine the independent and combined influence of pro-entrepreneurial architectural factors, dyadic relationships between leaders and followers, and creative self efficacy on innovative activity within the context of a flat organizational structure. Percentage of time spent brainstorming and/or designing new products is defined as an innovative behavior and vital forerunner of bona fide innovations. Our central argument is that CE is an intentional activity pursued through the volition of individuals within the organization who believe they possess the personal creative ability and the support of an
organizational environment, both broadly and more proximate to their everyday efforts, fundamental to bringing creative and innovative ideas to market. When these conditions exist, there is a higher probability that individuals will begin thinking about and experimenting with innovative ideas.

We test these hypotheses in a small high-tech firm characterized by a “flat” organizational structure with the potential for innovation throughout the organizational infrastructure. While previous research has primarily focused on overhauling or renewing organizational systems, policies and environments, we estimate that relational, personal variables such as LMX and CSE will emerge as influential factors in the promotion of CE in “flat” organizations.

This research makes three contributions to the CE literature. First, we present and explore relationships in a model of CE in a small, “flat” organizational structure. This is a noted contrast from sustained regeneration efforts in multi-layered complex infrastructures. Next, we posit and examine LMX as a form of transformational leadership with potential to work in tandem with PEA to influence innovative activities. Finally, we investigate a personal influence variable, CSE, as an important psychological mindset lending impetus to act and exploit innovative opportunities.

THEORY AND HYPOTHESES

We define corporate entrepreneurship as a deliberate activity to infuse organizational structures, systems and policies with creative intent and innovative efforts, generally pursued as a result of strategic posturing by the CEO in dialogue with the top management team (Dess, Lumpkin, and McGee, 1999; Sharma and Chrisman, 1999). This definition derives from a strategic conceptualization of CE as the embodiment of entrepreneurial behavior that, in order to be successful, requires a supportive culture and resources towards the end of value-creating innovations (Burgelman, 1984; Jennings and Young, 1990). Thus, for organizations to enjoy the fruit of entrepreneurial endeavors potential entrepreneurs must perceive and exploit opportunities; they must experience an impulse to act (Krueger, 2003).
Pro-Entrepreneurial Architectures

Consistent with this perspective, CE researchers have targeted the relationship between organizational factors, the collection of which can be seen to a pro-entrepreneurial sense of architectures, and the innovative activities of individuals within organizations (e.g., Morris and Jones, 1995). Specifically, these studies have sought to understand and map the relationship between internal conditions for CE and how said conditions are perceived by individuals within the company and reflected in their entrepreneurial behaviors. Importantly, these pro-entrepreneurial architectures (structures and processes) discussed below have been captured by researchers (Kuratko, Montagno and Hornsby, 1990) to create an individual-level measure for CE.

A review of this literature suggests that five major facets, or dimensions of organizational antecedents, are consistently associated with corporate entrepreneurial activity (Kuratko et al, 1990). These dimensions are: 1) Top Management Support, or the willingness of top-level managers to facilitate and promote entrepreneurial behavior (Hisrich and Peters, 1986; Quinn, 1985; Sykes, 1986) including the championing and ideas and projects and provisions for resources; 2) Work Discretion/Autonomy, or the extent to which one perceives that the organization tolerates failure, is willing to delegate decision authority and responsibility, and provides decision making latitude to managers and frees them from excessive oversight (Hisrich and Peters, 1986; Sathe, 1985); 3) Time Availability, or top management efforts to evaluate and adjust workloads in order to provide time needed for innovation (Hisrich and Peters, 1986; Sathe, 1985; Sykes, 1986); 4) Rewards, or a reinforcement system based on performance where significant achievements are highlighted and the pursuit of challenging work is encouraged (Sathe, 1985); and 5) Organizational Boundaries, or clear explanations from top management regarding organizational outcome expectations, as well as the development of mechanisms for evaluating, selecting and using innovations (Hisrich and Peters, 1986; Sathe, 1985). While conceptually clear, subsequent research has shown some inconsistency in the number of dimensions. Most notably, in contrast to strong support for the first four factors, Hornsby, Holt, and Kuratko (2008) observed decreased evidence for the fifth dimension of organizational boundaries, a finding that we believe reinforces the stated need here for more systematic investigation into CE activities, particularly in structurally flat organizational settings. Further, because
innovation is a lengthy process, the significance of engaging in creative activity beyond designated work times is well documented in company success stories. Organizations such as Google, Facebook, and Apple, for instance, expect that employees engage in ample innovative tasks on their personal time and seek to draw upon the creative activity that goes on in the lives of their employees outside the standard work setting and times.

This expectation for work logged on personal time has not always been a desirable one from the perspective of employees seeking a meaningful work-life balance. Company norms for working beyond regularly scheduled office time has nearly always been a zero-sum game for employees (Friedman, Christensen and DeGroot (1998). Expectations that employees work long hours to ensure sustained productivity often times means that personal time is markedly reduced giving rise to job dissatisfaction and diminished life fulfillment. However the demographic shift towards more women in the workplace alongside a need for a committed work force, has illuminated awareness of work-life issues. One trend that could potentially alleviate this issue (while maintaining high productivity) is lacing a higher value on productivity than face time regarding work activities and processes. Increasingly, companies are advocating telecommuting and working from home offices, thereby allowing employee autonomy to structure tasks in alignment with company deadlines and goals. This arrangement effectively changes company culture to one that celebrates autonomy and time, both of which are critical for pursuing innovative activities. Hence, we reason PEA will influence employee innovative efforts both inside and outside the organization.

**H1a** A pro-entrepreneurial organizational architecture is positively associated with the amount of time pursuing innovative activities inside the organization.

**H1b** A pro-entrepreneurial organizational architecture is positively associated with the amount of time pursuing innovative activities outside the organization.
Leader-Member Exchange

As previously noted, transformational leadership relies on visionary, charismatic leaders who inspire, direct and provide challenging assignments to followers. This perspective, in contrast to a transactional leadership style emphasizing rewards and strict supervisory control, is closely attuned to the high quality dyadic nature of LMX relationships. We argue that leader-member exchange theory (LMX) (Dansereau, Graen, and Haga, 1975; see also Gerstner and Day, 1997; Graen and Cashman, 1975; Graen and Uhl-Bien, 1995; Liden, Sparrowe and Wayne, 1997 for reviews) offers a highly relevant approach through which to view the leadership role in CE due to the accompanying relational aspect of its inherent dyadic nature.

LMX is grounded in the premise that leaders develop unique dyadic relationships of varying quality among subordinates within work group situations. Some work group members are treated as ‘trusted assistants’ (high quality LMX) who receive and in turn provide a variety of positive exchanges with their managers including more challenging job assignments, increased leader attention and support, higher levels of dyadic loyalty and trust, more time and energy spent toward work by subordinates, and greater organizational citizenship behavior (Gerstner and Day, 1997; Liden et al., 1997). By contrast, others are treated as ‘hired hands’ (low quality LMX) (Dansereau, et al., 1975) where the lower quality relationships are characterized by lower levels of interaction, trust, and support (Dansereau et al., 1975; Dienesch and Liden, 1986; Graen and Cashman, 1975) and by more traditional supervision based on formal status and strict adherence to rules of the employment contract. As a result, we posit that individuals in lower quality LMX relationships often perform their jobs without providing discretionary energy or effort often associated with CE activity. By comparison, high quality LMX relationships are associated with the presence of the characteristics of organizational entrepreneurial activity identified by Kuratko et al. (1990) in many respects.

Specific to our model, LMX theory provides an approach to leadership that offers a great deal of understanding regarding the dynamic forces behind CE behavior. As noted above, creative self-efficacy is an important element in the exploitation of entrepreneurial activity. Prior research suggests supervisors are a rich and powerful source for vicarious learning and role modeling or mentoring, two dynamic relational influences for the nurturing of self-efficacy (Bandura, 1986) and creativity (Amabile and Gryskiewicz, 1987; Tierney and Farmer,
As role models and coaches, supervisors that encourage creativity endeavors through trust, confidence-building and praise, instill attitudes and expectations in employees that they are capable of said endeavors (Deci and Ryan, 1985). It is our contention that high quality LMX relationships offer a persuasive effect on innovative activities during normal working hours. Moreover, we contend that because such relationships have the potential to be positively associated with proactive behavior beyond that which may be formally expected (Gerstner and Day, 1997), the positive influence of high quality LMX relationships on individuals’ innovative activity will extend beyond normal working hours. Stated formally:

**H2a** A high quality leader-member exchange relationship is positively associated with the amount of time pursuing innovative activities inside the organization.

**H2b** A high quality leader-member exchange relationship is positively associated with the amount of time pursuing innovative activities outside the organization.

**Creative Self-Efficacy**

While the unique dyadic relationship of LMX may offer tutelage and tangible support of innovative behaviors, creative self-efficacy (CSE) may empower organizational participants to act as ‘motivated tacticians’ (Sorrentino and Roney, 2000), seeking to develop and utilize their creative thoughts in concrete entrepreneurial activity (Schumpeter, 1934). Put differently, CSE might inspire employees to proactively exploit opportunities when such thoughts are believed to be consistent with overtly articulated CE goals and objectives. In this sense, the notion of creative self-efficacy may be considered to be the foundation for an action-based ideology fostering organizational change that may otherwise seem irrational within the existing organizational context (Brunsson, 1985) because it seeks to produce or “construct” new forms of opportunity that may not be fully consistent with the organization’s existing resource base (Wood and McKinley, 2010).
Three studies (Gist, 1989; Locke, Freericek, Lee, and Bobko, 1984; Redmond, Mumford, and Teach, 1993) have examined (general) self-efficacy and its relationship to creativity skills and performance, all of which provide important groundwork for the relevancy of self-efficacy in a creative context. For example, Redmond et al. (1993) determined that employees with high self-efficacy for marketing skills demonstrated stronger creativity skills in tested marketing tasks. The more domain-specific construct of creative self-efficacy has only been empirically investigated in a very limited number of studies to date. Tierney and Farmer (2004) is one, finding that creative self-efficacy predicts creative performance beyond the effects of job self-efficacy for managers in a corporate setting.

In addition to its relationship to innovative activities, there is support for organizational factors as antecedent conditions for CSE. Tierney and Farmer (2004) proposed job complexity as one important contextual source, or antecedent condition for creative self-efficacy among employees. The extent to which jobs are multi-faceted, challenging, and non-routine (complex) presents the opportunity for boundary expansion outside one’s own area of expertise, and autonomous decision-making (Amabile, 1988). Supervisors seek to influence the presence of such situations, and extrinsically motivate the pursuit of such opportunities, in turn, through their decisions such as making necessary resources (e.g., time) available (Hisrich and Peters, 1986; Sathe, 1985; Sykes, 1986), developing rewards and recognition programs (Sathe, 1985), encouraging risk taking and tolerating failure (Burgelman, 1983; Sathe, 1985; Sykes, 1986), and promoting broad management support (Hisrich and Peters, 1986; Quinn, 1985; Sykes, 1986). Put succinctly, each of these decisions has the effect of not only appealing to the extrinsic transactional facets of employees’ motivations, but also instilling creative self-confidence. Similarly, Amabile et al. (1996) have found that creative teams in organizations were willing to take the risk in organizations that offered: 1) a challenging work environment, 2) supervisory encouragement, 3) work group support, 4) autonomy, and 5) sufficient resources (including time, materials and budgets). We see strong links between Tierney and Farmer’s (2002) conceptualization of job context variable that serve as antecedent conditions for creativity and self-efficacy and Kuratko et al.’s (1990) conceptualization of organizational elements that nurture and encourage entrepreneurial activities.
H3a The association between pro-entrepreneurial organizational architecture and the amount of time pursuing innovative activities inside the organization is mediated by creative self-efficacy.

H3b The association between pro-entrepreneurial organizational architecture and the amount of time pursuing innovative activities outside the organization is mediated by creative self-efficacy.

H3c The association between leader-member exchange relationships and the amount of time pursuing innovative activities inside the organization is mediated by creative self-efficacy.

H3d The association between leader-member exchange relationships and the amount of time pursuing innovative activities outside the organization is mediated by creative self-efficacy.

The proposed relationships of the conceptual are depicted in Figure 1.
METHODS

Data Collection and Sample

Study participants were individuals within an IT firm, characterized as “high-tech” and structurally “flat,” meaning few organizational levels are present and all employees have access to the CEO for engagement. Further, there is evidence that the potential for innovation exists within the company. Evidence for the firm’s innovative orientation is found in the fact that the firm successfully navigated two economic downturns and has received accolades for its unique cultural orientation to innovation as well as comprehensive commitment to leadership excellence at all organizational levels. The firm is located in the Northeastern region of the U.S., is privately held, and serves Life Sciences/Healthcare, Strategic IT Consulting and Business Applications markets.

The data collection procedure employed Zoomerang, a web-based survey system, to gather responses from survey participants. Approximately 130 employees, each in positions where innovative activities could be pursued, were solicited via email for their participation. Participation was entirely voluntary and employees were able to take the survey at their convenience. A follow-up e-mail soliciting participation was sent to all respondents two weeks following the initial contact in order to bolster a strong participation rate. The final response rate was 76.9% (100 respondents out of 130 solicited).

Measures

A combination of descriptive techniques, principle components factor analysis, and hierarchical multiple linear regression techniques are employed to evaluate the proposed relationships. Specifically, we first employ principle components factors analysis (Jöreskog, 1969) to determine if the underlying factor structure is consistent with prior research on the PEA (Kuratko et al., 1990), LMX (Liden and Maslyn, 1998), and CSE (Tierney and Farmer, 2002; 2004) constructs. Next, we employ hierarchical multiple linear regression to examine whether PEA and LMX independently and concurrently predict
innovative behavior, both inside and outside normal working hours. Finally, in order to evaluate our mediation hypotheses we test CSE as a mediator between the impact of PEA and LMX on innovative behaviors inside and outside the organization (Baron and Kenny, 1986).

**Innovative behavior**

A review of the extant literature reveals innovative behavior as a dependent variable is generally measured in one of two ways. The first is activity-based, focusing on internal activity designed to produce innovative outcomes (Zajac, Golden, and Shortell, 1991). The second is outcome-based, focusing on the identification of specific innovation criteria, or criteria for categorizing and recording outcomes (e.g., Hitt, Hoskisson, Johnson, and Moesel, 1996). In this study, the innovative outcomes across respondents could not be readily standardized. Moreover, the realization of innovative outcomes within the context of this industry sample took substantial time to reach the market place. As a result, we opted to employ an activity-based measure of innovation for this investigation. Specifically, a series of items focused on innovative thought and behavior were presented to respondents. They were asked to consider the extent to which each applied to their own efforts over the past five years. Respondents were prompted to consider "innovative ideas" as those being defined in any of the following three ways: new products, processes, or services; improvements to existing products, processes, or services; or the recombination of existing products, processes, or services (e.g., to serve an alternate client or market). They were then asked, "In a given year, what percentage (%) of time do you spend thinking about, planning for, or experimenting with new ideas or improvements a) inside your normal working hours, and b) outside your normal working hours?" Actual responses were coded on a scale of 0-100 for each question.

**Pro-entrepreneurial architecture**

The extent to which respondents perceived the architecture of the organization to be pro-entrepreneurial was measured using an 18-item scale based on prior research (Hornsby, Holt, and Kuratko, 2008). Principal components analysis using Varimax rotation was employed to assess the
underlying factor structure among these items. Consistent with the number of factors found in prior studies (e.g., Hornsby, Holt, and Kuratko, 2008), the initial analysis suggested a four component structure. However, three items exhibited cross loadings warranting removal from further analysis. Next, we re-analyzed the remaining 15 items. Analysis of the factor loadings and structure suggested four interpretable factors were present, with a total eigenvalue of 11.407. These four factors explained 76.04% of the total variance observed among the items.

Table 1 presents the 4-factor solution that emerged from the analysis. It also presents the original factor labels suggested by Hornsby et al. (2008). Factor 1 reflected six items that we labeled management support/rewards given the items appeared to reflect top management’s willingness to support and reward entrepreneurial behavior and its accompanying risks within the organization. Factor 2 reflected four items that we labeled work discretion as this group clearly reflected a sense of decision-making autonomy and personal responsibility. Factor 3 reflected three items and was labeled task time availability. These items appeared to represent the respondents’ ability to successfully complete all existing workload tasks. Factor 4 reflected two items and was labeled creative time availability. This factor was closely related to the notion of task time availability. However, it appeared to distinctly reflect time to pursue opportunities associated with new products and ideas as opposed to strictly completing existing workload tasks.
Leader-member exchange

The quality of the exchange relationship between employees and their immediate manager or supervisor at work was measured using a 12-item scale derived from prior research (i.e., Liden and Maslyn, 1998). In their work, Liden and Maslyn (1998) sought to extend prior study (e.g., Wayne and Farris, 1990) by exploring the potential for construct multidimensionality. Our principal component analysis suggested these items reflected a unidimensional factor structure, with an eigenvalue of 7.324 and explained 73.24% of the total item variance observed. As a result, we aggregated item responses into a single mean score for hypothesis testing.

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**Table 1: Results from Principal Components Analysis of Pro-Entrepreneurial Architectural Characteristics**

<table>
<thead>
<tr>
<th>Item</th>
<th>Original Label</th>
<th>Management Support</th>
<th>Work Discretion</th>
<th>Task Availability</th>
<th>Creative Task Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have the freedom to decide what I do on the job.</td>
<td>WD</td>
<td>.842</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is basically my own responsibility to decide how my job gets done.</td>
<td>WD</td>
<td>.855</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have much autonomy on my job and am left to do my own work.</td>
<td>WD</td>
<td>.842</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I am my own boss and do not have to double-check all of my decisions with someone else.</td>
<td>WD</td>
<td>.673</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I seldom have to follow the same work method or ways for doing my major tasks from day to day.</td>
<td>WD</td>
<td>.673</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have just the right amount of time and workload to do everything well.</td>
<td>TA</td>
<td>.823</td>
<td>.820</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I always have plenty of time to get everything done.</td>
<td>TA</td>
<td>.830</td>
<td>.830</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I am always working with time constraints on my job. (R)</td>
<td>TA</td>
<td></td>
<td></td>
<td>.629</td>
<td></td>
</tr>
<tr>
<td>My coworkers and I always find time for long-term problem solving.</td>
<td>TA</td>
<td></td>
<td></td>
<td>.715</td>
<td></td>
</tr>
<tr>
<td>During the past three months, my workload has been from spending time on developing new ideas. (R)</td>
<td>TA</td>
<td></td>
<td></td>
<td>.885</td>
<td></td>
</tr>
<tr>
<td>People are often encouraged to take calculated risks with ideas around here.</td>
<td>MS</td>
<td>.637</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This business unit supports many small and experimental projects realizing that some will undoubtedly fail.</td>
<td>MS</td>
<td>.896</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior managers encourage innovators to bend rules and standards in order to keep promising ideas on.</td>
<td>MS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Those employees who come up with innovative ideas on their own often receive management encouragement for their creative ideas.</td>
<td>MS</td>
<td>.652</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Money is often available to get new ideas off the ground.</td>
<td>MS</td>
<td>.683</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My supervisor will give me special recognition if my work performance is especially good.</td>
<td>RR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My manager will tell his/her boss if my work was outstanding.</td>
<td>RR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The rewards I receive are dependent upon my work on the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

* Varimax rotation is employed and rotated values for the final factor structure are shown.  
  1 Original component labels are based on prior research (e.g., Hoot, Holt, & Kraut, 2008) as follows: WD = Work discretion, TA = Task availability, MS = Management support, RR = Reward/Recognition. The designation "R" indicates the item is reverse-coded to allow for consistent directional interpretation of findings. Balancing items are removed from the statistical analysis due to excessive cross-loadings.
Creative self-efficacy

The extent to which respondents possessed entrepreneurial self-efficacy was measured using a 7-item scale based on prior research (i.e., Tierney and Farmer, 2002; 2004). The survey items prompted respondents to consider each item from the perspective of their personal day-to-day work activities as opposed to more generally held beliefs regarding life situations. They were then asked to rate the extent to which they agreed with each item on a seven point Likert-type scale (1 = strongly disagree / 7 = strongly agree). Principal component analysis revealed these items loaded on a single component, with an eigenvalue of 5.170 and explained 73.85% of the total item variance observed. Given the consistency of these findings with prior research, item scores were aggregated into a single factor score for subsequent hypothesis testing.

RESULTS

Is PEA associated with the level of innovative activity reported inside and outside the organization? Multiple regression results presented in Table 1 suggest it is, though not uniformly as suggested in prior research. As shown in Model 1, both work discretion (β =.403, p < .01) and creative time availability (β = .370, p < .01) significantly predict the percentage of time respondents report innovating during normal working hours, explaining 21 percent of the variance. Creative time availability also predicts the percentage of time respondents report innovating outside normal working hours (β =.535, p < .01), explaining 29 percent of the variance. Thus, partial support is found for H1a and H1b.

Is a high quality LMX relationship associated with the amount of time spent innovating inside and outside the organization? Multiple regression results presented in Table 1 suggest it is. As shown in Model 2, a high quality LMX relationship strongly and positively predicts the percentage of time respondents report spend innovating both inside (β =.698, p < .01) and outside (β =.435, p < .01) normal working hours. The model explains approximately 19.6 and 7.1 percent of the variance observed respectively for each of these outcomes, even after controlling for PEA characteristics. Consequently, strong support is found for H2a and H2b.
Does CSE mediate the relationship between PEA characteristics and the amount of time spent innovating inside and outside the organization? The results in Table 2, models 1, 3 and 4 suggest it does not. To evaluate our mediation hypothesis requires three steps. First, it requires that PEA significantly predicts the amount of time spent innovating inside and outside the organization. Second, it requires that PEA also significantly predicts CSE as the hypothesized mediator. Third, it requires that any observed significant relationship between PEA and time spent innovating become non-significant once CSE (the mediator) is included in the full regression model. As noted in the previous results discussion for hypotheses 1a and 1b, PEA does significantly predict time spent innovating both inside and outside the organization though not uniformly. In a separate regression analysis not shown here, PEA also significantly predicts CSE (Management support / rewards $\beta = .453$, $p < .01$; Work discretion $\beta = .103$, $p > .10$; Time availability – task $\beta = .332$, $p < .01$; and Time availability – creative $\beta = .176$, $p < .05$) as the hypothesized mediator. However, once CSE is included in the full model (Model 4) there is no change in the previously significant relationship between PEA and time spent innovating neither inside nor outside normal working hours of the organization. Thus, no support is found for H3a or H3b.

### Table 2: Results of Hierarchical Regression Analyses Predicting % Time Spent Innovating

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>During normal working hours</th>
<th>Outside normal working hours</th>
<th>During normal working hours</th>
<th>Outside normal working hours</th>
<th>During normal working hours</th>
<th>Outside normal working hours</th>
<th>During normal working hours</th>
<th>Outside normal working hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro-entrepreneurial architecture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management support / rewards</td>
<td>-1.21</td>
<td>-.124</td>
<td>-1.413</td>
<td>-1.066</td>
<td>-1.339</td>
<td>-2.398</td>
<td>-2.409</td>
<td>-2.389</td>
</tr>
<tr>
<td>Work discretion</td>
<td>.403**</td>
<td>.013</td>
<td>1.145</td>
<td>.149</td>
<td>.354**</td>
<td>0.405</td>
<td>.138</td>
<td>.121</td>
</tr>
<tr>
<td>Time availability - task</td>
<td>-.094</td>
<td>.021</td>
<td>-.094</td>
<td>.035</td>
<td>-.164</td>
<td>-.146</td>
<td>-.181†</td>
<td>-.191†</td>
</tr>
<tr>
<td>Time availability - creative</td>
<td>.370**</td>
<td>.535**</td>
<td>.198**</td>
<td>.428**</td>
<td>.286**</td>
<td>.428**</td>
<td>.198**</td>
<td>.440**</td>
</tr>
<tr>
<td>Leader-member exchange</td>
<td>.698**</td>
<td>.435**</td>
<td>.698**</td>
<td>.435**</td>
<td>.725**</td>
<td>.725**</td>
<td>.725**</td>
<td>.725**</td>
</tr>
<tr>
<td>Creative self-efficacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.242</td>
<td>.318</td>
<td>.434</td>
<td>.393</td>
<td>.343</td>
<td>.480</td>
<td>.435</td>
<td>.481</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>.210</td>
<td>.290**</td>
<td>.404</td>
<td>.561</td>
<td>.308</td>
<td>.452</td>
<td>.398</td>
<td>.448</td>
</tr>
<tr>
<td>Adjusted R² change</td>
<td>.210**</td>
<td>.290**</td>
<td>.196**</td>
<td>.071**</td>
<td>.092**</td>
<td>.162**</td>
<td>.188**</td>
<td>.158**</td>
</tr>
</tbody>
</table>

*a n = 100. Standardized beta regression coefficients are shown.

† $p < .10$; * $p < .05$; ** $p < .01$
Similarly, does CSE mediate the relationship between high quality LMX relationships and the amount of time spent innovating inside and outside the organization? The results in Table 2, models 2, 3 and 4 suggest that mediation is in fact observed for LMX outside normal working hours as proposed but not observed during normal working hours. As in the case of PEA, LMX also significantly predicts CSE (β = .859, p < .01) as the hypothesized mediator. The previously significant relationship between LMX and time spent innovating outside normal working hours remains positive and highly significant (β = .725, p < .01) once CSE included in the full regression model. However, the previously significant relationship between LMX and time spent innovating outside normal working hours of the organization is no longer significant once CSE is included in the full regression model (β = -.098, p > .10). Thus, no support is found for H3c but is for H3d. Taken together, these results show partial support for our hypothesis. In sum, the relationship between LMX and time spent innovating outside normal working hours was mediated by CSE, but not the relationship between PEA and time spent innovating either during or outside normal working hours.

DISCUSSION

This paper began by seeking to empirically support the premise that pro-entrepreneurial architectures (PEA) alongside relational influences based in leader-member exchange relationships impact innovative behaviors. It also sought to examine creative self-efficacy (CSE) as a mediating influence on the relationship between the joint influences of PEA and LMX and innovative behaviors. Innovative behavior was defined and explored as percentage of time spent innovating both inside and outside normal working hours. Finally, it sought to consider these relationships in the context of a small, “flat” organizational structure as compared to in a multi-layered complex infrastructure designed for sustained regeneration efforts commonly considered in prior research. In doing so, we add to the conversation around the importance of the relational aspects and individual-level beliefs as complements to architectural characteristics often employed in CE (e.g., Kuratko et al., 1990). Our primary contribution is the exploration of relevant psychological mechanisms that offer a more in-depth understanding of how to generate an impulse or desire to act entrepreneurially within an organizational context.
Theoretical Implications

Pro-entrepreneurial architecture features enabling innovation

Consistent with prior work on corporate entrepreneurship (Dess et al., 1999; Kuratko et al., 1990), our findings indicate that firms employing PEAs are more likely to experience a greater degree of employee innovation. PEA features that promote work discretion by providing decision making latitude, freeing individuals from excessive oversight (Hisrich and Peters, 1986; Sathe, 1985) and provide time for creative pursuits (Hisrich and Peters, 1986; Sathe, 1985). As has been found in studies focusing on hierarchical environments in CE research, these aspects appear fundamental to innovative pursuits within a relatively flat organizational structure. Perhaps most interestingly, the present results suggest that creative time availability may have a significant spillover impact on the innovative activity observed in CE as it is also strongly associated with innovative activity reported outside normal working hours. In fact, it is intriguing that the observed impact of creative time availability appears to outweigh that observed during normal working hours. By contrast, more direct forms of management support like the championing ideas and provisions for resources appeared to be negatively associated, suggesting perhaps an inhibiting influence on the same innovative activity within the context of this relatively flat organizational structure (Hisrich and Peters, 1986; Quinn, 1985; Sykes, 1986). As a result, we extend extant CE research by suggesting certain elements of PEA may be more likely to foster CE in a flat organizational context. More specifically, the pattern of our results suggests there may indeed be a noticeable shift from features of a transactive nature toward those of a transformational nature in mobilizing a “supporting cast” of members to commit to the vision and exploitation of strategic value creation in a flat organizational structure (Gupta, MacMillan and Surie, 2004; Shane and Venkataraman, 2000). Such a shift underscores the importance of developing a deeper understanding the nature of individual employee commitment to CE (Bendickson and Liguori, 2014), particularly in turbulent and rapidly changing industry environments (Morris and Jones, 1995).
The value of focusing on leader-member relationships

While we find that in a relatively flat organizational structure both time and autonomy are related to innovative thought and behavior, we also find that high quality supervisory-subordinate relationships offer the advantages of trust and confidence that instills innovative attitudes and expectations in employees (Deci and Ryan, 1985). Indeed our results support the central contention of this investigation that high quality LMX relationships offer a unique and persuasive influence with respect to their impact on innovative activities during normal working hours (Dess et al., 1999; Kuratko et al., 1990). Interestingly, the present results support the idea that such a conducive influence may actually extend beyond activity formally expected inside normal working hours (Gerstner and Day, 1997) to include a potential spillover effect on innovative activity outside normal working hours.

Importance of creative self-efficacy

Although we find that CSE has no mediating effect on the relationship between PEA and innovative behavior both inside and outside of normal working hours, CSE does fully mediate the relationship between LMX and innovative behavior outside normal working hours. This finding suggests that in flat organizations, CSE may be an important construct in that it complements PEA in a way that relational influences cannot. Specifically, CSE may play an important mediating role between LMX relationships and innovative behavior in a non-traditional sense, and in doing so, extends the foundation of understanding how innovative behavior in CE contexts may emerge above and beyond the use of a PEA (Kuratko et al., 1990). For example, increasing employee levels of CSE may be related to one’s propensity towards pursuing innovative activities beyond tradition work times that ultimately has a complementary influence on efforts and outcomes observed during more traditional work times in traditionally-studied CE settings.

In sum, the effects of PEA, LMX, and CSE on innovative activity in this relatively flat organizational structure are complementary and complex. LMX complements PEA attempts to promote innovative thought and behavior by making creative time availability available during normal working hours, mediating the otherwise complementary influence of CSE. By contrast, CSE complements PEA attempts to promote innovative thought and behavior by
making creative time available outside normal working hours, mediating the otherwise complementary influence of LMX.

**Normative Implications**

In addition to enhancing our theoretical understanding of CE, our findings have important practical implications for founders and corporate leaders seeking to promote innovative activity. Our findings indicate that from an architectural perspective, focusing first on designing systems and processes that allow for autonomy is fundamental to innovation observed in the workplace. Moreover, our findings suggest that by focusing on the provision of creative time, organizational system and process designs may also provide an important impetus beyond normal working hours that complements innovative efforts during normal working hours. Second, our findings emphasize the importance of transformative leadership efforts toward enhancing innovation, such as identifying those predisposed to mentor for leadership roles, or providing training aimed at further equipping leaders to become effective mentors. Third, our results suggest that entrepreneurs and strategic leaders should considering programming that has the potential to generate or facilitate the development of creative self-efficacy. Together, these considerations and prospective steps offer the promise of systematically enhancing CE, both by creating complementary workplace systems and structures that directly impact innovative activity during the normal course of the workday and indirectly taking advantage of the potential carryover benefits toward innovation that strong relations between supervisors and subordinates and individual’s creative self-beliefs create outside the normal course of the workday.

**LIMITATIONS**

Given our purpose to test a model of CE that includes often overlooked personal (CSE) and relational (LMX) variables in a flat organizational structure, we believe our study provides a fundamental step in the advancement of theory that might examine these variables in diverse industries or as a comparison point within the IT industry. Examining one organization enabled us to study potential
interplays among a variety of variables in a relatively controlled fashion, a strategy that allows for more overt observation of potentially important relational variables. However, we acknowledge our study’s limited generalizability and modest sample size, and that more persuasive tests of our model are critical. Studies that utilize a longitudinal design with comparison groups either within one industry or across industries would be particularly helpful to provide stronger insight into issues associated with causality.

Another potential limitation to the present study is the possibility that common method bias exists and unduly influenced the present findings in some systematic way. We did consider this possibility and sought to evaluate it by examining variance inflation effects on all statistical models. The resultant variance inflation statistics were within acceptable boundaries suggesting that common method bias is not adversely biasing the present results (Conway and Lance, 2010).

**FUTURE RESEARCH DIRECTIONS AND CONCLUSIONS**

The findings of this paper suggest a number of directions for future research. First, due to the strong impact of LMX on innovative behavior both inside and outside normal working hours, beyond the effects of PEA, studies that explore the nuances of the mentoring role within both flat and complex organizational studies are advocated. The resultant findings could significantly impact how practitioners might construct organizational systems to imbue innovation and creativity among employees and secure a competitive edge in their industry.

Second, the role of CSE is a complex one and might be further explored. Given its full mediation effect with respect to LMX’s impact on innovative behaviors outside normal working hours, it is worthwhile to investigate the relationship between LMX and CSE in a more nuanced fashion. Clearly both variables are important to innovation and an understanding of how personal efficacy and relational leadership style might intersect could provide critical managerial insights, particularly with respect to how organizational members’ efforts outside the traditionally-studied hierarchical CE context might be leveraged as sources of value creation.
Finally, an activity-based measure of innovative behavior was used due to the potentially lengthy lag time between idea generation and exploitation of innovative efforts. Future studies might utilize a longitudinal design to capture the number of innovations over time. R&D labs provide a creative environment and deliver tangible, quantifiable results in the form of patents and trademarks. As such, they provide a fertile lab environment to test important CE relationships and outcomes.

Clearly, there is much more to learn about CE. In this paper, we have shed light on some of the issues between architecture and innovation. Specifically, we’ve extended and amplified the extant theoretical literature by focusing on two constructs, LMX and CSE, each of which has received scant attention in the CE literature to date. We have also provided empirical evidence about the impact of each of these influences in a high-tech, and flat organizational setting. With our finding of the prospective spillover effects of each of these variables on the innovative thoughts and behaviors of organizational participants, we provide the opportunity for the beginning of a potentially new interesting dialogue around how these relational and individual-level factors can be employed to extend the current debates in the CE literature by providing a more nuanced view of how innovative CE efforts emerge.

REFERENCES


THE ROLE OF ENTREPRENEURIAL MARKETING IN IMPROVING MARKET SHARE FOR SMALL BUSINESSES FACING EXTERNAL ENVIRONMENTAL OR RESOURCE CHALLENGES

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ABSTRACT

Marketing is critical for small companies, but conventional marketing practices are not always available or appropriate. A nascent business venture is more likely to face uncertain market conditions and limited resources and the entrepreneur must use innovative approaches. This research links entrepreneurial marketing practices with changes in market share in small businesses. The findings indicate much support for the small businesses who face greater external or macro-environmental challenges utilizing more entrepreneurial marketing than small businesses that do not face external environmental challenges. Relative to internal resource challenges, however, entrepreneurial marketing is utilized by firms with more resources. Similarly, entrepreneurial marketing is associated with improved market share, particularly with less challenging internal or external environments.

Key Words for Indexing: small firms, performance, environmental competitiveness, environmental hostility, external environment

INTRODUCTION

While marketing plays a significant role in successful organizations, it can be argued marketing is even more critical for small businesses. For many small businesses, the loss or gain of a single customer can often determine firm survival. What has become increasingly apparent to researchers is conventional marketing practices are not always available or appropriate for entrepreneurial
firms. The very fact of their newness means a nascent business venture is more likely to face both uncertain market conditions and limited resources. When pursuing new opportunities with limited resources, the entrepreneur must use innovative approaches in the face of such constraints. While the marketing approaches used by entrepreneurs reflect this innovative orientation, they may vary in their relationship or effect on outcome goals. It is critical that a new venture understand which entrepreneurial marketing practices are most effective, and therefore important to achieve a variety of successful outcome goals such as increases in higher profitability or market share. Therefore, the purpose of this paper is to link entrepreneurial marketing practices with outcome goals for small businesses.

ENTREPRENEURIAL MARKETING

The term “entrepreneurial marketing” merges two formerly distinct disciplines and is used to describe the marketing processes of firms pursuing opportunities in uncertain market circumstances often under constrained resource conditions (Morris, Schindehutte, & LaForge 2002; Collinson & Shaw, 2001; Hills, 1987; and Omura, Calantone, & Schmidt, 1993). Entrepreneurial marketing utilizes a “big picture” perspective and focuses on creative approaches to innovation, risk management, resource leveraging and value creation. The term describes a range of actions and responses small and mid-sized enterprises can employ (Becherer, Haynes, & Helms, 2008). Read, Dew, Sarasvathy, Song, and Wilbank (2009) compared the marketing approach of entrepreneurs versus managers with little entrepreneurial expertise and confirmed significant differences exist when marketing in uncertainty. They found managers without entrepreneurial expertise relied on predictive marketing techniques, while the entrepreneurs marketing tactics used effectual or non-predictive logic.

Beverland and Lockshin (2004) defined entrepreneurial marketing as “effectual action” or the adaptation of marketing theory for the unique needs of small businesses. These effectual actions simultaneously address opportunity, innovation, risk, and resource constraints. For the small business, these actions are the task of the individual owner/operator. Constant attention to marketing is critical to success for newly launched or growing ventures (Hisrich, 1992; Becherer, Halstead & Haynes, 2003; Becherer, Helms, & McDonald, 2012). Simultaneously these decisions also pose some of the greatest challenges to these
ventures (Morris, Schindehutte, & LaForge, 2002; Sarasvathy, 2001; Kirzner, 1997; Stokes, 2000; Carson 2001).

Small businesses face specific constraints and are set apart from their larger counterparts that have more longevity and momentum. Thus, there is justification for the adoption of an entrepreneurial marketing philosophy (Birley, 1989 & 1982), particularly in highly innovative organizations (Chaston & Mangels, 1999). Gruber (2004) agreed marketing is a major determinant of success in all new firms. Marketing also is rated extremely important by venture capitalists and Chaston (1997) found entrepreneurial marketing is more appropriate in smaller firms.

Entrepreneurial marketing has been suggested as most effective when environmental change is great and resources are limited (Becherer & Maurer, 1997). Martin’s (2009) research also found these distinctions. She compared traditional corporate marketing to entrepreneurial marketing and validated a framework for analyzing marketing practices specific to entrepreneurs. Traditional marketing strategies, emphasizing effectiveness (market penetration) and efficiency, tend to dominate when markets become more stable and firms become more established (Morris, Schindehutte, & LaForge 2002). In contrast, a firm’s emphasis on entrepreneurial marketing varies in intensity based on the stage of organizational development and level of environmental turbulence or hostility. Firms striking out in new directions will emphasize entrepreneurial marketing dimensions.

Morris, Schindehutte and LaForge (2002) characterize entrepreneurial marketing as an organizational orientation having seven underlying dimensions, four of which (proactiveness, opportunity-focused, risk-taking and innovation-oriented) build directly on research examining the entrepreneurial orientation of the firm. Together with customer intensity, resource leveraging, and value creation, each dimension can be employed to a greater or lesser extent by small businesses. These seven dimensions are discussed below.

**Dimensions of Entrepreneurial Marketing**

1. **Proactiveness.** Proactiveness has been characterized as taking action to influence a firm’s environment (Bateman & Crant, 1993). Involving two related marketing actions, organizational proactiveness consists first of practices by which the firm anticipates challenging situations, and second, the actions taken to manage those events. From an entrepreneurial perspective, proactivity describes
marketing actions of the firm to redefine its external conditions, to reduce uncertainty, and to lessen dependency and vulnerability.

2. **Opportunity-Focused.** Recognition and pursuit of opportunity are marketing actions critical to small business success. Market potential is evaluated by the degree of fit relative to the capabilities and resources of the firm. It is the ability of the firm to select the “right” opportunity that determines success (Hamel & Prahalad, 1994; Hamel, 2000).

Matsuno, Metzer and Özsomer (2002) suggested an organization’s market knowledge determines whether innovation is implemented at the appropriate time. Under less ideal circumstances, market knowledge serves as a constraint, preventing the firm from squandering resources in vain. Market knowledge allows firms to take the right action at the right time, directing the organization toward success. Opportunities requiring substantial resource commitments may be unattainable to smaller owner-operated firms. However, in the small business, the recognition and pursuit of opportunity are more closely aligned with the entrepreneur’s individual perceptions (Schindehutte & Morris, 2001; Forlani & Mullins, 2000; Mullins & Forlani, 2005). Where others perceive problems, entrepreneurs are more likely to see potential (Palich & Bagby, 1995).

3. **Risk-Taking.** Early studies of risk-taking centered on the premise entrepreneurs are predisposed to take on risky ventures (d’Ambroise & Muldowney, 1988). As opportunities represent possible gains, pursuit of that gain must be tempered by the potential of loss through miscalculated efforts. Within an entrepreneurial framework, risk-taking is not only the willingness to take a chance on an opportunity; it is the ability of the organization to use calculated actions to mitigate the risk inherent in opportunity pursuit. Owner-operator risk-taking attitudes play a crucial role in determining the marketing actions a firm undertakes, with entrepreneurs viewing risk taking as simply part of their job (Mullins & Forlani, 2005). Dushnitsky (2010) characterized entrepreneurs as optimistic individuals who consciously pursue their goals. He agreed too that these goals may often be self-serving.

While a firm’s bold market-breaking actions might be viewed as high risk, entrepreneurs view those actions as well within their capabilities and perceive less risk than others. Rather than having a higher propensity for undertaking risky ventures or risky marketing strategies, entrepreneurs instead have a lower level of risk perception (Palich & Bagby, 1995). In a differing approach to risk taking, a small business might choose a more incremental process and take actions to pursue a series of smaller, less-risky outcomes.
In their 2010 study of entrepreneurial persistence, Gompers, Kovner, Lerner, and Scharfstein found entrepreneurs with a record of past success are tenacious in selecting the right industry and the right time to start new ventures. They agree entrepreneurs who demonstrate market timing skills are more likely to outperform industry peers.

4. **Innovation-Oriented.** Innovation-oriented marketing actions allow the firm to concentrate on ideas that lead to new markets, products or processes. The degree to which a successful organization emphasizes innovation in its marketing actions can range from the highly innovative new market creator to the incremental market builder. The market creator must adopt new solutions to offer the customer a radically different value, while the incremental innovator builds on existing customer relations and market knowledge. Small businesses may choose to focus on innovative means of marketing, since the firm may not have the resources to meet or maintain standard industry marketing practices (Carson & Gilmore, 2000).

Marcati, Guido, and Peluso (2008) found entrepreneurs display a general innovativeness or openness to newness, and they also display a specific predisposition to be among the first to adopt innovation within a specific domain. In a study comparing traditional, corporate marketing to entrepreneurial marketing, Martin (2009) found, in the case of the entrepreneur, the marketing strategy supersedes traditional marketing theory by the creativity, flexibility and innovation exhibited by the day-to-day entrepreneurs. In their model of entrepreneurship as a solution to environmental issues, York and Venkataraman (2010) found entrepreneurs are better at addressing environmental uncertainty and providing innovation.

5. **Customer Intensity.** Many studies suggested successful organizations are those that place a greater emphasis on customer intensity (Sheth, Sisodia & Sharma 2000; Han, Kim, & Srivastava 1998; Hamel & Prahalad 1994; Jaworski & Kohli 1993; Narver & Slater 1990). Spence and Essoussi (2010) confirmed entrepreneurs need to be aware that their public image may reflect consumers’ perceptions of their firm. However, it has also been suggested extreme customer orientations might inhibit the break-through innovations that create markets and disrupt equilibrium, since these radical changes are out in front of customers (Deshpande, Farley & Webster, 1993). The dimension of customer intensity builds on what is often viewed as a central driving force of marketing in the organization -- a “customer-centric” orientation employing innovative approaches to create, build, and sustain customer relationships.
6. Resource Leveraging. The dimension of resource leveraging is not simply a matter of effectively using limited resources, but instead a creative, synergistic process. In some cases it is recognizing a resource not seen by others (Morris, Schindehutte, & LaForge, 2002). In small businesses, instead of being constrained by resource limitations, the firm devises an innovative marketing strategy and is thus able to access resources so more can be done with less, often mitigating risk through a greater use of leveraging. Schindehutte and Morris (2001) found successful small businesses were more likely to employ resource leveraging practices such as resource sharing and outsourcing of key functions. Studies found access to resources increases innovation and risk taking while resource constraints stifle entrepreneurial efforts (Hamel 2000; Prahalad & Hamel, 1990). Conversely, studies have found resource constraints led to greater entrepreneurial efforts, suggesting the entrepreneur’s perception may be more important than the resource availability (Wiklund & Shepherd 2005; Schindehutte & Morris 2001).

7. Value Creation. Value creation, central in the definition of entrepreneurial activity, is also integral to the marketing orientation of a firm (Jawarski & Kohli, 1993; Slater & Narver 1995; Han, Kim, & Srivasatva 1998). While value creation is an essential condition for exchange to occur, successful firms emphasize the value creation activities best suited to their strategic intent within their competitive niche (Miller & Floricel, 2004). While traditional marketing has placed more focus on the transaction and customer relationship, the focal point of entrepreneurial marketing is innovative and oriented toward value creation (Morris, Schindehutte, & LaForge, 2002). Entrepreneurs achieve better results when they find new ways to define, create, or discover value.

Internal Resources and The External Environment

While entrepreneurial marketing plays a critical role in new ventures with limited funds, established smaller businesses may also be required to use entrepreneurial marketing to overcome obstacles. Often the internal environment and resources available to a small businesses act as constraints. These businesses must compete with larger, more established businesses and it may be more effective for them to use a more effective entrepreneurial marketing approach in an attempt to overcome their limitations. Entrepreneurial marketing help level the playing field and allows small businesses to grow without advantages of larger, more established firms.
Similarly small businesses who face more challenging external environments may require more aggressive marketing approaches to effectively compete and grow market share. Some environments are characterized as just more competitive with competitors that are astute and experienced in their marketplace. In other situations, the competitive environment itself is more difficult, with a great deal of turbulence and unpredictability or very hostile where stakeholders are more challenging to work with or work for. These difficult environmental conditions can be a function of the regulatory environment, challenges in the supply chain, or just the aggressiveness of stakeholders in the market environment.

This is widely acknowledged and tested in the small business literature. For example, Bamfo (2012) studied challenges of small businesses in Ghana and found despite proactive government efforts these ventures face many challenges including the high cost of borrowing, inadequate infrastructural deployment, high utility costs, limited human resources, higher rents and fewer customers than larger counterparts. In Jalisco, Mexico, Reynoso, Osuna, and Figueroa (2014) similarly found the strategic challenges in small businesses result in significant differences in productivity largely due to their external challenges as small businesses sought to modernize and even consolidate to survive.

Dragnic (2014) in a study of external factors facing small businesses in Croatia found external factors, including the general state of the economy, the business sector and the type of customers had a significant impact on the performance effectiveness (measured by sales growth and goal attainment) of small businesses studied. In Oman, researchers Bilal and Al Mqbali (2004) found both external obstacles and constraints for small businesses and agreed the investment environment was a challenge followed by marketing, other financial obstacles, and legislation and regulation obstacles. Their research highlighted a need to solve some of the many external environmental obstacles. In Albania, researchers Pulaj and Kume (2013) found small businesses must adapt to the external environment but their performance depends on the factors often outside their influence and control. As an open system, small businesses are connected directly with the influences of environmental factors.

Additional studies found the entrepreneurial firms are more vulnerable than larger counterparts when facing a dynamic, hostile external environment (Urban & Mothusiws, 2014), while Banham (2010) agreed successful entrepreneurial ventures adapt better to changes from technological advances, customer expectations, supplier requirements, the regulatory environment and
added competition. The latter study proposed a Degrees of Turbulence Model as a tool for assessing the external environment (Banham, 2010).

**Entrepreneurial Outcomes**

Outcomes for small businesses can be measured in a number of quantitative ways and unlike large enterprises and corporations, the important outcomes for the entrepreneur are often qualitative. Even though traditional profit-motive outcomes are valid for entrepreneurs, there are a host of other reasons for starting a business that include being their own boss, pursuing their own ideas, and pursuing opportunities without regard to their current resources (Barringer & Ireland, 2010). The entrepreneur is interested in financially oriented goals of sales growth and increased market share and overall return on their investment as a reward for their willingness to assume risks. Additionally, entrepreneurs and owner/operators also measure their success in ways other than pure goal achievement. They can focus on building a company that attains success in many ways, such as establishing a solid customer base or creating a company strong enough to sustain itself and company employees over time. One measure that captures the strength of a new company is market share. It is an indicator of growth and ways a new business compares to the competition. Market share is an outcome that aggregates several measures of success. Market share provides some indication of a company’s success and strength, as it requires both positive cash flow and bottom-line net income over time.

The academic literature supports market share as a measure of performance across a variety of studies, countries, and industries as well as stage of the life cycle and size of the firm. For example, Bulak and Turkyilmaz (2014) studied the performance efficiency of manufacturing small businesses in Turkey and measured success using market share and several other variables. Similarly Chia-Chi’s (2013) empirical results found a positive, significant relationship between firm market share and performance in a study of accounting firms. In Nigerian banks, Ologunde and Akinlolu (2012) found market share was a key measure to examine organizational performance and market share was included as a key indices of performance. Pleshko and Helens (2011; 2012) studied seven strategic contingency combinations and tested them against the market share of businesses in the financial services industry. The study found when a market leader had aggressive marketing strategies they often had higher market shares.
Market share and profitability were linked in a study of Canadian small businesses by Yannopoulous (2010) and in Italian clothing ventures where Cucculelli, Bettinelli and Renoldi (2014) found empirical support for market share and leverage moderating the effects of investments in R & D for the small clothing manufacturers. In Ukrainian pharmaceutical companies, Goncharuk and Getman (2014) studied performance measures and included market share as key to measure the efficiency of the firms’ marketing processes. Market share has been studied in relation to success at various market entry points. Wilkie, Johnson and White (2015) found late market entrants generally had a market share disadvantage although they might have other industry opportunities. In a comprehensive study of market share as a means to future success, O’Regan (2002) agreed market share, or the position and success of a firm in a sector, is an important organizational goal, although not always reflected in performance or profitability. But the study found market share influences organizational planning in small businesses and the analysis indicated firms with higher market share differed from competitors and they had higher performance and achieved enhanced financial performance, greater customer retention, and satisfaction. The study urges “(t)o ensure competitive advantage, firms need to consider market share in conjunction with overall profits (O’Regan, 2002, p. 287).

The Research

In situations requiring a more aggressive and creative marketing approach, entrepreneurial marketing may be an effective strategy. While new ventures are typically challenged with limited resources, even later stage ventures face obstacles related to their resource limitations or unusually difficult external environments. The purpose of this research is to investigate the extent entrepreneurial marketing is likely to be employed by small businesses, particularly when their internal resources or external environments are more challenging. This research then examines the results or the effectiveness of improving market share when entrepreneurial marketing is utilized by small businesses facing either internal or external environments that are resource-limited, more competitive, more turbulent, or generally more hostile.
HYPOTHESES

External Environment and Entrepreneurial Marketing

Given that this is exploratory research, null hypotheses were utilized as a means to explore the research questions. The first hypothesis relates to the fact that small businesses facing more difficult or more challenging external environments may utilize entrepreneurial marketing as a means to compete more effectively. A more aggressive and more creative entrepreneurial marketing approach may be able to overcome constraints imposed by a challenging environment. Thus, the first hypothesis:

\[ H1: \text{Small businesses facing greater external or macro-environmental challenges utilize the same amount of entrepreneurial marketing as small businesses that do not face external environmental challenges.} \]

Small businesses also face a variety of different challenges relative to internal resource limitations. Start-up businesses typically are the most resource constrained but even small businesses beyond start-up can face issues relative to limited financial resources, technology, or expertise that make it difficult for them to effectively compete with more established firms. Thus the second hypothesis:

\[ H2: \text{Small businesses facing internal resource challenges utilize the same amount of entrepreneurial marketing as small businesses without internal resource challenges.} \]

Performance of Entrepreneurial Marketing Relative to the Environments

Additional interest is whether the use of entrepreneurial marketing is an effective strategy for small businesses facing difficult external environments. To assess effectiveness, entrepreneurial marketing can be related to specific outcome variables. One outcome variable best representing firms meeting the challenges of their environment is market share. Firms that maintain market share growth are effectively meeting and developing coping strategies to gain advantages even when facing environmental challenges. Thus the third hypothesis:
H3: More entrepreneurial marketing is not associated with growth in market share in small firms facing external macro-environmental challenges relative to those without external environmental challenges.

Similarly, entrepreneurial marketing may also be an effective means of compensating for the internal resource limitations. Small businesses compete in the marketplace with more established firms. Growth in market share can be an important variable that demonstrates whether a firm is utilizing entrepreneurial marketing as a means to overcome the internal resource challenges. Thus the fourth hypothesis:

H4: More entrepreneurial marketing is associated with growth in market share in small firms with internal resource challenges relative small firms without internal resource challenges.

METHODODOLOGY

Using addresses obtained from a national mailing list, a stratified random sample of 2,500 owner/operators of small businesses in the United States was created. The stratified sample included manufacturing, service and distributor/wholesale/retail businesses with up to 50 employees (this size designation was constrained by the mailing list). Each business was mailed a cover letter addressed to the owner/operator, a survey, and a postage-paid return envelope. The cover letter explained both the nature of the study and its anonymity. Three weeks later, a second complete mailing was sent to the entire sample the encouraging completion of the survey.

Completed questionnaires were received from 240 recipients. This was a response rate of 9.6%, which is typical for mail surveys with no previous connection with the respondents or research team. The first twenty percent (n=48) of the 240 responses were compared with the last twenty percent (n=48) on key variables, and no significant differences in response patterns were identified. According to Armstrong and Overton (1977), this provides evidence that non-response bias was not an issue. As shown in Table 1, the sample is diverse in company size, scope of operations, company age, and industry type.
Table 1  
Sample Demographics

<table>
<thead>
<tr>
<th>Company Size</th>
<th>Sample Size (n)</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5 (Micro)</td>
<td>89</td>
<td>38%</td>
</tr>
<tr>
<td>6-10 (Extremely Small)</td>
<td>61</td>
<td>26%</td>
</tr>
<tr>
<td>11-20 (Very Small)</td>
<td>53</td>
<td>23%</td>
</tr>
<tr>
<td>21+ (Small)</td>
<td>31</td>
<td>13%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>234</td>
<td></td>
</tr>
</tbody>
</table>

Scope of Operations

<table>
<thead>
<tr>
<th></th>
<th>Sample Size (n)</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>130</td>
<td>55%</td>
</tr>
<tr>
<td>Statewide/Regional</td>
<td>67</td>
<td>29%</td>
</tr>
<tr>
<td>National/International</td>
<td>37</td>
<td>16%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>234</td>
<td></td>
</tr>
</tbody>
</table>

Company Age

<table>
<thead>
<tr>
<th>Years</th>
<th>Sample Size (n)</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1—10</td>
<td>37</td>
<td>16%</td>
</tr>
<tr>
<td>11—20</td>
<td>59</td>
<td>25%</td>
</tr>
<tr>
<td>21—35</td>
<td>93</td>
<td>39%</td>
</tr>
<tr>
<td>36+</td>
<td>47</td>
<td>20%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>236</td>
<td></td>
</tr>
</tbody>
</table>

Industry

<table>
<thead>
<tr>
<th>Distributor/Wholesale/Retail</th>
<th>Sample Size (n)</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail</td>
<td>107</td>
<td>46%</td>
</tr>
<tr>
<td>Services</td>
<td>88</td>
<td>38%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>35</td>
<td>15%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>230</td>
<td></td>
</tr>
</tbody>
</table>

While the largest group of companies in the sample were of the micro size (1-5 employees), a third of the companies had over ten employees. Over half
the sample characterized themselves as local businesses and less than 15% indicated they had national or international operations. Retail oriented businesses dominated, with service businesses a close second. The age of the companies was quite varied with over half the companies in existence for twenty years or longer.

MEASURES

Entrepreneurial Marketing Measure

Because of the exploratory nature of this research, the items used to measure seven entrepreneurial marketing dimensions were drawn both from studies that had previously examined each dimension. Also, a series of statements was created using definitions and discussions of entrepreneurial marketing dimensions. Respondents were asked to rate their agreement on a five point Likert-type scale with a series of statements regarding the operation of their company. With limited existing research on measures of entrepreneurial marketing dimensions, validity and reliability continues to evolve. The entrepreneurial marketing measures utilized in this study reflect Cronbach alpha reliability coefficients from 0.55 to 0.70, acceptable for exploratory research

Internal Resources Variables

A firm’s resource advantages or disadvantages are internal factors potentially creating issues or constraints with impact what small firm can do to grow their company and become successful. Thirteen items were included in the questionnaire representing the most common range and type of resources used by small companies and identified in the academic literature. These included the “availability of capital,” “marketing expertise,” or “access to low cost labor” as resources. Respondents were asked to indicate if each resource was a relative advantage or a relative disadvantage for their company on the survey using a five-point Likert-Type scale ranging from a “Great Disadvantage” (1) to a “Great Advantage” (5).

Following a factor analysis of the thirteen items using an orthogonal varimax rotation, three underlying internal resource variables were identified and labeled as “Expertise,” “Tangible Resources,” and “Low Cost”. Table 2 presents the results. The factor loadings on the factor “Expertise” include such things as

The Chronbach’s Alpha Coefficient was calculated for each of the resulting three internal resource variable measures. Expertise (.86) was the highest. However, Tangible Resources (.70) and Low Cost (.64) were still very appropriate coefficients for exploratory research.

Table 2
Resource Availability Advantage/ Disadvantage Factor Analysis

<table>
<thead>
<tr>
<th></th>
<th>Expertise</th>
<th>Tangible Resources</th>
<th>Low Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Expertise</td>
<td>.633</td>
<td>.387</td>
<td>-.227</td>
</tr>
<tr>
<td>Expertise in Product/ Service Development</td>
<td>.738</td>
<td>.233</td>
<td>-.122</td>
</tr>
<tr>
<td>Marketing Expertise</td>
<td>.552</td>
<td>.445</td>
<td>-.341</td>
</tr>
<tr>
<td>Highly Productive Employees</td>
<td>.723</td>
<td>.231</td>
<td>.191</td>
</tr>
<tr>
<td>Expertise in Customer Service</td>
<td>.798</td>
<td>.074</td>
<td>.274</td>
</tr>
<tr>
<td>Managerial Expertise</td>
<td>.613</td>
<td>.07</td>
<td>.412</td>
</tr>
<tr>
<td>Employees Trained to Provide Superior Customer Service</td>
<td>.789</td>
<td>.117</td>
<td>.114</td>
</tr>
<tr>
<td>Availability of Capital</td>
<td>.195</td>
<td>.685</td>
<td>.217</td>
</tr>
<tr>
<td>Leading Edge Plant/ Equipment/ Production Facilities</td>
<td>.131</td>
<td>.817</td>
<td>-.016</td>
</tr>
<tr>
<td>Innovative Marketing People</td>
<td>.483</td>
<td>.562</td>
<td>.304</td>
</tr>
<tr>
<td>Access to Low Cost Distribution Channels</td>
<td>.192</td>
<td>.493</td>
<td>.528</td>
</tr>
<tr>
<td>Access to Low Cost Labor</td>
<td>.122</td>
<td>-.035</td>
<td>.845</td>
</tr>
<tr>
<td>Access to Low Cost Raw Materials</td>
<td>.031</td>
<td>.229</td>
<td>.62</td>
</tr>
<tr>
<td>Alpha Reliability Coefficient</td>
<td>0.86</td>
<td>.70</td>
<td>.64</td>
</tr>
</tbody>
</table>
External Environment

Variables were identified from the marketing academic literature that have the potential to increase the difficulty or stress associated with competing in the external environment. These three variables assess how external environment impacts decision options and issues in implementing strategies. “Environmental Hostility,” the first variable, considers the level of difficulty a firm faces within their business environment. The Environmental Hostility measure was crafted using variables from previous research (Chandler & Hanks, 1994) and modified slightly for this study. Variables in the Environmental Hostility are measured using a five-point Likert-Type scale in the agree/disagree format and include: “Low profit margins are characteristic of my industry,” or “The failure rate of firms in my industry is high.” The scale for Environmental Hostility included six items with a Chronbach’s Alpha Coefficient reliability of .62.

“Environmental Turbulence” (or Dynamism), the second variable, was derived from five items found by Chandler and Hanks (1994) and adapted for this research. Similarly it was reported on a five-point Likert-Type scale also in the agree/disagree format. Items in the Turbulence scale included “The set of competitors in my industry has remained relatively constant over the past three years” and “Actions of competitors are quite easy to predict,” and the Environmental Turbulence scale had a Chronbach’s Alpha Reliability Coefficient of .60.

“Environmental Competitiveness,” the third measure of the external environment, was adapted from Green, Covin and Slevin’s (2008) competitiveness scale and contained ten items such as “We emphasize strict quality control to remain competitive in our business,” and “We engage in novel and innovative marketing techniques to remain competitive in our business.” Environmental Competitiveness, measured on a five-point Likert-Type agree/disagree format, had a Chronbach’s Alpha Reliability Coefficient of .68.

Market Share Outcomes

The market share outcome variables were self-reported measures from the owner/operators as they considered how their small business performed relative to market share. The measure was reported using a five-point Likert-Type scale that ranged from “Decreasing Significantly” (1), to “Holding” (3), to
“Increasing Significantly”(5) and respondents were asked to indicate the number corresponding most accurately to their businesses’ “Market Share.”

FINDINGS

External Challenges

Each respondent was classified as either high or low for each of the external macro-environmental challenges. High and low groupings for Environmental Turbulence, Environmental Hostility, and Competitive Environment were developed using a median split for each variable. A “Use of Entrepreneurial Marketing Score” was calculated for each of the seven entrepreneurial marketing variables for each respondent. Mean entrepreneurial marketing scores for entrepreneurial marketing variables across the high and low external environment groups were then compared with a t-test (see Table 3). The t-test results provided insight into H1 for how external environment variables impact the use of entrepreneurial marketing. Based on the data presented in Table 3 for external variables, hypothesis (H1) is not supported.

Small businesses facing greater external or macro-environmental challenges do utilize more entrepreneurial marketing than small businesses that do not face external environmental challenges. All entrepreneurial marketing variables are associated with an aggressive Competitive Environment (including Customer Intensity, Opportunity Driven, Value Driven, Leveraging, Proactiveness, Risk-Taking Orientation, and Innovativeness). Relative to more Environmental Hostility, Customer Intensity, Opportunity Driven, Leveraging, Proactiveness and Innovativeness are all higher. For Environmental Turbulence, only Opportunity Driven and Proactiveness are related to a turbulent environment. Higher levels of turbulence, hostility and competition generally spawned more entrepreneurial marketing. This is one way small businesses might respond to difficult environments.
Table 3

Environmental Influences on Entrepreneurial Marketing Usage

<table>
<thead>
<tr>
<th>Internal Resource Challenges</th>
<th>Customer Intensity</th>
<th>Opportunity Driven</th>
<th>Value Driven</th>
<th>Leveraging Opportunity</th>
<th>Proactiveness</th>
<th>Risk Taking Orientation</th>
<th>Innova tiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tangible</strong></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
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<td>4.1</td>
<td>4.2</td>
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</tr>
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<td>Low</td>
<td>3.7</td>
<td>3.4</td>
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<td>3.5</td>
<td>3.6</td>
<td>3.3</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>Expertise</strong></td>
<td></td>
<td></td>
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<td>4.2</td>
<td>3.7</td>
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</tr>
<tr>
<td>Low</td>
<td>3.9</td>
<td>3.7</td>
<td>3.7</td>
<td>3.7</td>
<td>3.8</td>
<td>3.4</td>
<td>4.2</td>
</tr>
</tbody>
</table>

**External Environmental Challenges**

<table>
<thead>
<tr>
<th>Competitiveness</th>
<th>Customer Intensity</th>
<th>Opportunity Driven</th>
<th>Value Driven</th>
<th>Leveraging Opportunity</th>
<th>Proactiveness</th>
<th>Risk Taking Orientation</th>
<th>Innova tiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>4.1</td>
<td>3.8</td>
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<td>3.8</td>
<td>3.9</td>
<td>3.6</td>
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</tr>
<tr>
<td>Low</td>
<td>4.2</td>
<td>3.9</td>
<td>3.9</td>
<td>3.9</td>
<td>3.7</td>
<td>3.5</td>
<td>3.7</td>
</tr>
</tbody>
</table>

**Internal Environmental Resource Challenges**

Internal Resource Challenges

Similarly, relative to the internal environment or resource availability in the small firm, each respondent was also classified into high or low grouping (using a median split). The amount of entrepreneurial marketing they used for
each of the seven entrepreneurial marketing dimensions was compared across high and low groups with a t-test (see Table 3). For each of the seven internal resource variables, there was significantly more of all of the entrepreneurial marketing dimensions. Thus, there is no support for H2, relative to how small companies respond to difficulties in internal resource challenges.

It is interesting that both H1 and H2 hypotheses are not supported, but the use of entrepreneurial marketing varies in different directions. When *external* environmental challenges are greater, more entrepreneurial marketing is utilized. It is quite different for *internal* resource challenges, however, as larger amounts of entrepreneurial marketing are used when internal resource challenges are lower. When tangible internal resources are more favorable, when there is more company expertise, and when there are more low cost advantages, companies use more entrepreneurial marketing.

**Market Share Results**

Table 4 presents information on the impact of entrepreneurial marketing on market share under conditions of both high and low external environment challenges. As is indicated in Table 4, the hypothesis H3 is not supported. In fact, entrepreneurial marketing seems to be more correlated with situations where external environment challenges are lower. Higher levels of Customer Intensity, Opportunity Driven, Value Driven, Risk Taking Orientation and Innovativeness are all significantly associated with increases in market share in companies experiencing less Environmental Turbulence, less Hostile Environments, and less Competitive Environments. For five of the seven entrepreneurial marketing dimensions, there is no significant relationship between use of entrepreneurial marketing and market share when the external environment is more turbulent, hostile, or competitive. Results are more mixed for Proactiveness and no significant relationships were identified for the correlation between Leveraging Opportunity and Market Share.

An examination of the relationship between entrepreneurial marketing variables and internal resource variables demonstrate no support for the hypothesis H4 but indicate only a very limited significant relationships. Ten of the twenty-one correlations are significant. All seven of the entrepreneurial dimensions with the exception of Customer Intensity have some significant associations between higher levels of entrepreneurial marketing and increases in
market share. Generally, the significant relationships that are identified are when the resources limitations exist.

Table 4

Correlation of Entrepreneurial Marketing with Market Share Changes
Related to the Effects of the Internal and External Environment

<table>
<thead>
<tr>
<th></th>
<th>Custom Intensity</th>
<th>Opportunity Driven</th>
<th>Valued Driven</th>
<th>Leveraging Opportunity</th>
<th>Proac- tiveness</th>
<th>Risk Taking Orientati on</th>
<th>Innov- tiveness</th>
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</thead>
<tbody>
<tr>
<td><strong>External Environ- mental Challenges</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Turbulence</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Lo</td>
<td>.18*</td>
<td>.17*</td>
<td>.19**</td>
<td>NS</td>
<td>NS</td>
<td>.24***</td>
<td>.26***</td>
</tr>
<tr>
<td>Hi</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Hostility</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lo</td>
<td>.17***</td>
<td>.17**</td>
<td>.20**</td>
<td>*</td>
<td>NS</td>
<td>.17***</td>
<td>.25***</td>
</tr>
<tr>
<td>Hi</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Competitive</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lo</td>
<td>.21**</td>
<td>.25**</td>
<td>.21**</td>
<td>NS</td>
<td>.25***</td>
<td>.29***</td>
<td>.41***</td>
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<tr>
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<tr>
<td><strong>Internal Environ- mental Resource Challenges</strong></td>
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<td></td>
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</tr>
<tr>
<td>Tangible</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lo</td>
<td>NS</td>
<td>.24**</td>
<td>.29**</td>
<td>NS</td>
<td>.23***</td>
<td>NS</td>
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<tr>
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<td>NS</td>
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</tbody>
</table>

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DISCUSSION

The results of this study are interesting. There is clearly an association between the use of entrepreneurial marketing and the challenges faced in the external and internal environments of small businesses. Relative to the external environment, three dimensions were investigated – turbulence, hostility and competitiveness. Under conditions of more turbulence, more hostility and more competitiveness, entrepreneurial marketing tended to have greater utilization. The entrepreneurial marketing strategies were used more extensively under all types of challenging external environments were Opportunity Driven and Proactiveness. Customer Intensity and Leveraging Opportunity were both extensively utilized under hostile and competitive environments and Value-Driven Risk-Taking Orientation and Innovativeness were only used more extensively under conditions of competitive environments. The results in this exploratory study suggest when faced with more challenging external environments, small companies turn to more aggressive marketing in order to survive and thrive.

The results relative to the internal resources environment of small businesses are quite different. While there is a strong relationship between the resource challenges such as Tangible Resources, Expertise, and Cost factors, entrepreneurial marketing tends to be utilized when the internal environment is less challenging. Companies that have more capital available have higher levels of expertise or find themselves in a situation where they have low-cost advantages, utilize entrepreneurial marketing to gain even greater advantage and more market share.
Under conditions of external challenge, entrepreneurial marketing seems to be more of a survival strategy in the face of uncertainty, hostility and aggressive competition, entrepreneurial marketing is a required strategic orientation to keep the company viable. With challenging internal environments, entrepreneurial marketing does not appear to be a potential path to improve success. Perhaps in situations with less capital and other tangible resources, low levels of expertise, or no cost advantages, it is difficult to implement entrepreneurial marketing. Entrepreneurial marketing may require a more favorable financial environment, higher levels of expertise or some cost advantages that can be leveraged by the small business. The small business entrepreneur may be better able to predict the difficult external environment they are entering and anticipate these risks better, but perhaps the internal environment is less predictable and may catch the entrepreneur not fully prepared for these issues of cash shortages, lack of expertise required to compete, or cost issues. If these internal challenges are overwhelming in the day-to-day operations, the entrepreneur may not have time or resources for developing any new entrepreneurial marketing strategies due to time constraints and stress.

It is interesting that entrepreneurial marketing is associated with market share changes under varying internal and external environments. Relative to the external environment, entrepreneurial marketing is associated with improvements in market share but particularly with less challenging external environments. When turbulence is relatively low, when the environment is less hostile, and competitiveness is not a major issue, entrepreneurial marketing is associated with positive market share changes. Perhaps a function of facing such an environment encourages the entrepreneur to utilize more aggressive, innovative and creative marketing strategies. When the environment is less aggressive the entrepreneur may feel there are fewer risks so they are willing to use marketing strategies that are unconventional and unique. Under a more threatening environment, perhaps the entrepreneur feels the need to use more traditional marketing strategies like those of their competitors.

On the other hand, relative to internal resource challenges, entrepreneurial marketing is more associated with increases in market share when the internal environment is less challenging. In other works, when levels of expertise are low, when tangible resources are scarce, and when there are few low cost advantages entrepreneurial marketing is more associated with increases in market share. Under conditions of few tangible resources, low levels of expertise and no relative cost advantages entrepreneurial marketing is perhaps
one of the few competitive strategies that can be effective. It may be the strategy of last resort.

**AREAS FOR FUTURE RESEARCH**

Clearly the data in this exploratory study have identified that small businesses are vulnerable to their external environment and the use of more entrepreneurial marketing can help to overcome some of these obstacles in the macro-environment. More research is needed to confirm and extend these finding as well as identify specific industry issues in the external environment. Larger samples and international samples are needed for additional confirmation leading to theory building in the area of entrepreneurial marketing.

Similarly, additional research should consider how best to implement entrepreneurial marketing and the timing and components of the marketing strategy. More research is needed on environmental turbulence and its link to entrepreneurial marketing. Other ways to measure goal achievement beyond market share is also needed in the small business and entrepreneurial literature. Research to quantify the levels and amounts of entrepreneurial marketing needed by small businesses to improve performance is needed and this should be compared to a control group or case studies within the same industry to determine performance differences if firms use no marketing.

An exploration of differences among and between manufacturing, services, and distribution/wholesale/retailers is also needed. In-depth case studies also may better profile specific small businesses with success in achieving market share and performance in turbulent environments and specific industries. Finally, future research needs to study the progression of environmental turbulence on small firm performance. These are interesting questions requiring measurement over time, by industry, and internationally.

**REFERENCES**


Bilal, Z. O., & Al Mqbali, N. S. (2015). Challenges and constrains faced by small and medium enterprises (SMEs) in Al Batinah governorate of


UNDERSTANDING BARRIERS FOR AND INFORMATION SEEKING STRATEGIES BY AGRITOURISM ENTREPRENEURS IN NEW ENGLAND

Kathleen (Chyi-Lyi) Liang
North Carolina A&T State University

Paul Dunn, Professor Emeritus
University of Louisiana at Monroe

ABSTRACT

Using a large-scale field survey conducted in New England, this article explored barriers and information seeking strategies for large (annual gross income > $50,000) and small agritourism (annual gross income < $50,000) farms. Access to financing and capital and access to labor were the most common barriers for all agritourism farms in our sample. Small Farms had more issues with access to network and support systems, while Large Farms had more concerns in accessing market and customers. The most popular, yet might not be the most sufficient source of information to deal with barriers was other farms, friends, family, and relatives for all farms in our sample. In general large farms were more likely to seek information from a variety of sources compared to small farms. There is a need to offer agritourism entrepreneurs more opportunities to exchange and share information by improving networking capacity, beyond traditional education and training in establishing agritourism ventures.

INTRODUCTION

The agritourism sector in the United States has experienced a significant growth trend since 2002. Based on the Census of Agriculture and a series of studies released by the USDA (Bagi & Reeder, 2012; Brown & Reeder, 2007), American farmers have developed and explored a variety of activities to promote farm-people-community interactions. Bed & Breakfast, festivals, special events, and farm tours are a few popular examples that farmers have engaged customers in learning from direct farming activities incorporating entertainment and recreation. Many researchers have recognized agritourism as a positive mechanism to improve farm income, sustain working landscape, and support farm family wellbeing. Others view agritourism as a time-consuming and
resource intensive option which might create more stress and negative influences on farm families. (Agricultural Marketing Resource Center, 2015) Many success stories in agritourism operations seem to reveal opportunities and prosperity. Farmers experiencing success and profits in agritourism operation often adopt innovative business models or business strategies that are similar to other successful entrepreneurs. These business models or business strategies emphasize identifying opportunities to offer value added and benefits to visitors, and establish a reasonable user’s fee structure to capture the willingness-to-pay from participants. Some farmers charge for tours and educational events (e.g. corn maze, pumpkin carving, wine tasting), and others charge for ingredients and materials offered to visitors (e.g. make-your-own flower arrangement, prepare-for-your-own-salad). These fees have to be significant enough to compensate farmers’ time and resources in addition to regular farming expenses.

Just like many entrepreneurs designing and planning for diversification, there are many challenges and barriers for farmers to incorporate agritourism in their daily operation (Liang, 2015). Many well cited issues and risks in agritourism operation include lack of resources (time, labor, and capital), dealing with visitors, insurance and liability, limitations of seasonality and location, and reaching a balance between farming activities and handling visitors’ demands. (Holland & Wolfe, 2000; Keith, et. al. 2003; Schilling, Marxen, Heinrich, & Brooks, 2006). It is a mystery to many farmers, particularly small family farms, who are seeking alternatives to maintain a profitable baseline whether agritourism is a feasible option to improve financial outcome in the long term. There seem to be more discussion in literature about challenges and barriers for farmers to participate in agritourism (e.g. Ryan, DeBord, & McClellan, 2006). One thing has never been explored in literature is – when farmers encounter issues, where and who do they go to seek information for support and guidance? Private consultants and public services such as Inc.com, Entrepreneur.com, and Small Business Development Centers offer many information sources to support entrepreneurs. What do farmers do when they need help?

This paper reports the findings from a large-scale field survey conducted in New England region to study agritourism operation. The key research questions are to identify barriers for farmers to be engaged in agritourism, and from where and whom farmers seek information to handle the barriers. This paper contributes to literature and field practices in two ways. First, diversification introduces risks and trade-offs to farm operators. Farming is very different from other types of business operations due to constraints and
uncertainty in weather and environmental variations. Adding an agritourism component to daily operation implies extra time and commitment for farm operators and family members. Many farming decisions are not singular or segregated decisions, and dealing with barriers and challenges often involve multi-dimensional strategies. It is essential to examine what barriers farmers encounter the most in agritourism operation, and if farmers are seeking support and guidance from appropriate and effective sources. It will help researchers and service providers to understand gaps and demand in assisting farmers developing successful and sustainable agritourism strategies. Second, one key failure among entrepreneurs, especially small ventures, is lack of effective support and sufficient information (Liang & Dunn, 2009). Entrepreneurs have tendency to act independently, take chances, and make quick decisions when opportunity rises. Unfortunately many entrepreneurs fail to respond to risks and barriers because they did not gather sufficient information prior to making decisions. Biased information or missing information can significantly reduce or hinder the success in any venture management and operation. For farmers, it is even more critical to gather enough of the right kind information given the potential high stress and complexity in shifting resources between general operations and agritourism operations. What is even worse is to seek information from wrong sources, which might result in significant opportunity costs for producers.

This paper presents an analysis using one of the largest datasets created in the United States to study barriers and information seeking strategies for agritourism farmers. This is an exploratory study and it is not the authors’ intention to generalize behaviors and decisions for all farmers engaging in agritourism activities. Although the survey focused on New England, results and discussions could benefit all farm entrepreneurs, service providers, and researchers in other regions.

LITERATURE REVIEW

Agritourism has been a widely recognized practice for farmers to directly introduce farm life, products, and services to visitors. Mostly utilizing existing structure and resources, farmers create activities that can offer visitors interactive education opportunities and events that will enhance appreciation and knowledge of agriculture. Some popular examples of agritourism activities include lodging and food services, corn maze, harvest festival, pick-your-own, school field trips, sheep shearing demonstration, and hay ride or sled ride. New England farmers
have a long history engaging in agritourism operation. The average size of farms is relatively smaller in New England compared to other regions, and the economy of scale does not apply to very small scale family farms. Agritourism seems to be a supporting factor for small family farms to maintain working landscape, to connect with customers, and to improve financial outcomes. (Liang, 2015)

Many studies have summarized motivations behind farm/ranch incorporating agritourism. Just like other strategies to diversify farming activities, agritourism offers farm families a buffer when dealing with fluctuations in farming income and employment for family members (Nickerson, Black. & McCool, 2001; Barbieri, 2008; Tew & Barbieri, 2012). Other reasons for farmers to participate in agritourism include enjoying the life style and visitors, better use of farm/ranch resources, and expansion of agricultural recreation market (Liang & Dunn, 2014a; Liang & Dunn, 2014b; Liang & Dunn, 2015). Scholars acknowledge that agritourism provides an opportunity for rural communities to sustain and create local incomes, employment, and growth; contribute to development of economic and social infrastructure; and encourage development of other industries (Drăgulănescu, 2012).

Few studies have discussed the issues and challenges in developing agritourism (Colton & Bissix, 2005). There seemed to be concerns in developing consistent quality of products and services in agritourism. Agricultural products and services in general are not easily to be standardized like manufacturing. Some agritourism operations may not be market-ready or competitive. Other challenges for agritourism operations are establishing trustworthy partnership and communication with collaborators such as advertising and promotion agencies. There seems to be a lack of effective information sharing between farmers, marketers, and general public about agritourism’s value and benefits. Many farmers have not received any training or education prior to embarking on agritourism ventures with respect to product and service design, market, planning, pricing, costs, trade off, opportunities, and assessment. Government also plays a key role in agritourism development due to tax and regulation policies at the local and state levels.

There is a general agreement among researchers and practitioners that agritourism would contribute significantly in rural economy. It offers visitors from non-rural communities an opportunity to learn and to engage in agricultural environment. Farmers who choose to incorporate agritourism concept have evolved into a service-based enterprise, which may generate enormous stress and
pressure to traditional farm families (Hsu, 2005). Dealing with visitors could be time consuming and demanding which further remove farmers from efficiently managing farming activities. Literature has extensively explored and examined challenges and impacts of new venture creation on entrepreneurs and their families (e.g. Cooper, 1993; Liang & Dunn, 2009). Adding agritourism to traditional farming activities is similar to adding a new dimension to farm enterprises, which requires extensive time, labor, capital, and other resources. However the challenges and impacts of agritourism on farm families have not been examined thoroughly. Furthermore, it is unclear if farmers experience similar or different barriers in pursuing agritourism operation, and how they seek information and support to handle the barriers.

This paper used survey results from New England to examine barriers and information seeking strategies of agritourism farmers, by two categories of farm gross income. We define two categories of farms: (1) small farms with $50,000 or less in annual farm gross income, and (2) large farms with more than $50,000 in annual gross farm income. Our categories are a little different from the U. S. Department of Agriculture category, because almost all farmers would be categorized as small farms if we use the USDA definition (according to the USDA definition, small family farms earn less than $250,000 in gross sales). Why is it important to study barriers and information seeking strategies by different income category? The USDA has designed and implemented many policies targeting various types of practices in different farm income categories. (Dimitri, Effland, & Conklin, 2005). Generally large farms have more issues with capital investment, resource allocation, infrastructure development, distribution, and trade. Small farms are more likely to face challenges in labor, financing, and survival. It is reasonable to assume large farms and small farms have different approaches in seeking information and support from different sources.

The focus of this paper is to explore barriers of agritourism operations identified by farmers, and from where and whom farmers seek information to deal with issues. This paper offers a unique perspective that has not been analyzed before – we are looking for barriers and information seeking strategies of agritourism farmers, and we would like to know if farmers are seeking the appropriate and effective information to solve problems.
RESEARCH METHOD

Two survey instruments were designed and implemented through collaboration between researchers at the University of Vermont and the National Agricultural Statistics Service (NASS) New England field office. The purposes of the surveys were to gather information from farmers with respect to diversification, decision making, and entrepreneurial characteristics. We began with a simple postcard survey to gather information from ALL farm principal operators in New England, regarding what they do in traditional farming versus diversified operations such as agritourism, value added, and direct sales. This is the first research project funded by the U. S. Department of Agriculture to apply a census approach to study diversified farms. Using the NASS database and mailing services, the postcard survey was mailed to 33,112 farmers in New England between October 2011 and February 2012. Useable postcards were collected and analyzed by researchers at the University of Vermont. Non-deliverable postcards were returned to the NASS. We received 4,636 useable responses, a 14% return rate.

A follow-up detailed farm survey was designed, pre-tested, and administered to gather information from farm operators who returned the postcards plus additional random sample units drawn by the NASS New England office. Researchers consolidated and consulted many existing and robust instruments to develop a questionnaire. These instruments included agritourism surveys in Vermont and Massachusetts between 1998 and 2009 (Liang, 2010; Liang, 2009), USDA Agricultural Risk Management survey conducted by the Economic Research Services office, and Census of Agriculture surveys. There were four sections in the detailed farm survey and the reference year was 2011.

- The first section included questions about general profile and operation, status of organic or non-organic operations, if farmers participated in diversified operations in 2011 and what types (e.g. agritourism, value added, direct sales), if farmer received government payment, and how farmers connect with other farmers and organizations for advice, training, education, and technical support.
- The second section gathered financial information regarding estimated sales and expenses in dollars with respect to conventional distribution/sales, direct sales through non-conventional outlets (e.g. farm stand, farmer’s market, Community Supported Agriculture), agritourism
activities, and value added productions beyond fresh produce and meat products.

- The third section includes questions about individual demographics, family/household compositions, and off farm jobs obtained by farm operators and family members.
- The last section asked farmers to identify reasons, challenges, entrepreneurial characteristics, and expectations/future outlook as the result of their participation in any diversification activities.

The detailed survey was printed at the University of Vermont, and the NASS New England office assisted in mailing surveys to 7,026 farmers (including 4,636 producers who responded to the postcard survey, plus a random sample of 2,390 producers selected by the NASS staff). The questionnaire was mailed in April 2012 and 1,029 surveys were returned by August 2012 and useable for analysis (15% response rate). **This paper used data from the detailed farm survey and is only based on agritourism respondents.**

**FINDINGS**

A majority of the Agritourism respondents were over 55 years old, male and were well educated, almost 60 percent had collage degrees. This result is consistent with other research and data gathered from the Census of Agriculture. Over half the respondents were large (over $50,000 gross farm income) according to our definition. Interestingly, over half had been involved in Agritourism for more than 10 years. (Table 1, 2, 3, 4, 5)

<table>
<thead>
<tr>
<th>Table 1. Age of Principal Owner in Agritourism</th>
</tr>
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<tbody>
<tr>
<td>Age</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>&lt;35</td>
</tr>
<tr>
<td>35-54</td>
</tr>
<tr>
<td>55-64</td>
</tr>
<tr>
<td>65 or over</td>
</tr>
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</table>
Table 2. Gender of Principal Owner in Agritourism  
Number of Respondents = 113  

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of Respondents</th>
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<tbody>
<tr>
<td>Female</td>
<td>29</td>
</tr>
<tr>
<td>Male</td>
<td>73</td>
</tr>
<tr>
<td>Male and Female (joint ownership)</td>
<td>11</td>
</tr>
</tbody>
</table>

Female: 25.7%  
Male: 64.6%  
Male and Female (joint ownership): 9.7%

Table 3. Gross Farm Income in 2011 for Farms with Agritourism  
Number of Respondents = 76  

<table>
<thead>
<tr>
<th>Farm Type</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Farm</td>
<td>34</td>
</tr>
<tr>
<td>Less than $50,000</td>
<td>44.7%</td>
</tr>
<tr>
<td>Large Farm</td>
<td>42</td>
</tr>
<tr>
<td>At least $50,000</td>
<td>55.3%</td>
</tr>
</tbody>
</table>

Table 4. Education Level of Principal Operator in Agritourism  
Number of Respondents = 114  

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Number of Respondents</th>
</tr>
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<td>Less than HS</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1.8%</td>
</tr>
<tr>
<td>HS</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>6.1%</td>
</tr>
<tr>
<td>Some College</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>32.5%</td>
</tr>
<tr>
<td>4-Year Degree or more</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>59.6%</td>
</tr>
</tbody>
</table>

Table 5. Number of Years Operating in Agritourism  
Number of Respondents = 109  

<table>
<thead>
<tr>
<th>Years Operating</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 or less</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>16.5%</td>
</tr>
<tr>
<td>6 – 10</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>22.0%</td>
</tr>
<tr>
<td>11 – 15</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>16.5%</td>
</tr>
<tr>
<td>16 – 20</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>9.2%</td>
</tr>
<tr>
<td>21 – 25</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>9.2%</td>
</tr>
<tr>
<td>&gt; 25</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>26.6%</td>
</tr>
</tbody>
</table>
Agritourism respondents shared their own perspectives regarding barriers that prohibit involvement or expansion in agritourism in New England (Table 6). Three major concerns are Access to Financing and Capital, Access to Labor, and Access to Networks and Support Systems. Other issues are dealing with Access to Markets and Customers, Access to Land, and Access to Training. Our respondents did not think Access to Service Providers and Vendors was a major barrier. This result seemed to be consistent with discussions in entrepreneurship and agritourism literature. Financing, capital, and labor are common problems for entrepreneurs to consider in expansion or diversification. However, there is an interesting discovery in our result that has not been studied before. Agritourism farmers revealed concerns in accessing networks and support systems, while they were less concerned in accessing service providers and vendors. Now the question is—why do farmers have problems with networks and support systems, if they have sufficient access to service providers and vendors? What do they need networks and support systems for? And what do farmers need service providers for?

<table>
<thead>
<tr>
<th>Table 6. Barriers Prohibit Involvement or Expansion in Agritourism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Small Farms (n=405)</strong></td>
</tr>
<tr>
<td>Access to Financing and Capital</td>
</tr>
<tr>
<td>Access to Land</td>
</tr>
<tr>
<td>Access to Market and Customers</td>
</tr>
<tr>
<td>Access to Labor</td>
</tr>
<tr>
<td>Access to Training</td>
</tr>
<tr>
<td>Access to Service Providers and Vendors</td>
</tr>
<tr>
<td>Access to Networks and Support Systems</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

A crosstab of barriers with sources of information (the thrust of this study) revealed that Large Farmers sought information from more sources than Small Farmers with only a few exceptions in our sample (Table 7). When **Access to Financing and Capital** was a barrier, Large Farm operators sought information from other farmers 13 percent of the time compared to Small Farm operators 9 percent; only Small Farm operators sought information from
Chambers of Commerce; Large Farm operators sought information from Private Consultants 11 percent, Small Farm operators 9 percent. Interestingly, Small Farmers sought information from Financial Institutions, 20 percent, more than Large Farmers, 11.8 percent. Large Farmers sought information from Professional Associations, 13 percent, compared to Small Farmers, 6.5 percent; Family and Friends, 16.2 percent compared to Small Farmers, 10.1 percent; Producer Consumer Coops, 8.3 percent, compared to Small Farmers, 11.8 percent; Input Suppliers, 9.5 percent compared to Small Farmers, 6.8 percent. Access to Finance and Capital is the most important barrier for both Large and Small Farmers in our sample, yet both sought information most often from Other Farmers and Friends, Family and Relatives. Financial Institute, probably a better source in handling financing and capital issues, was rarely used by our respondents.

Access to Labor was the second most frequently mentioned barrier for both Large and Small Farmers in our sample. Other Farmers and Friends, Family and Relatives were the most frequently sought sources of information for Small Farmers and Large Farmers though Professional Association was important for Large Farmers. Large Farms, 10 percent, and Small Farms, 2.9 percent sought information from Other Farmers; Large Farms, 0 percent, Small Farms, 25 percent, sought information from Chambers of Commerce; Large Farms, 8.9 percent, Small Farms, 12.1 percent, sought information from Private Consultants; Large Farms, 11.8 percent, Small Farms, 20 percent sought information from Financial Institutions; Large Farms, 12 percent, Small Farms, 1.6 percent, sought information from Professional Associations; Large Farms, 8.8 percent, Small Farms, 4.1 percent sought information from Friends, Family and Relatives; Large Farms, 8.3 percent, Small Farms, 8.8 percent, sought information from Producer or Consumer Coops; and Large Farms, 11.1 percent, Small Farms, 6.6 percent sought information from Input Suppliers.

When Access to Land was the barrier, Large Farms, 6.3 percent, compared to Small Farms, 3.3 percent, sought information from Other Farmers; none sought information from the Chamber of Commerce. Large Farms, 8.9 percent, Small Farms, 3 percent sought information from Private Consultants; Large Farms, 5.9 percent, Small Farms, 0 percent sought information from Financial Institutions; Large Farms, 4.3 percent, Small Farms, 3.2 percent sought information from Professional Associations; Large Farms, 7.4 percent, Small Farms, 3.4 percent sought information from Family and Friends; Large Farms, 2.8 percent, Small Farms, 5.9 percent sought information from Producer or
Consumer Coops; and Large Farms, 3.2 percent, Small Farms, 4.5 percent sought information from Input Suppliers. Again Other Farmers and Friends, Family and Relatives were the most common sources of information.

**Access to Market and Customers**, a barrier for many respondents, as in the two previous cases found few information seekers, Large Farms, 10 percent, Small Farms, 2.9 percent sought information from Other Farmers; Large Farms, 0 percent, Small Farms, 25 percent, sought information from Chambers of Commerce; Large Farms, 8.9 percent, Small Farms, 12.1 percent, sought information from Private Consultants; Large Farms, 11.8 percent, Small Farms, 20 percent sought information from Financial Institutions; Large Farms, 12 percent, Small Farms, 1.6 percent, sought information from Professional Associations; Large Farms, 8.8 percent, Small Farms, 4.1 percent sought information from Friends, Family and Relatives; Large Farms, 8.3 percent, Small Farms, 8.8 percent, sought information from Producer or Consumer Coops; and Large Farms, 11.1 percent, Small Farms, 6.6 percent sought information from Input Suppliers. In the perspective of market and customer, Small Farmers approached Other Farms, Friends, Family, and Relatives for assistance, while Large Farmers chose Other Farms and Professional Associations.

When the barrier was **Access to Training**, Large Farms, 3.1 percent, Small Farms, 2.2 percent sought information from Other Farmers; Large Farms, 0 percent, Small Farms, 0 percent, sought information from Chambers of Commerce; Large Farms, 2.2 percent, Small Farms, 6.1 percent, sought information from Private Consultants; Large Farms, 8.8 percent, Small Farms, 0 percent sought information from Financial Institutions; Large Farms, 2.2 percent, Small Farms, .8 percent, sought information from Professional Associations; Large Farms, 2.9 percent, Small Farms, 2.7 percent sought information from Friends, Family and Relatives; Large Farms, 2.8 percent, Small Farms, 2.9 percent, sought information from Producer or Consumer Coops; and Large Farms, 3.2 percent, Small Farms, 2.3 percent sought information from Input Suppliers. Again, Other Farmers was the most frequently mentioned source of information for both groups.

**Access to Service Providers and Vendors**, Large Farms, 3.1 percent, Small Farms, 1.4 percent sought information from Other Farmers; Large Farms, 0 percent, Small Farms, 0 percent, sought information from Chambers of Commerce; Large Farms, 4.4 percent, Small Farms, 3.0 percent, sought information from Private Consultants; Large Farms, 5.9 percent, Small Farms, 0 percent sought information from Financial Institutions; Large Farms, 2.2 percent,
Small Farms, .8 percent, sought information from Professional Associations; Large Farms, 2.9 percent, Small Farms, 2.7 percent sought information from Friends, Family and Relatives; Large Farms, 2.8 percent, Small Farms, 2.9 percent, sought information from Producer or Consumer Coops; and Large Farms, 3.2 percent, Small Farms, 2.3 percent sought information from Input Suppliers. Access to Service Providers and Vendors was a low level barrier for both groups, with Other Farmers the most frequently mentioned information source.

When the barrier was **Access to Networks and Support Systems**, Large Farms, 4.4 percent, Small Farms, 5.4 percent sought information from Other Farmers; Large Farms, 0 percent, Small Farms, 25 percent, sought information from Chambers of Commerce; Large Farms, 2.2 percent, Small Farms, 9.1 percent, sought information from Private Consultants; Large Farms, 11.8 percent, Small Farms, 10 percent sought information from Financial Institutions; Large Farms, 5.4 percent, Small Farms, 2.4 percent, sought information from Professional Associations; Large Farms, 2.9 percent, Small Farms, 6.1 percent sought information from Friends, Family and Relatives; Large Farms, 5.6 percent, Small Farms, 5.9 percent, sought information from Producer or Consumer Coops; and Large Farms, 4.8 percent, Small Farms, 2.3 percent sought information from Input Suppliers. Small Farms in our sample seemed to be more concerned about the Networks and Support Systems compared to Large Farms. Other Farmers were the most frequent information sources for both groups. Friends and family were the second most frequently mentioned source of information for Small Farmers and Professional Associations for Large Farmers.
Table 7. Identifying Barriers versus Information Seeking Strategies for Agritourism Farms in New England

<table>
<thead>
<tr>
<th>Sources of Information When Access to Financing and Capital is Identified as a Barrier</th>
<th>Sources of Information When Access to Land is Identified as a Barrier</th>
<th>Sources of Information When Access to Market and Customers is Identified as a Barrier</th>
<th>Sources of Information When Access to Labor is Identified as a Barrier</th>
<th>Sources of Information When Access to Training is Identified as a Barrier</th>
<th>Sources of Information When Access to Service Providers and Vendors is Identified as a Barrier</th>
<th>Sources of Information When Access to Networks and Support Systems is Identified as a Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Farmers</td>
<td>Other Farmers</td>
<td>Other Farmers</td>
<td>Other Farmers</td>
<td>Other Farmers</td>
<td>Other Farmers</td>
<td>Other Farmers</td>
</tr>
<tr>
<td>Small Farm n=276</td>
<td>25</td>
<td>9</td>
<td>8</td>
<td>16</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Large Farm n=160</td>
<td>21</td>
<td>10</td>
<td>16</td>
<td>16</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Chamber of Commerce</td>
<td>Chamber of Commerce</td>
<td>Chamber of Commerce</td>
<td>Chamber of Commerce</td>
<td>Chamber of Commerce</td>
<td>Chamber of Commerce</td>
<td>Chamber of Commerce</td>
</tr>
<tr>
<td>Small Farm n=4</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Large Farm n=5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Private Consultants</td>
<td>Private Consultants</td>
<td>Private Consultants</td>
<td>Private Consultants</td>
<td>Private Consultants</td>
<td>Private Consultants</td>
<td>Private Consultants</td>
</tr>
<tr>
<td>Small Farm n=33</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Large Farm n=45</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Financial Institutions</td>
<td>Financial Institutions</td>
<td>Financial Institutions</td>
<td>Financial Institutions</td>
<td>Financial Institutions</td>
<td>Financial Institutions</td>
<td>Financial Institutions</td>
</tr>
<tr>
<td>Small Farm n=10</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Large Farm n=34</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Other Farmers: Small Farm: 25, Large Farm: 21, Chamber of Commerce: Small Farm: 1, Large Farm: 0, Private Consultants: Small Farm: 3, Large Farm: 5, Financial Institutions: Small Farm: 2, Large Farm: 4.
DISCUSSION AND IMPLICATIONS

Agritourism has been acknowledged by farm operators, researchers, practitioners, and policy makers to be an option to improve farm income. Based on an assessment conducted by the USDA, farm operators should consider farm net worth, commitment to off farm jobs, distance to surrounding cities, and natural amenities in communities to assess potential opportunities for agritourism operations. (Brown & Reeder, 2007) While there have been some discussions of challenges and barriers for agritourism farms, there has been limited studies to understand types of challenges and barriers corresponding to sources of information farmers seek.

<table>
<thead>
<tr>
<th>Sources of Information</th>
<th>Professional Associations</th>
<th>Professional Associations</th>
<th>Professional Associations</th>
<th>Professional Associations</th>
<th>Professional Associations</th>
<th>Professional Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>When Access to Financing and Capital is Identified as a Barrier</td>
<td>Small Farm (n=124) 8</td>
<td>6.5%</td>
<td>4</td>
<td>1.6%</td>
<td>2</td>
<td>4.8%</td>
</tr>
<tr>
<td></td>
<td>Large Farm (n=92) 12</td>
<td>13.0%</td>
<td>4</td>
<td>12.0%</td>
<td>11</td>
<td>10.9%</td>
</tr>
<tr>
<td>When Access to Land is Identified as a Barrier</td>
<td>Small Farm (n=148) 15</td>
<td>10.1%</td>
<td>5</td>
<td>4.1%</td>
<td>6</td>
<td>8.1%</td>
</tr>
<tr>
<td></td>
<td>Large Farm (n=68) 11</td>
<td>16.2%</td>
<td>5</td>
<td>8.8%</td>
<td>6</td>
<td>8.8%</td>
</tr>
<tr>
<td>When Access to Market and Customers is Identified as a Barrier</td>
<td>Small Farm (n=34) 4</td>
<td>11.8%</td>
<td>2</td>
<td>8.8%</td>
<td>3</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>Large Farm (n=36) 3</td>
<td>8.3%</td>
<td>1</td>
<td>8.3%</td>
<td>3</td>
<td>11.1%</td>
</tr>
<tr>
<td>When Access to Labor is Identified as a Barrier</td>
<td>Small Farm (n=44) 3</td>
<td>6.8%</td>
<td>2</td>
<td>6.8%</td>
<td>3</td>
<td>4.5%</td>
</tr>
<tr>
<td></td>
<td>Large Farm (n=63) 6</td>
<td>9.5%</td>
<td>2</td>
<td>11.1%</td>
<td>7</td>
<td>11.1%</td>
</tr>
<tr>
<td>When Access to Training is Identified as a Barrier</td>
<td>Small Farm (n=124) 8</td>
<td>6.5%</td>
<td>4</td>
<td>1.6%</td>
<td>2</td>
<td>4.8%</td>
</tr>
<tr>
<td></td>
<td>Large Farm (n=92) 12</td>
<td>13.0%</td>
<td>4</td>
<td>12.0%</td>
<td>11</td>
<td>10.9%</td>
</tr>
<tr>
<td>When Access to Service Providers and Vendors is Identified as a Barrier</td>
<td>Small Farm (n=148) 15</td>
<td>10.1%</td>
<td>5</td>
<td>4.1%</td>
<td>6</td>
<td>8.1%</td>
</tr>
<tr>
<td></td>
<td>Large Farm (n=68) 11</td>
<td>16.2%</td>
<td>5</td>
<td>8.8%</td>
<td>6</td>
<td>8.8%</td>
</tr>
<tr>
<td>When Access to Networks and Support Systems is Identified as a Barrier</td>
<td>Small Farm (n=34) 4</td>
<td>11.8%</td>
<td>2</td>
<td>8.8%</td>
<td>3</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>Large Farm (n=36) 3</td>
<td>8.3%</td>
<td>1</td>
<td>8.3%</td>
<td>3</td>
<td>11.1%</td>
</tr>
<tr>
<td></td>
<td>Small Farm (n=124) 8</td>
<td>6.5%</td>
<td>4</td>
<td>1.6%</td>
<td>2</td>
<td>4.8%</td>
</tr>
<tr>
<td></td>
<td>Large Farm (n=92) 12</td>
<td>13.0%</td>
<td>4</td>
<td>12.0%</td>
<td>11</td>
<td>10.9%</td>
</tr>
</tbody>
</table>

Table 7. Identifying Barriers versus Information Seeking Strategies for Agritourism Farms in New England (continued)
The purpose of this study was to fulfill the gaps in literature by (1) identifying barriers Small and Large Farmers in agritourism have experienced, and (2) exploring the sources of information used in overcoming barriers or resolving problems. The research question is – are farmers using sufficient and appropriate sources of information when they need help?

Based on this analysis, it seems that Small Farmers and Large Farmers, with a couple of exceptions recognize similar barriers. For our respondents who are involved in agritourism operations, major barriers include Access to Financing and Capital, Access to Labor, and Access to Market and Customer. For Small Farms, Access to Network and Support System seems to be a concern, while Access to Market and Customer is more a problem for Large Farms. To summarize where farmers go to seek help, our sample farmers show that:

1. When access to financing and capital is a barrier, Small Farms are more likely to approach other farmers and friends and families for advice. Large Farms are more likely to approach other farmers, professional associations, and friends and family for advice.
2. When access to land is a barrier, both Small Farms and Large Farms use other farmers and friend and family.
3. When access to market and customer is a barrier, Small Farms use other farms and friends and family. Large Farms use other farms and professional association.
4. When access to labor is a barrier, Small Farms use other farms and friends and family. Large Farms use other farms and professional association.
5. When access to training is an issue, Small Farms use other farms, and not much an issue for Large Farms.
6. Access to service and vendors, and access to networks and support, not a major issue for Large Farms. Small Farms go to other farms and friends and family.

The respondent number is low in both Small Farms and Large Farms when asking about identifying barriers. The question in the survey states: please indicate which barriers if applicable prohibit your expansion or involvement in agritourism. For people who did not choose any barriers, there are three possibilities: (1) farmers did not think these were barriers, (2) farmers did not know if they had these barriers (3) farmers did not want to admit these were barriers.
For people who identify individuals or organizations farmers often connect with for advice, training, education, and technical support, possible reasons that farmers did not identify any (1) they did not go to any of these sources (2) farmers chose not to respond. These are not controllable factors for researchers and any of these scenarios certainly presents potential bias in our study. However, for those who work with farmers closely, we understand the nature of farming characteristics and farmers’ personalities that could be challenging in conducting any surveys. It is not the authors’ intention to generalize the results, and this study only offers the first step to analyze agritourism farms in New England by matching their issues with sources of information based on farm operators’ perception only. More analysis needs to be completed in the future to compare farm profile, entrepreneurial characteristics, and problem solving strategies for agritourism farmers and other types of diversified farms.

There are several implications of this study:

1. Diversification strategies such as agritourism cannot be formulated into a standardized experience for all farmers. Many service providers such as extension, SBDC, and private consultants offer training and education in agritourism operation. Advisors and trainers need to assist farmers in a variety of operation scales to understand procedures, policies, and barriers prior to encouraging farmers to add agritourism to their daily farming activities. Using successful farmers might be the most effective method to educate and reach out to other producers. Building a supportive system or a mentoring system at the local or regional levels by recruiting more successful farmers (maybe offering incentives to motivate farmers’ participation) would contribute significantly to the success of agritourism operation.

2. Many farmers might not recognize or might not be able to identify barriers if they have not been involved in agritourism operation for a long time. For those farmers who are in early stages of agritourism operation, they would experience different levels of barriers compared to those farmers who have operated agritourism for more than 10 years. There is a need to design, plan, and deliver various levels of training and education for farmers who are in need of different levels of information.

3. Family, friends, and relatives might not be a sufficient source of information in dealing with all types of barriers for agritourism farmers. In reality, one family member’s bad experience in dealing with customers might translate into a unique opportunity for another family member. It is
essential to support family farms, particularly the small family farms that support a majority working landscapes in this country. However family experiences, transitioning knowledge and skills, and resource allocation should be one of the priorities for service providers to assist farm families in consultation.

4. There seem to be limited networks and support systems for farmers to share knowledge, skills, and information. There are a lot more trade shows and professional networking events for non-agricultural industries. Farmers are really busy in handling daily production, and it is always challenging to arrange professional networking events for farmers. Thanks to technology development, the service providers should take advantage of internet and social media to deliver education information and training. Extension staff has been and should continue to encourage farmers to link to professional development opportunities (events, workshops) across institutions and regions. Broadening networking capacity and expanding support systems for agritourism farmers will create more exchange in lessons learned, which will more likely improve the survival and success of agritourism farmers in the long term.

REFERENCES


Liang, C. (2009), Marketing Strategies in Agri-Tourism: A Comparative Study between Vermont and the Common Wealth of Massachusetts, Report, University of Vermont and Vermont Farms Association.


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