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FAMILIAL OR STRUCTURED? THE IMPACT OF CULTURE ON THE HUMAN RESOURCE PRACTICES OF HISPANIC AND NON-HISPANIC FAMILY FIRMS

John Cater, Kevin James, Kerri Camp and Roland Kidwell

Abstract

Effective use of human resources is important for the profitability of family firms and their capability for growth. Hispanic-owned businesses (HOBs) are the fastest growing small business sub-group in the United States and 90 percent of HOBs in the U.S. are family firms. In a survey of 169 U.S. firms, we employ cultural dimensions theory to hypothesize the extent of the development of human resource practices in Hispanic family firms (n=70) versus non-Hispanic family firms (n=99). Results of the study indicated that while HR practices in Hispanic family firms are less structured than those of non-Hispanic family firms, Hispanic family firms that effectively use HR practices will have greater financial success.

Executive Summary

We surveyed 169 companies to examine human resource practices in Hispanic and non-Hispanic family firms in the United States. At 17 percent of the U.S population, Hispanics are the largest ethnic minority in the U.S, and are of growing importance to the country’s economy. In spite of growing interest from researchers, significant gaps remain in our understanding of Hispanic family firms and their HR practices. We apply cultural dimensions theory to the growing research base on Hispanic family firms, highlighting collectivism, familism, short term orientation, high power distance, and ‘simpatia’ (pleasant social relationships). We seek to increase awareness of Hispanic-owned businesses (HOBs) as family firms, and add to the
understanding of human resource practices in Hispanic family firms. We tested five hypotheses and found that Hispanic family firms have been slower than their non-Hispanic counterparts to develop and implement formalized HRM systems, but when Hispanic family firms do employ formal HRM practices, they will have greater financial success.

**Introduction**

Human resource practices have been studied extensively in larger corporations (Carlson, Upton, & Seaman, 2006; Hornsby & Kuratko, 2003; Huselid, 1995; MacDuffie, 1995) and shown to have great value (Pfeffer, 1994). Whereas human resource management (HRM) plays a strategic role in many family firms, there is a relative lack of research involving HRM practices in family firms (Reid, Morrow, Kelly & McCartan, 2002; Thach & Kidwell, 2009; Kim & Gao, 2010; and Flamini & Gnan, 2017). Scholars continue to call for more studies outside of large corporations because CEOs in small and family businesses have recognized the importance of formal HRM practices to the growth of their companies (Heneman, Tansky, & Camp, 2000). Increased study of HRM in family firms should be undertaken because of the heightened importance of ‘people practices’ to the success of family-owned businesses (Kidwell & Fish, 2006). With increased company size, HRM practices become more necessary to control operations (Hornsby & Kuratko, 1990, 2003); to this end, HRM practices include techniques in recruiting, hiring, job design, training, compensation, performance evaluation, and leadership (Mathis, Jackson, & Valentine, 2014). In a review of 40 years of studies of HRM in family firms, Flamini and Gnan (2017) concluded that the extant research in the area presents a narrow view of theoretical, empirical and managerial implications, leaving many open questions.

To address some of these questions, we apply Hofstede’s cultural dimensions theory to develop and test hypotheses that compare HR practices in Hispanic and non-Hispanic family firms in the United States. A family firm can be defined as a company in which the governance and/or
management are controlled by one family or a small number of families and in which behavior in the firm reflects the vision and values of the controlling family or families (Chua, Chrisman & Sharma, 1999). Yet, differences in factors such as founders' values, firm size, cultural background, firm goals and governance structures make family firms quite heterogeneous (Chua, Chrisman, Steier, & Rau, 2012), well beyond the hybrid organizational identity of family firms that is due to their roots in both family and business (Whetten, Foreman, & Dyer, 2014). Variance within types of family firms and the profound influence that Hispanic family firms, in particular, have on the U.S. economy make comparative studies such as this one an important research topic.

The Hispanic population in the U. S. has nearly quadrupled in size from 14.6 million people in 1980 to more than 55 million in 2015 (U. S. Census Bureau, 2015). This increase has boosted Hispanics to 17 percent of the U.S. population and made them the nation’s largest ethnic minority, representing a $1.5 trillion consumer market (Bernstein, 2016: Porras, 2016). 24.4 million Hispanics were employed in the U.S. work force in 2015, comprising 15.2 percent of all U.S. employees, while African-Americans accounted for 11.1 percent and Asian-Americans 5.4 percent of the total (Bureau of Labor Statistics, 2016). Hispanics owned 3.3 million out of 26.7 million businesses in the U.S. or 12.7 percent (U.S. Census Bureau, 2012). According to a recent survey, Hispanic small business owners, as one of the fastest growing segments of small business in the U.S., were significantly more hopeful about revenue and hiring growth than their non-Hispanic counterparts (Dahlberg, 2017). The engine driving this economic growth is the Hispanic family firm; the vast majority (90 percent) of Hispanic owned businesses are family firms (Porras, 2016).

Researchers verify the conceptualization of Hispanics as an ethnic group citing many commonalities concerning customs, beliefs and values. Latin American countries share 500 years of history characterized by a common religion (Roman Catholic) and the mixing of races
resulting in people known as Mestizos (Blancero & Del Campo, 2012). In Central and South America, Mestizos are people of combined Native American and European (white Spanish) extraction (Guerrero & Posthuma, 2014). Hispanics trace their lineage back to colonial Spain beginning with Spanish explorers, missionaries and colonizers in the 16th century.

Although Hispanics are characterized as an ethnic group, we recognize there are differences among sub-groups included within the term ‘Hispanic’ and in reality that we are referring to “a diverse array of ethnic, regional, national, and religious peoples” (Warren, 2016: 1). Hispanics in the U.S. represent 19 different Central and South American countries, Puerto Rico, or Spain (Marin & Marin, 1991). Researchers suggest a significant amount of within group variability among Hispanics because of differences in immigration, background, age, education level, and socio-economic status (Marin & Marin, 1991; Shinnar, Cardon, Eisenman, Zuiker, & Lee, 2009).

The majority of Hispanics in the U.S. are White (53 percent), 36.7 percent are Mestizo (Mixed White and Native American), six percent are two or more races, 2.5 percent are Black, one percent are Asian, and 0.8 percent were other (Stat Chat, 2014). By place or country of origin, the greatest number of Hispanics were from Mexico (63 percent); while 10 percent were from Central America, eight percent from Puerto Rico, seven percent from South America, four percent from Cuba, and another 8 percent from other places (Bureau of Labor Statistics, 2016).

Marin and Marin (1991; 1) provided a good working definition of the term Hispanic, stating that “Hispanics are individuals who reside in the U.S. and were born in or trace their family’s background to one of the Spanish-speaking Latin American nations or to Spain.”

There is a growing body of research exploring different aspects of the Hispanic business experience in the United States. For example, scholars have recently focused on entrepreneurship among Hispanics (Beutell & Schneer, 2014; Canedo, Stone, Black, &

Despite ongoing scholarly interest, significant gaps remain in our understanding of Hispanic family firms. Blancero and DelCampo (2012) cite a lack of studies employing Hispanic samples, and Guerrero and Posthuma (2014: 616) assert that there is a “paucity of research about Hispanics in the workplace.” While there may be limited empirical studies of HR practices in family firms (Reid, Morrow, Kelly, and McCartan, 2002), even less is known about HR practices in Hispanic family firms. We seek to build on the conceptual foundation laid by Kidwell, Hoy, and Ibarreche (2012) to enhance the understanding of HR practices in Hispanic family firms. The research question guiding this study was ‘Do Hispanic family firms have less formally developed professional human resource management practices than non-Hispanic family firms?’

This study makes several important contributions regarding research into HRM, Hispanic-led businesses, and family firms. These include applying and testing cultural dimensions theory regarding human resource practices in family firms, adding to the growing research into the Hispanic ethnic group in the United States, increasing awareness of HOBs as family firms, describing the intersection of Hispanics and family firms, and increasing the understanding of human resource practices in Hispanic family firms.

**Literature Review**

In developing hypotheses for this study of differences between Hispanic and non-Hispanic family firms, we first review previous research in human resource practices in family firms,
Hispanic cultural values and ethnic differences and Hispanic family firms. Our hypothesis development is guided by Hofstede’s theory of cultural dimensions, which defines culture as “the collective programming of the mind that distinguishes the members of one group or category of people from another” Hofstede (2001: 9). Cultural dimensions theory examines the effects that a society’s culture, i.e., its shared values measured on several dimensions, has on its individual members’ values and how those values can affect behavior (Hofstede, 2001). The application of cultural dimensions theory to various aspects of family firms has been limited, but there are a few exceptions (e.g., Stevens, Kidwell & Sprague, 2015; Hitchcock & Wesner, 2009).

**Human Resource Practices in Family Firms**

Researchers have commonly assumed that small businesses and family firms are less sophisticated in the use of human resource practices than their larger corporate counterparts (Hornsby & Kuratko, 1990). Early studies have shown that the implementation and proper use of human resource practices may have a positive impact on the performance of family businesses (Astrachan & Kolenko, 1994: Hornsby & Kuratko, 1990). In their study, Astrachan and Kolenko (1994) found significant positive relationships between HR practices and gross family firm revenues and CEO personal income levels. Beyond succession planning, the most commonly used HR practices were formal employee reviews, set compensation plans, written employee manuals, and the use of written job descriptions. In a study of 247 small businesses located in the Midwestern U.S., Hornsby and Kuratko (1990) found agreement on the identity of the most important HR practice issues – wage rates, availability of quality workers, benefits, government regulation, and training - across three levels of small businesses (50 or less employees, 51 to 100 employees, and 101 to 150 employees). They also found a greater level of sophistication than expected among the businesses.
Research results have not always been positive concerning HR practices in family firms. In 2003, Hornsby and Kuratko replicated their 1990 study by surveying 262 U.S. small businesses in regard to their human resource management. The results showed little improvement or advancement in human resource practices in small businesses during the 13 years between studies. The availability of workers and benefits were still ranked as the top concerns of the respondents and concerns over government regulation and wages were also major issues, but the 2003 study also listed childcare, retention, and flexible scheduling as critical elements. Then, in a survey study of 700 Dutch small to medium-sized firms, De Kok, Uhlaner, and Thurik (2006) found that family ownership and management had a negative effect on the use of professional HRM practices. The study confirmed the authors’ suspicions that family firms were less likely to use professional HRM practices. Using data from Australian micro, small, and medium sized firms, Kotey and Slade (2005) found that HRM practices change as firms grow in size, becoming more formal, and that changes for workers come sooner in the process than more formal practices at the managerial level. In agreement with Kotey and Slade (2005), Kidwell and Fish (2006) also observed that formalizing HR systems was largely a function of company size in the industry.

However, several additional studies on HR practices in family firms found positive associations to firm level success, linking back to earlier studies of HR practices in larger organizations (Huselid, 1995; MacDuffie, 1995). In a study combining quantitative surveys and qualitative interviews of Australian family businesses in the wine industry, Kidwell and Fish (2006) found that establishing formal HR systems was positively associated with HR effectiveness, alignment with strategy, and firm profitability relative to the industry. In a study of 168 U.S. family firms, high sales-growth family firms implemented and performed more professional recruitment techniques, training and development practices, performance appraisals,
competitive compensation, and incentive compensation compared to low sales-growth performing family firms (Carlson, Upton, & Seaman, 2006). Then, in a comparison of HR practices in U.S. and Australian family wineries, Thach and Kidwell (2009) found that U.S. family firms were more likely to formalize their HR practices than their Australian counterparts. In both groups, more formalized HR practices were related to firm effectiveness and profitability although U.S. family firms reported higher profitability.

Kim and Gao’s (2010) study of 205 family firms in China found that firm size was a key factor in the level of formality and sophistication in HRM practices due to resource advantages held by larger firms. However, lack of formal HRM in smaller firms allowed them flexibility to cope with the country’s turbulent business environment. A key finding was the potentially mixed influences that China’s Confucian values had on the development of HRM practices in family firms. In a study of Vietnamese family firms located in London, Hitchcock and Wesner (2009) focused on the degree to which Confucian values influenced the firms’ core values; they found support for the idea that Vietnamese cultural values provided a competitive advantage in business to the firm but the advantage could not all be attributed to Confucian influence.

**Hispanic Cultural Values**

In this section, we present a brief summary of Hispanic cultural values that may impact Hispanic family firms. Researchers have most commonly cited the following values as key dimensions of Hispanic culture: collectivism, familism, short-term orientation, high power distance, and simpatia.

First, Hispanics rate highly in terms of collectivism (Canedo, Stone, Black, & Lukaszewski, 2014; Guerrero & Posthuma, 2014; Vincent, 1996). In collectivistic cultures, the needs, objectives, and point of view of an in-group are emphasized above those of the individual (Hofstede, 1980). As a collectivist culture, Hispanics exhibit conformity, readiness to be
influenced by others, and willingness to sacrifice for the welfare of in-group members is common (Danes, Lee, Stafford, & Heck, 2008; Marin & Marin, 1991).

Second, research shows that family is more important for Hispanics than non-Hispanic Whites (Beutell & Schneer, 2014). Hispanics display a high degree of familism (Canedo, et al, 2014; Vincent, 1996) in which individuals identify and are strongly attached to their nuclear or extended family. In familism, Hispanic family members show loyalty, reciprocity, and solidarity to the family, which is found in all Hispanic groups and remains a significant characteristic even when the family has lived in the United States for many years (Marin & Marin, 1991). Individuals turn to the family first for aid or risk expressions of anger from the family (Danes, et al, 2008). Family members serve as primary role models (Canedo, et al, 2014). The patriarchal family structure is common, but spouses often share decision making (Danes, et al, 2008).

Third, Hispanics exhibit short-term orientation (Canedo, et al, 2014), which refers to an emphasis on the present time rather than the future. Hispanics may prefer to enjoy the present time or instant gratification instead of planning for the future (Marin & Marin, 1991) and are relaxed in the use of time (Danes, et al, 2008). Hispanics may also be past oriented and place a high value on tradition (Escobar, 2011).

Fourth, Hispanics have high power distance (Hofstede, 1980), which means that they feel separated from their leaders either inside or outside of the family, value obedience and conformity, support autocratic and authoritarian attitudes from organization leaders (Marin & Marin, 1991) and more readily accept hierarchical power distance (Guerrero & Posthuma, 2014). Leadership may be defined as a skill used to influence followers in an organization to work enthusiastically towards goals specifically identified for the common good (Barrow, 1977; Cyert,
2006; Plsek & Wilson, 2001). Hispanics’ non-democratic attitudes as followers have implications for the implementation of professional HR practices in Hispanic family firms.

Fifth, Hispanics exercise ‘simpatia’ in which they value smooth and pleasant social relationships, harmony, dignity, respect, and avoid confrontation (Marin & Marin, 1991). Hispanics may use indirect communication and try not to make others uncomfortable (Danes, et al, 2008). Hispanics perceive submissiveness, deference to others and passivity to be desirable behaviors (Escobar, 2011).

In contrast, mainstream Americans, or Anglos to compare them with Hispanics, have an individualistic culture (Hofstede, 1980), emphasize work even to the detriment of family life (Canedo, et al, 2014), have a long term orientation and emphasize planning for the future (Marin & Marin, 1991), display low power distance in relation to leaders (Blancero & DelCampo, 2012; Hofstede, 1980), and do not exhibit ‘simpatia.’ Although Hispanics are slightly higher, both Hispanic and Anglo cultures show high masculinity, which refers to competitiveness and desire for achievement and success (Hofstede, 2017).

**Hispanic Ethnic Differences**

Other issues for Hispanics include their use of the Spanish language, which may serve as a barrier in communicating to non-Hispanics. Spanish names are easily recognized as visibly different and many Hispanics have two family names (one from the father and one from the mother). Hispanic accents may also lead to misunderstanding with Anglos (Guerrero & Posthuma, 2014). While primarily associated with African American studies, skin tone or complexion can have a negative impact on Hispanics in that those individuals of a darker hue may be penalized due to stereotypes (Johnson, Ruiz, & Nguyen, 2012; Keith & Herring, 1991).
Another critical element for Hispanics is their religion, which has long been Roman Catholic (Herbig & Yelkur, 1998). The percentage of Hispanic Roman Catholics has declined from 67 percent in 2010 to 55 percent in 2013 (Pew Research Center, 2014). While the majority of Hispanics remain Roman Catholic, the percentage of Protestants has risen to 22 (16 percent Evangelical and 6 percent Mainline), and those who are Unaffiliated has increased to 18 percent, Other Christian was 3 percent, and Other (non-Christian) was 1 percent. By comparison, in the overall U.S. population, Roman Catholics comprised 20.8 percent, Protestants were 46.6 percent, Other Christians were 3.3 percent, non-Christian faiths were 5.9 percent, Unaffiliated were 22.8 percent, and Don’t Know were 0.6 percent (Pew Research Center, 2017). The startling news is the shifting religious identity of Hispanics - one in four Hispanic adults are now former Catholics. The movement away from the Catholic Church towards Protestantism on one end and Unaffiliated status on the other appears to be part of an acculturalization process in which Hispanics are becoming more similar to non-Hispanics in the U.S. (Pew Research Center, 2014).

**Hispanic Family Firms**

Whereas we noted earlier in this paper that there is increased academic interest in different aspects of Hispanic involvement in business in the U.S., there have been relatively few studies of Hispanic family firms. Vincent (1996) explored decision making among Mexican-American family businesses and found that Hispanics followed informal practices. The percentage of Mexican-American family business people who did not use formal decision-making policies was twice as large as that of Anglos. In a comparative study of the borrowing propensities of Mexican-Americans and Korean-Americans, Haynes, Onochie, and Lee (2008) found that Mexican-American family business owners with high net worth were significantly more likely to borrow from commercial banks than Mexican-American business owners with low net worth, who relied more on family financial support. Reliance on family support was also reported by Chang et al.
(2009: 288) who stated, “Hispanics appear to depend upon family members much more heavily than external networks of support.” In another study comparing Mexican-American family businesspeople born in the U.S. and Mexican immigrant businesspeople, the U.S.-born businesspeople reported stronger motivation from individualistic financial rewards than their immigrant counterparts, who were more motivated by serving their community. These results may imply an increasing level of acculturalization (Shinnar, Cardon, Eisenman, Zuiker, & Lee, 2009).

Peredo and Chrisman (2006) found that customers may view patronizing a Hispanic family business as a way of contributing to the community. Further, Harris (2009) suggested that family businesses that share an ethnic background with their customers, employees, and suppliers may possess a competitive advantage and receive preferential treatment.

Although the cited studies have broken ground in the research of Hispanic family firms, there is still much that is not known, especially regarding HR practices in Hispanic family firms. This study aims to address this research gap by exploring the HR practices of Hispanic family firms and comparing them to HR practices in non-Hispanic family firms. The results also have important managerial implications for both family business owners and decision makers.

**Hypotheses**

In this section, we use cultural dimensions theory to develop hypotheses to test our research question – “Do Hispanic family firms have less formally developed professional human resource management practices than non-Hispanic family firms?”

**Hiring, Promotion, and Retention of Employees**

From our literature review, we would expect Hispanic family firms to rely more heavily on their nuclear and extended family for guidance than on externally created professional HR practices. Coming from a collectivistic mentality, Hispanics identify with their in-group (the family) above themselves as individuals (Hofstede, 1980), are heavily influenced by their in-
group or family, and willing to sacrifice for them (Danes, et al, 2008; Marin & Marin, 1991). Therefore, we would expect Hispanic family firms to hire more family members, promote family members above non-family members, and make stronger efforts to retain family members than other employees. This imbalance of treatment in favor of family members may result in poorly developed HR practices in hiring, promotion, and retention. Based on the aforementioned arguments, we hypothesize the following.

**Hypothesis 1:** Human resource practices in Hispanic family firms to hire, promote and retain employees will be less formally developed than in non-Hispanic family firms.

**HR Effectiveness and Alignment Tools**

Collectivism and the closely related characteristic of familism, a strong sense of loyalty, reciprocity, and solidarity to the family (Marin & Marin, 1991), will have a strong influence on decision making in Hispanic family firms and the effectiveness and alignment of HR practices. For example, Hispanic family firm managers may have a tendency to structure jobs around available family members and their talents and abilities as opposed to structuring jobs to enhance business performance. There may also be a tendency towards rewarding all family members equally to avoid jealousy instead of compensating family members based on their job performance. Resulting at least in part from high power distance (Hofstede, 1980), communication may be stronger in the downward direction from the patriarch to family members in the Hispanic family firm (Danes, et al, 2008). The flow of communication and decision making power downward may negatively affect feedback from employees, understanding of aligning HR and business strategies, and clear understanding of the company mission. Thus, HR effectiveness and alignment tools may be poorly developed. Therefore, we hypothesize the following.

**Hypothesis 2:** HR effectiveness and alignment tools in Hispanic family firms will be less formally developed than in non-Hispanic family firms.
Leadership

Hispanics display short-term orientation (Canedo, et al, 2014) and prefer to live in and enjoy the present (Marin & Marin, 1991). They also highly value the past and revere tradition (Escobar, 2011). This view of time, focused on the present and honoring the past, may not lead to good leadership practices in Hispanic family firms. Leaders may be better served to have a future orientation and an emphasis on planning for the future (Marin & Marin, 1991) to be successful in Hispanic family firms. Another cultural factor that may affect leadership in Hispanic family firms is ‘simpatia’ (Marin & Marin, 1991). Hispanics may exercise ‘simpatia’ or smoothness and harmony in relationships in family firms instead of providing strong leadership to family members, especially within generations of the family firm.

A complicating factor for Hispanic family firm leaders is Hispanics’ acceptance of high power distance (Hofstede, 1980), hierarchical differences (Guerrero & Posthuma, 2014), and patriarchal leadership by Hispanics (Danes, et al, 2008). Even though these three factors may be accepted, as Hispanics become more acculturated into American business practices, tension may result. Hispanic family firm leaders may be viewed as less effective than their Anglo counterparts. Therefore, we hypothesize the following.

Hypothesis 3: Leaders in Hispanic family firms will be perceived to be less effective than in non-Hispanic family firms.

Business Scope

Hispanic family firms may operate successfully in their own communities within the larger American culture (Peredo & Chrisman, 2006; Harris, 2009), but to broaden their business scope and effectively reach larger markets, most Hispanic family firms need to address the mainstream, non-Hispanic market. Here, Hispanic family firms must overcome the barriers of their Spanish language, including communicating with Anglos and overcoming negative stereotypes of Anglos.
associated with Hispanic accents and physical appearance (Guerrero & Posthuma, 2014; Johnson, Ruiz, & Nguyen, 2012; Keith & Herring, 1991). We hypothesize that the aforementioned Hispanic ethnic differences will limit the business scope of Hispanic family firms as follows.

Hypothesis 4: Hispanic family firms will have a more narrow business scope than non-Hispanic family firms.

Effective Use of HR Practices

In early studies of U.S. family firms, Astrachan and Kolenko (1994) and Hornsby and Kuratko (1990) both found that the implementation and proper use of professional HR practices will benefit family firms. In more recent studies, Kidwell and Fish (2006) found that establishing formal HR systems in Australian family firms was positively related to firm profitability in the industry. Carlson, et al, (2006) found that high sales growth U. S. family firms implemented and performed more professional HR practices than low sales growth family firms. Thach and Kidwell (2009) found that more formalized HR practices were related to higher profitability in U.S. and Australian family firms. These studies provide evidence that professional HR practices can transcend cultures and benefit family firms. Meanwhile, the literature shows that Hispanic family firm leaders prefer informal practices in decision making (Vincent, 1996), rely much more on family members for support (Chang, et al, 2009), and depend more on family connections as opposed to professional practices in the management of their businesses (Marin & Marin, 1991).

Therefore, we hypothesize that when Hispanic family firms do establish and implement formalized HR practices that they will have greater financial success than Hispanic family firms that do not. More formally, we hypothesize as follows.

Hypothesis 5: Hispanic family firms that effectively use HR practices will have greater financial success than other Hispanic family firms.
Methods

Data Collection and Participants

Hypotheses testing requires a group of Hispanic family firm owners and a group of non-Hispanic family firm owners with comparable company size so that response comparisons can be made. Hispanic family firm responses were collected using paper and pencil surveys delivered to Hispanic family firm owners and picked up a week later. The Hispanic family firm sample frame was provided by the chamber of commerce in a medium size United States southern city with a population over 100,000 people. The chamber did not provide email addresses, only street address and telephone numbers were given. The Hispanic sample frame comprised 100 family firms of which 70 family firm owners took part in the survey representing a 70 percent response rate. Average annual revenue for Hispanic family firms sampled is reported to be 1,930,377 USD.

An online survey using a reputable online data collection agency (Amazon MTurk) collected the non-Hispanic family firm owner responses. Non-Hispanic family firm respondents recruited through the panel agency were paid a small fee in exchange for participating in this research study. As suggested by Schoenherr, Ellram, and Tate (2015), screening questions were included at the beginning of the questionnaire to screen respondents who may not fit the sample requirements. A total of 99 usable online surveys were received and used for subsequent analysis. Appropriate screening questions and quality checks were utilized (Meade & Craig, 2012). Respondents who completed the survey in less than five minutes were eliminated and were not included in the sample. Average annual revenue for non-Hispanic family firms sampled is reported to be 1,140,984 USD.

All participants were asked to provide demographic information and information about their business. The sample is thus comprised of 100% family firm owners with firms of comparable size based on annual revenue who are either Hispanic family owned or non-Hispanic family owned.
Mixed mode survey and data analysis are becoming increasingly common (De Leeuw, Hox, & Dillman 2008). Researchers have found that means do not significantly differ between paper and pencil surveys and online surveys, but rather differences can arise in elaboration to written responses due to time pressures when the interviewer is present (Deutskens, De Ruyter, & Wetzels 2006; Weigold, Weigold, & Russell 2013). In this case, a courier dropped off the surveys to Hispanic family business owners who agreed to participate, and surveys were picked up a week later. Similarly, non-Hispanic family business owners collected online were not under a time pressure to complete the survey. The surveys were also exactly the same regarding visual appearance, question order, and style.

Researchers have found that test results using online recruitment and testing (such as Amazon’s Mechanical Turk or MTurk) can be a valid partner to in-person data collection with results across samples almost indistinguishable (Casler, Bickel, & Hackett (2013). Online crowdsourcing markets (OCM), specifically Amazon’s Mechanical Turk, have become increasingly popular for data collection efforts. Steelman, Hammer, and Limayem (2014) report that OCM samples have been used that lead to similar statistical conclusions compared to student and consumer panels in the U.S. Given that samples are slightly more diverse in U.S. settings and that participation may be affected by compensation rate and task length, the data obtained from MTurk is at least as reliable as that obtained by traditional methods and is of high quality (Buhrmester, Kwang, & Gosling, 2011).

**Measures**

Scales were adapted and used from previous literature (Huselid, 1995; Becker & Huselid 1998; Delaney & Huselid 1996; Thach & Kidwell, 2009). Dependent constructs include a thirteen item Likert scale measuring human resource practices, a thirteen item Likert scale
measuring human resource effectiveness and alignment, a two item Likert scale measuring leadership effectiveness, and a four item Likert scope measuring business scope. Likert scales had either five or six choices ranging from none or not at all to all or to a great extent.

Results

Firm Demographics

From a demographic perspective, all sample respondents for the Hispanic sample are Hispanic. The non-Hispanic sample is 78.4 percent Caucasian, 5.2 percent African American, 2.1 percent Native American, and 14.4 percent Asian. Information regarding firm demographics are included in Table 1. Hispanic firms have fewer full time employees but show a larger standard deviation than non-Hispanic firms. The Hispanic sample shows a slightly greater reliance on part-time labor than the non-Hispanic group. Both groups show little reliance on the number of seasonal workers. As far as training new employees, the Hispanic firm’s mean for number of training hours directed towards new employees is greater than the number of hours directed toward training in the non-Hispanic group (Hispanic mean = 71.6, non-Hispanic mean = 38.8) however more variance is seen within the Hispanic sample. Once employees are on the job, the non-Hispanic sample provides slightly more on the job training hours compared to the Hispanic sample.

Family involvement information is provided in Figure 1. More Hispanic firms indicate being 1st generation owned than the non-Hispanic sample (Hispanic sample = 57.7 percent, non-Hispanic sample = 43.8 percent). The non-Hispanic sample was much more likely to be second generation than the Hispanic sample. The same pattern holds for likelihood of 3rd generation family involvement. However, when asked about more than two generations of family involved in the business, the
Hispanic sample showed a greater likelihood of being involved for more than two generations (Hispanic sample = 29.6 percent, non-Hispanic Sample = 18.8 percent). Finally, the Hispanic sample showed a greater likelihood of not having family involvement within the business compared to the non-Hispanic sample (Hispanic sample = 8.5 percent, non-Hispanic sample = 1 percent).

Respondents were next asked to rate the market scope of their organization in terms of geography. Figure 2 displays the graphical results. Neither sample displayed a large percentage of extremely broad geographic scope (Hispanic sample = 4.2 percent, non-Hispanic sample = 5.2 percent). Likewise, both samples were similar for responses to a somewhat broad geographic scope. However, a greater percentage of the non-Hispanic sample report an average geographic scope compared to the Hispanic sample (Hispanic sample = 16.9 percent, non-Hispanic sample = 39.2 percent). The same pattern is seen when asked about a somewhat narrow scope where the non-Hispanic sample report reports a larger percentage than the Hispanic sample. Finally, the Hispanic sample was much more likely to report an extremely narrow geographic focus than was the non-Hispanic sample (Hispanic sample = 45.1 percent, non-Hispanic sample = 14.4 percent).

Respondents were also asked to identify what they view to be their organization’s strength. Graphical results are available in Figure 3. The non-Hispanic sample was more likely to view their organizations strength to be innovation than was the Hispanic sample (Hispanic sample = 2.8 percent, non-Hispanic sample = 11.3 percent). The Hispanic sample was more likely to view their organization’s strength to be quality compared to the non-Hispanic sample (Hispanic
sample = 80.3 percent, non-Hispanic sample = 70.1 percent). Finally, groups showed little
difference regarding the percentage that identified efficiency as the primary organizational
strength (Hispanic sample = 16.9 percent, non-Hispanic sample = 18.6 percent).

From a profitability perspective relative to major competitors, we see similarities emerge
between samples. First, 3.1 percent of the non-Hispanic sample report comparative profitability
to be quite below average as compared to 4.4 percent of the Hispanic sample. The second
similarity is that 23.5 percent of the Hispanic sample report somewhat below average profit
compared to 13.4 percent of the non-Hispanic sample. The highest percentage (36.8 percent) of
the Hispanic sample report profit to be about the same as competitors compared to 45.4 percent
of the non-Hispanic sample. Only 29.4 percent of the Hispanic sample report profits somewhat
greater than competitors compared to 33.0 percent of the non-Hispanic sample. Finally, 5.9
percent of the Hispanic sample report overall profitability to be quite a bit greater above the
average compared to 5.2 percent of the non-Hispanic sample. Figure 4 provides a summary.

HR Practices and HR Effectiveness

To test for differences between samples, Independent sample t tests were conducted between
the Hispanic and non-Hispanic samples as they report HR practices and HR effectiveness within
their place of business (Thach & Kidwell, 2009). Results are reported in Table 2. Results
indicate that no significant differences are present regarding training practices within the
organization. When considering the presence of formal HR practices between the two samples,
many differences emerge. Of the 13-item HR performance scale, 11 items show a significant
difference between samples in the expected direction. Specifically the Hispanic sample was less
likely than the non-Hispanic group to hire employees using selection test results (t = -6.1, p≤.001), less likely to include workforce in formal HR staffing plans (t = -5.7, p≤.001), less likely to promote from within for non-entry level jobs (t = -6.6, p≤.001), less likely to promote employees based on a formal merit system (t = -9.5, p≤.001), but were more likely to cross train to perform multiple job duties (t = 3.9, p≤.001).

Differences continue between groups in the HR practices arena where the Hispanic group is less likely than the non-Hispanic group to receive a formal performance appraisal (t = -3.8, p≤.001), less likely to have merit pay based on performance appraisals (t = -4.7, p≤.001), less likely to have objective job criteria measuring individual performance (t = -6.2, p≤.001), less likely to be eligible for incentive plans or profit sharing (t = -3.3, p≤.001), less likely to be included in information sharing regarding business operations (t = -3.3, p≤.001), are less likely to be administered job attitude surveys (t = -1.7, p≤.10), and less likely to hold jobs that are subject to a formal job analysis (t = -5.7, p≤.001). No significant differences were found between groups in terms of participating in work life quality or labor management programs. Therefore, based on the results above, Hypothesis 1 is supported.

Considering HR effectiveness and alignment, a similar pattern emerges. Of the 13 effectiveness and alignment measures, 12 reached a statistically significant level and all differences were in the expected direction. Specifically, the Hispanic sample was less likely than the non-Hispanic sample to effectively hire qualified employees (t = -7.3, p≤.001), structure jobs and work so as to enhance business performance (t = -6.0, p≤.001), provide employee training that effectively enhances business performance (t = -5.2, p≤.001), use a performance appraisals
to reward employee behaviors consistent with firm strategy \((t = -6.7, p \leq 0.01)\), effectively
distribute rewards based on individual and team contributions \((t = -5.5, p \leq 0.01)\), manage teams
effectively to address poor performing employees \((t = -5.6, p \leq 0.01)\), effectively communicate
important information to employees \((t = -6.2, p \leq 0.01)\), effectively elicit and act on suggestions
and feedback from employees \((t = -5.2, p \leq 0.01)\), effectively address workforce diversity related
to demographics as an integral part of its HR strategy \((t = -10, p \leq 0.01)\), view the HR manager as
a management partner/change agent \((t = -4.1, p \leq 0.01)\), make a specific effort to align business
and HR strategies \((t = -9.5, p \leq 0.01)\), but less likely to view the human side as a cost \((t = 1.9,
p \leq 0.1)\). No significant differences emerged between groups regarding involvement of the HR
department in strategic planning. Thus, based on the results above, hypothesis 2 is supported.

Insert Table 3 about here

Respondents were also asked to rate their executive leadership regarding their ability to act as
visionaries and motivators. Results provide only one of the two items reaching statistical significance.
Specifically, the Hispanic group was less likely than the non-Hispanic group to view management as
vision setters \((t = -2.1, p \leq 0.05)\). No statistically significant difference emerged when asked if
respondent viewed management as motivators, however the results were in the anticipated direction.
Therefore, based on the results above, partial support is found for hypothesis 3.

Finally, when considering business scope, only one of the four items differed significantly
between the Hispanic and non-Hispanic groups. The Hispanic group was more likely to serve a
more narrow geographic market \((t = -2.8, p \leq 0.05)\). Therefore, based on the results above, only
limited support is found for hypothesis 4.
Correlation of HR Practices to Results for Hispanic Sample

Correlation analysis is undertaken using summated scales to analyze the relationships between constructs. Reliability of scales is assessed using Cronbach’s alpha. Results show that HR Practices has a reliability of .888 for the 13-item scale, effectiveness and alignment has a reliability of .935 for the 13-item scale, executive leadership has a .72 reliability for the two-item scale, and business scope has a reliability of .73 for the four-item scale. Full-time employees, relative profit, and annual revenue are all measured using single items respectively.

Results of the correlation analysis for the Hispanic sample indicate that the presence of a more formal HR program (HR practices) is related to effectiveness and alignment of the HR system (r=.77, p≤.001), executive leadership as a motivator and visionary (r=.44, p≤.001), business scope (r=.43, p≤.001), number of full time employees (r=.34, p≤.005), relative profit (r=.34, p≤.001), and annual revenue (r=.44, p≤.001). Effectiveness and alignment is related to executive leadership (r=.56, p≤.001), business scope (r=.54, p≤.001), number of full time employees (r=.34, p≤.001), relative profit (r=.41, p≤.001), and annual revenue (r=.31, p≤.10). Executive leadership relates positively to business scope (r=.42, p≤.001) and to relative profit (r=.24, p≤.10). Business scope relates to the number of full time employees (r=.24, p≤.10), relative profit (r=.41, p≤.001), and annual revenue (r=.33, p≤.10). Finally, the number of full time employees relates to annual revenue (r=.31, p≤.10). Thus the correlation table results provide support for hypothesis 5 by showing that Hispanic firms that use HR best practices including HR practices, effectiveness and alignment tools, and that have effective leaders tend to show greater revenue and profit.

Insert Table 3 about here
Discussion

Researchers have studied HRM in family firms using a variety of theoretical perspectives including agency theory, stewardship theory, the resource-based view and the socioemotional wealth perspective (Flamini & Gnan, 2017). This study expanded theoretical perspectives on HRM in family firms by employing cultural dimensions theory in developing and testing hypotheses to compare Hispanic and non-Hispanic family firms. We extended previous research on family firms to explore how and whether Hispanic family firms establish and implement formalized HR practices in comparison to non-Hispanic family firms.

As expected, the results showed that Hispanic family firms have been slower than their non-Hispanic counterparts in developing formal HRM systems. We found support for Hypothesis 1 and Hypothesis 2, pointing to less formally developed HRM practices in hiring, promotion, and retaining employees and HR effectiveness and alignment tools. These results lend credence to our proposed explanation of the influence of collectivism (Hofstede, 1980), familism (Marin & Marin, 1990), high power distance (Hofstede, 1980), and patriarchal structure (Danes, et al, 2008) on Hispanic family firms. As a result of these cultural differences, Hispanic family firms tend to rely more on family connections as opposed to professional practices in the management of their businesses (Marin & Marin, 1991).

The results for Hypothesis 3 on leadership showed only partial support. Respondents viewed leaders as vision setters, but not sources of motivation. From our study, we view Hispanic family firm leadership as a mixture of the old patriarchal style and a very different host country, resulting in mixed thoughts and answers from our respondents. The broader Anglo culture in the U. S. is individualistic, not familial in nature, future oriented, and displays low power distance (Hofstede, 1980; Canedo, et al, 2014; Marin & Marin, 1991; and Blancero & DelCampo, 2012). These dimensions oppose Hispanic cultural preferences and may result in confusion especially on the part
of the younger generation of Hispanics, who may feel bombarded by the Anglo culture. Our results show that Hispanics still hold to their cultural roots, but there are other signs of change, especially in the area of religion in which there appears to be a mass Hispanic exodus from the Roman Catholic Church (Pew Research Center, 2014).

The results for Hypothesis 4 on business scope were also mixed. Respondents did view Hispanic firms as serving a narrower geographic market, but the results did not support the other three dimensions as narrower for Hispanic family firms. Perhaps, Hispanic family firms have been able to break through the cultural barriers of language and stereotypical thinking of Anglos to reach the broader mainstream market. This is an encouraging sign that Hispanic family firms are not locked into serving only fellow Hispanics. This may also be another sign of assimilation into the mainstream culture.

In Hypothesis 5, we found that when Hispanic family firms did use HR practices effectively, they performed better financially than other Hispanic family firms. We believe that is a very important and encouraging finding for Hispanic family firms going forward. Formalized HR practices should benefit Hispanic family firms, providing structure as these businesses continue to grow. As noted earlier in this paper, Hispanic family firms are in the largest and fastest growing ethnic group in the American economy and the outlook for the future is very positive (Dahlberg, 2017; Porras, 2016).

There is a great need for future studies of Hispanic family firms in all aspects because so little is known presently. Different kinds of studies would add to our knowledge of Hispanic family firms, including comparative studies with other ethnic groups, longitudinal studies, and in-depth exploratory qualitative studies. Within the context of Hispanic family firms, studies of women and their roles and studies of successors or groups of successors would be timely.
Additional theoretical perspectives may also be employed as research into HRM and ethnic family firms continues. For example, it would be important to examine how the views and actions of individuals within the family firm are adopted by family firm leaders and members, and why these actions differ across family firms despite similarities on other variables. One means of explanation that has been applied to innovation, dysfunction, HRM and family firms is imprinting theory (Jasciewicz, Combs & Rau, 2015; Kidwell, Eddleston & Kellermanns, 2017). Imprinting theory proposes that past crucial events have a great deal of influence on current behaviors of people and organizations; it is a mechanism to explain how individuals and firms pursue opportunities that help organizations survive, perform and grow (Stinchcombe, 1965, Simsek, Fox, & Heavey, 2015). The theory may be particularly applicable in explaining significant differences within ethnic family firms.

**Implications for Entrepreneurship Education and Conclusion**

We believe the results of this study inform the teaching and learning of entrepreneurship as they underscore the importance of cultural differences in the development of HRM practices in family firms. Our findings underscore the importance of understanding that family firms are heterogeneous across a variety of dimensions. These dimensions include the values of the owners, the size of the firm, the ethnicity of the ownership and the propensity of the firm to engage in innovative practices. Extending this line of research to other areas of development in established family firms or new ventures can further inform the study of entrepreneurship.

Our study has limitations that should be noted. A major limitation of our study is the difficulty in obtaining samples of Hispanic family firms. There are problems of the language barrier, including the respondents understanding of the questions asked and the word usage of respondents. There are also cultural barriers in data collection of Hispanic family firms, such as developing trust.
between the researcher and the respondents, and ‘simpatia’ answers in which respondents may try to be agreeable to the researcher. There is also a limitation due to the size of the two subsamples used in our study. Although part of our data was collected online, recent research shows that OCMs meet research standards (Buhrmester, Kwang, & Gosling, 2011; Casler, Bickel, & Hackett, 2013; and Steelman, Hammer, and Limayem, 2014) and that mixed mode surveys result in stable results for quantitative analysis (Weigold, Weigold, & Russell 2013).

In conclusion, our study contributes to the knowledge of family firms in the following ways. We add to the important and growing academic conversation concerning the Hispanic ethnic group. We stress awareness of Hispanic family firms, which comprise the fastest growing segment of the U.S. economy. We describe the intersection of Hispanics and family firms and the growth toward professionalization of business practices and the reasons why this has not been fully achieved. Finally, we add to the understanding of human resource practices in Hispanic family firms, highlighting the importance of HR practices to financial success for these businesses.

References


U.S. Census Bureau (2012). Hispanic owned businesses. 

https://www.census.gov/topics/population/hispanic-origin.html


**Figure 1: Family Involvement**
Figure 2: Market Scope for Geography

Figure 3: Primary Strength
Figure 4: Overall profitability compared to competition

![Overall Profitability Chart]

Table 1: Organization demographics

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Non-Hispanic Mean</th>
<th>Non-Hispanic Standard Deviation</th>
<th>Hispanic Mean</th>
<th>Hispanic Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td># Full-Time Employees</td>
<td>10.2</td>
<td>14.6</td>
<td>5.1</td>
<td>21.8</td>
</tr>
<tr>
<td># Part-Time Employees</td>
<td>2.7</td>
<td>3.2</td>
<td>3.3</td>
<td>19</td>
</tr>
<tr>
<td># Seasonal Employees</td>
<td>1.5</td>
<td>3.2</td>
<td>0.66</td>
<td>2.6</td>
</tr>
<tr>
<td># Training Hours, New Employee</td>
<td>38.8</td>
<td>64.8</td>
<td>71.6</td>
<td>183.8</td>
</tr>
<tr>
<td># Training Hours, Experienced Employee</td>
<td>27.5</td>
<td>70.4</td>
<td>20</td>
<td>63.2</td>
</tr>
</tbody>
</table>
Table 2 Independent sample t tests for equality of means proportion of work force covered by programs/perceived effectiveness and view of organization

<table>
<thead>
<tr>
<th>Variable</th>
<th>Non-Hispanic Mean/SD</th>
<th>Hispanic Mean/SD</th>
<th>t score/significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion covered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training new employees in first year</td>
<td>38.7/64.8</td>
<td>71.6/184</td>
<td>0.156 n.s.</td>
</tr>
<tr>
<td>Training experienced employees</td>
<td>27.5/70.4</td>
<td>20/63.2</td>
<td>0.48 n.s.</td>
</tr>
<tr>
<td>Hire based primarily on selection test results</td>
<td>2.8/1.7</td>
<td>1.4/1.3</td>
<td>-6.1 ***</td>
</tr>
<tr>
<td>Workforce included in formal HR staffing plan</td>
<td>2.5/1.5</td>
<td>1.3/1.1</td>
<td>-5.7 ***</td>
</tr>
<tr>
<td>non-entry level jobs filled from within recently</td>
<td>3.1/1.5</td>
<td>1.6/1.4</td>
<td>-6.6 ***</td>
</tr>
<tr>
<td>is promoted based primarily on a formal merit system</td>
<td>3.8/1.7</td>
<td>1.6/1.3</td>
<td>-9.5 ***</td>
</tr>
<tr>
<td>is qualified or capable to perform more than one job?</td>
<td>4.4/1.4</td>
<td>5.2/1.5</td>
<td>-3.0 ***</td>
</tr>
<tr>
<td>regularly receives a formal performance appraisal</td>
<td>3.5/1.7</td>
<td>2.4/2.2</td>
<td>-3.8 ***</td>
</tr>
<tr>
<td>has their merit or incentive pay determined by a performance appraisal</td>
<td>3.5/1.8</td>
<td>2.1/2</td>
<td>-4.7 ***</td>
</tr>
<tr>
<td>objective job measure and individual performance</td>
<td>3.8/1.6</td>
<td>2.0/1.9</td>
<td>-6.2 ***</td>
</tr>
<tr>
<td>eligible for annual cash incentive plans, profit-sharing, and gain-sharing plans</td>
<td>3.2/1.9</td>
<td>2.1/2.0</td>
<td>-3.3 ***</td>
</tr>
<tr>
<td>is included in a information sharing program that provides information on business operations</td>
<td>3.1/1.8</td>
<td>2.2/2.0</td>
<td>-3.3 ***</td>
</tr>
<tr>
<td>is regularly administered attitude surveys</td>
<td>2.2/1.5</td>
<td>1.8/1.7</td>
<td>-1.7 *</td>
</tr>
<tr>
<td>holds jobs that have been subjected to a formal job analysis</td>
<td>2.9/1.7</td>
<td>1.6/1.4</td>
<td>-5.7 ***</td>
</tr>
<tr>
<td>participates in Quality of Work Life, Quality Circles, and labor management programs</td>
<td>2.4/1.6</td>
<td>2.3/2.2</td>
<td>-0.31 n.s.</td>
</tr>
<tr>
<td>effectively hire qualified employees</td>
<td>3.8/1.0</td>
<td>2.4/1.4</td>
<td>-7.3 ***</td>
</tr>
<tr>
<td>structure jobs and work in a way that enhances business performance</td>
<td>3.8/95</td>
<td>2.7/1.3</td>
<td>-6 ***</td>
</tr>
<tr>
<td>provide employee training that effectively enhances business performance</td>
<td>3.7/1.1</td>
<td>2.6/1.4</td>
<td>-5.2 ***</td>
</tr>
<tr>
<td>use a performance appraisals to reward employee behaviors consistent with firm's competitive strategy</td>
<td>3.2/1.3</td>
<td>1.9/1.3</td>
<td>-6.7 ***</td>
</tr>
<tr>
<td>effectively distribute rewards based on individual and team contributions</td>
<td>3.5/1.1</td>
<td>2.4/1.4</td>
<td>-5.5 ***</td>
</tr>
<tr>
<td>management team effectively address chronically poor performing employees</td>
<td>3.5/1.2</td>
<td>2.3/1.5</td>
<td>-5.6 ***</td>
</tr>
<tr>
<td>effectively communicate important organizational information to employees</td>
<td>3.6/1.1</td>
<td>2.4/1.3</td>
<td>-6.2 ***</td>
</tr>
<tr>
<td>effectively elicit and act on suggestions and feedback provided by employees</td>
<td>3.4/1.2</td>
<td>2.3/1.4</td>
<td>-5.2 ***</td>
</tr>
<tr>
<td>effectively address workforce diversity related to demographics as an integral part of its HR strategy</td>
<td>3.1/1.3</td>
<td>1.4/9</td>
<td>-10 ***</td>
</tr>
<tr>
<td>view the HR manager as a partner in the management of the business and an agent for change</td>
<td>2.9/1.4</td>
<td>2.0/1.2</td>
<td>-4.1 ***</td>
</tr>
<tr>
<td>make an explicit effort to align business and Hr strategies</td>
<td>2.9/1.4</td>
<td>1.3/8</td>
<td>-9.5 ***</td>
</tr>
<tr>
<td>involve the HR department in the strategic planning process</td>
<td>2.9/1.4</td>
<td>1.5/1.0</td>
<td>-7.4</td>
</tr>
<tr>
<td>management team view the people side of the business management as a cost versus value source</td>
<td>2.8/1.4</td>
<td>2.4/1.3</td>
<td>-1.9 *</td>
</tr>
<tr>
<td>management as vision setters</td>
<td>3.5/1.1</td>
<td>3.1/1.4</td>
<td>-2.1 **</td>
</tr>
<tr>
<td>management as motivators</td>
<td>3.6/1.1</td>
<td>3.4/1</td>
<td>-1.3 n.s.</td>
</tr>
<tr>
<td>range of geographic markets do you serve</td>
<td>2.7/1.1</td>
<td>2.1/1.3</td>
<td>-2.8 ***</td>
</tr>
<tr>
<td>range of products/services do you provide</td>
<td>2.7/9</td>
<td>2.8/1.3</td>
<td>0.8 n.s.</td>
</tr>
<tr>
<td>range of customer types do you serve</td>
<td>3.3/1.0</td>
<td>3.3/1.1</td>
<td>0.2 n.s.</td>
</tr>
<tr>
<td>how broad is your business overall</td>
<td>2.9/9</td>
<td>3.1/1</td>
<td>1.2 n.s.</td>
</tr>
</tbody>
</table>

*p\leq0.10

**p\leq0.05

***p\leq0.001
Table 3: High performing HR Systems, Effective HR Practices and firm level outcomes: Hispanic Sample

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR Practices</td>
<td>(27.88)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effectiveness and Alignment</td>
<td>.77***</td>
<td>(27.40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Executive Leadership</td>
<td>.44***</td>
<td>.56***</td>
<td>(.60)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Scope</td>
<td>.43***</td>
<td>.54***</td>
<td>.42***</td>
<td>(11.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Time Employees</td>
<td>.34**</td>
<td>.34***</td>
<td>0.20</td>
<td>.24*</td>
<td>(5.08)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative Profit</td>
<td>.34***</td>
<td>.41***</td>
<td>.24*</td>
<td>.41***</td>
<td>0.14</td>
<td>(3.09)</td>
<td></td>
</tr>
<tr>
<td>Annual Revenue</td>
<td>.44***</td>
<td>.31*</td>
<td>0.17</td>
<td>.33*</td>
<td>.31*</td>
<td>0.17</td>
<td>($1,930,377)</td>
</tr>
</tbody>
</table>

Means shown on diagonal

*p ≤ 0.10

**p ≤ 0.05

***p ≤ .001
INCOME INEQUALITY AND ENTREPRENEURSHIP

Antonio Lecuna

ACADEMIC ABSTRACT

Many scholars argue that entrepreneurship concentrates wealth; not only because rich families choose entrepreneurial occupations more often, but also because entrepreneurs tend to earn and save more income compared to workers. However, based on panel data from 54 countries over the 2006–2012 period, the study concludes that public policies which target formal and informal entrepreneurs are strongly associated with decreasing inequalities in the distribution of income. High aspiration entrepreneurs and newly registered firms do not report a significant effect in income distribution, which suggests that the informality information captured in the “total entrepreneurship activity” measurement is a key factor that explains the variations observed in income inequality.

Keywords:

Entrepreneurship, Income inequality, GEM, Informality.
EXECUTIVE SUMMARY

Synopsis

The focus of the research was to test the relationship between income inequalities and entrepreneurial activity. I am interested in understanding how three different measures of entrepreneurial activity could be used to explain variation in the coefficients of Gini. The results are fascinating and suggest that informal entrepreneurship is a key factor in the equation. I believe it is a contribution to the ongoing conversation related to the growing inequality gap while offering a theoretical extension to the disequalizing model and the rich get richer theory.

Methodology

How much of the observed income inequality is due to entrepreneurship? Does greater entrepreneur activity always lead to greater inequality? When will entrepreneurship be consistent with reduction in inequality? These are important questions but at the same time difficult to answer. The paper attempts to answer them using panel data from 54 countries over the 2006-2012 period (fixed-effects model). The dependent variable in the regression model is the within-country Gini index. Three different measures for entrepreneurship are used as independent variables: new business registrations/population size from the World Bank (NBD), and the percentage of total entrepreneurial activity (TEA) and high aspiration entrepreneurs (HAE) as part of the population taken from the GEM database.

Results / Findings

The empirical results inform that most of the control variables have insignificant impact on inequality. Among the three entrepreneurship variables, only variable (TEA) is significant and has a negative impact on inequality. Indeed, contrary to a growing stream of literature that
associates income inequality to entrepreneurship, this study found that the total entrepreneurial activity—which includes formal and informal entrepreneurs—is linked to improving the coefficients of Gini.

**Conclusion and Implications for Theory, Research, and Practice**

The far-reaching objective of the manuscript is to explain how the differences in entrepreneurship rates across nations over time affect the level of income inequality in those nations where some similar research has been conducted, but where a rigorous focus on the causal link between entrepreneurship and inequality has been virtually non-existent. Namely, the paper offers an empirical analysis of the effects of entrepreneurship on inequality using panel data of countries. It concludes that the effects of high-end and low-end entrepreneurship are different. Thus, public policies which target informal entrepreneurs are strongly associated with decreasing inequalities in the distribution of income.

**Implications for Entrepreneurship Education (max of 200 words)**

Scholars have studied entrepreneurship for decades. And thanks in part to a “new” breed of entrepreneurs (except necessity driven), which includes opportunity, social, high-growth, export-driven, innovation-oriented, social or whatever is fashionable, entrepreneurship is finally fulfilling some of the initial hype created back in the Schumpeter days. To be sure, “good” entrepreneurs generate a series of beneficial spillover effects, namely regarding the allocation of technological innovations. After all, entrepreneurship is the ultimate panacea. However, in entrepreneurial activity also has a dark side. Entrepreneurship concentrates wealth. In all of my classes, I dedicate one section to “the dark side of entrepreneurship.” Because the manuscript submitted for consideration discusses the plausible link between entrepreneurship and increasing
income inequalities, it is a nice fit for any scholar that desires to balance the debatable consequences of entrepreneurship. (The paper also argues that informal entrepreneurship could be the only “type” of entrepreneurial activity that could actually lead to decreasing inequalities.

1. Introduction

Because development is more than just economic growth (Sen, 2000), Naude (2011: 34) claims that entrepreneurship scholars should focus on other relevant issues (e.g., income inequality). This study contributes to bridge the empirical gap between income inequality and entrepreneurship. Income inequality is important because increasing inequality harms the poor and adversely affects the middle class (Winkelmann and Winkelmann, 2010); whereas, entrepreneurship is typically considered to be the most important factor in creating and destroying personal wealth (Choi, 1999: 240). Specifically, the paper takes a small step toward understanding the origins of income inequality by investigating the extent to which entrepreneurial activity is a determining factor. Following Naude (2010), three questions are addressed: (1) How much of the observed income inequality is due to entrepreneurship? (2) Does greater entrepreneurial activity always lead to greater inequality? (3) When will entrepreneurship be consistent with a reduction in inequalities?

The study used three independent measures of entrepreneurial activity as independent variables: the new business density (NBD); the total entrepreneurial activity (TEA); and the high aspiration entrepreneurship (HAE). Moreover, because TEA captures both, formal and informal entrepreneurs, it is possible to predict the effect of informality in entrepreneurship. Drawing upon a cross-country 7-year panel data analysis, the study found that tax-declaring startups and high-growth entrepreneurs do not report a significant association with the coefficients of Gini. However, the total amount of entrepreneurs—including formal and informal—entered the
regressions with a strong negative sign. Practical implications suggest that self-employed individuals at the lower end of the income distribution are fundamentally different from the self-employed individuals at the upper end of the distribution (Tamvada, 2010). Therefore, “entrepreneurship-supporting policies could be particularly successful in reducing inequality if directed at the low-income, low-wealth, and relatively uneducated segments of society” (Kimhi, 2010: 89).

The paper is organized as follows. Next the paper reviews the empirical evidence that associates increasing entrepreneurial activity with raising income inequality and formulate three “pessimistic” hypotheses (H1: Increasing the number of formally registered startups increases income inequalities; H2: Increasing the percentage of high-aspiration entrepreneurs, in terms of expected employment, increases income inequalities; H3: Increasing the percentage of formal and informal entrepreneurs increases income inequalities). Then the available data is defined, the statistical methods are described, and the most significant results are reported. The last sections analyzes the results and concludes.

2. Literature Review / Theory Development

The disequalizing model argues that, even if all households begin equal, the children of such households must choose occupations that have varying entry costs, which results in inequality for the following generation (Ljungqvist, 1993). Once this inequality appears, it tends to be reinforced in successive generations (Freeman, 1996). In line with the disequalizing model, Kreutzmann (2008) formulated an important contradiction related to the wide inequality gap: the impossibility of catch-up for underdeveloped countries has become so fixed in people’s minds that the possibility of new exclusions and dependencies seems acceptable.
The disequalizing model and Kreutzmann’s (2008) inequality contradiction are pessimistic in nature, as well as the empirical evidence that associates income inequality and entrepreneurship. This line of research is grounded under the “rich getting richer” (RGR) theory. To be sure, entrepreneurs have higher saving rates than workers (Meh, 2005: 707), mainly because entrepreneurs need to save more since their income is more irregular (Carter, 2011). The different saving patterns of entrepreneurs and workers in turn result in higher asset holdings and a higher level of wealth concentration for entrepreneurs in the entire distribution.

To support the wealth accumulation argument, Quadrini (1999) sustains that previous generations of wealthier families are more likely to be characterized by individuals who have engaged in entrepreneurial activities than the previous generations of non-entrepreneurial families. Thus, because the wealth accumulated during business periods is generally not depleted immediately, these entrepreneurial families have greater resources to start or restart businesses. These features of entrepreneurial family dynamics further reinforce the notion that the probability of becoming an entrepreneur increases if an individual has inherited wealth because initial capital is required to establish new enterprises (Holtz-Eakin et al., 1994a; 1994b).

The inheritance argument is relevant because individuals born into extreme wealth have greater financial resources, which increase the probability of self-employment entry (Fairlie and Krashinsky, 2012: 298). Such entrepreneurs have the resources to undertake larger-scale venturing before using outside sources of funding, thereby overcoming liquidity constraints (Bhide, 2000: 93). Decreasing liquidity constraints in turn enables wealthy entrepreneurs’ to have higher opportunity costs (Cassar, 2006: 629). Tamvada (2010) also found patterns of an unequal distribution of income among entrepreneurs because those individuals who also hire others have the highest returns in terms of consumption.
In summary, drawing upon the RGR theory, the different savings patterns among entrepreneurs and workers, the inheritance argument, the disequalizing model, and Kreutzmann’s (2008) inequality contradiction, I therefore hypothesize that entrepreneurial activity leads to greater income inequality. I specifically hypothesize that (H1) increasing the number of formally registered startups increases income inequalities; (H2) increasing the percentage of high-aspiration entrepreneurs, in terms of expected employment, increases income inequalities; (H3) increasing the percentage of formal and informal entrepreneurs increases income inequalities. These “pessimistic” hypotheses intends to complement Shane’s (2009) argument that the typical start-up is not innovative, generates little wealth, does not make markets more competitive, and creates few jobs. Shane (2009) adds that government resources found wage-substitution businesses that have more in common with self-employment than with the creation of high-growth start-ups. The pessimistic hypothesis also serves as a counterargument to Choi’s (1999) optimistic critique to the poor getting poorer hypothesis and to Kuznet’s (1995) inverted U shape theory—which argues that “income inequality increases until a critical income level is attained, after which inequality begins to decrease” (Dobson and Ramlogan, 2009: 226).

3. Methods

Definition of the Data

This section considers the data used in this empirical work, including the variables describing income inequalities and entrepreneurial participation rates. An unbalanced panel over a 7-year period (2006-2012) is used covering 54 countries. The sample and 7-year period was determined by data availability. Next the dependent and independent variables used to test the hypothesis are defined.
The focal point of the analysis is income inequality, which can be measured accurately by the Gini index—a scale that calculates the degree of inequality in a country’s income distribution. The more equal a country's income distribution is, the lower its Gini index; whereas, the more unequal a country's income distribution is, the higher its Gini index. If income is distributed with perfect equality, the index value is zero; if income is distributed with perfect inequality, the index value is 100. Four secondary sources of information were used: the Central Intelligence Agency World Factbook (CIA The World Factbook), the United Nations Development Programme indicators (UNDP), the United Nations University World Institute for Development Economics Research income inequality database (UNU-WIDER), and the World Bank (WB). The definition and methodology for calculating the Gini index are practically identical in these four sources. In cases in which data were available from more than two sources, the average for that period was used.

Moreover, the study utilized the 2013 World Bank’s annual Doing Business report (WBDBR) and the Global Entrepreneurship Monitor (GEM) project to support the independent variables measurement. These databases have been used separately in prior publications to measure rates of firm formation at the country level although studies have found conflicting results depending on which dataset was employed (Acs et al., 2008). The 2013 volume of the WBDBR reports the variable NBD that shows the number of newly registered corporations per 1,000 working-age people (those ages 15–64). This measure of entrepreneurial activity from 139 company registrars shows the number of newly registered firms. The GEM project, comprises harmonized, internationally comparable data to evaluate entrepreneurship activity across different countries among the adult working-age (18–64 years old) population. This database contains various entrepreneurial measures that are constructed on a survey basis, known as Adult
Population Survey (APS). The study uses two of these measures, TEA and HAE. (See definitions of dependent and independent variables in Table 1.)

Five variables were used in all specifications related to the macroeconomic environment: income, unemployment, poverty, inflation, and investments. Income is measured by the logarithm of gross domestic product (current prices U.S. dollars). Values are based upon GDP in national currency converted to U.S. dollars using market exchange rates (yearly average). Unemployment is the percent of total labor force. Unemployment rate can be defined by either the national definition, the ILO harmonized definition, or the OECD harmonized definition. Poverty is the percent of population living in households with consumption or income per person below the poverty line. The default poverty line is $1.9 per day a day in 2011 PPP. Inflation is the annual percentages based on year-on-year changes of average consumer prices. Investments are expressed as a ratio of total investment in current local currency and GDP in current local currency. Investment is measured by the total value of the gross fixed capital formation and changes in inventories and acquisitions less disposals of valuables for a unit or sector.

According to Berg and Sachs (1988) and Sachs (1989), countries with extreme income inequality, ceteris paribus, may be prone to “bad” macroeconomic policies. Out of the five macroeconomic controls tested, poverty is probably the most significant. Mookherjee and Ray (2010: 3) claim that poverty and inequality share a strong and intimate relationship. In the presence of poverty, skilled wages will be high relative to unskilled wages. Hence, a society which is sufficiently poor (but equal) in one generation will experience high inequality in the next generation, and this will subsequently become entrenched (Mookherjee and Ray, 2010: 12), as predicted by the disequalizing model. The previous analysis regarding poverty can be
extended to accommodate initial inequality as well (Mookherjee and Ray, 2010: 3)—which for the purpose of this study was controlled by lagging the Gini variable twice: one and two periods.

In addition to the macroeconomic controls and initial inequality, five government (formal) institutional controls were included—using the World Bank’s Worldwide Governance Indicators (WGI): control of corruption, rule of law, voice and accountability, political stability and absence of violence, and property rights. Control of corruption reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Rule of law reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Voice and accountability reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Political stability reflects perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. Property rights answers the question: to what extent are property rights, including financial assets, protected?

According to Naudé (2010), the two sub-disciplines within the respective fields of economics and management—development economics and entrepreneurship—have converged on the realization that the institutional framework in a country or region is important for understanding the outcomes observed in each field. Countries with high income inequality have a significantly greater likelihood, on average, of having weak institutions (Alesina and Taballini,
Naudé (2010) adds that institutional failures lead to rent-economies, and rent-economies in turn lead to income inequalities.

Finally, five additional controls derived from The Global Competitiveness Report related to “basic and business factors” were included: quality of education, life expectancy, ease of access to loans, flexibility of wage determination, and total tax rate. The education proxy asks: in your country, how well does the education system meet the needs of a competitive economy? The health proxy is the life expectancy at birth (in years). The personal finance proxy asks: in your country, how easy is it to obtain a bank loan with only a good business plan and no collateral? The employment benefits proxy asks: in your country, are wages generally set by a centralized bargaining process or by each individual company. (Questions are answered on a 1 to 7 scale, 7 being the most desirable answer). (See Table 2 for a description of the control variables.)

The total tax rate proxy is particularly significant because inequalities enhance the power of economic elites to resist taxation (Sachs, 1989: 8). Used here, the total amount of taxes is the sum of five different types of taxes and contributions payable after accounting for deductions and exemptions: profit or corporate income tax, social contributions and labor taxes paid by the employer, property taxes, turnover taxes, and other small taxes.

Based on simple pairwise correlations—which are often unreliable and misleading—among control variables, three institutional indicators stand out as potential sources of multicollinearity concern: rule of law, control of corruption, and voice and accountability. Pairwise correlations among the Gini index and the three measures of entrepreneurship activity are weak in the case of NBD (.07) and HAE (.05), but relatively strong in the case of TEA (.56).
**Empirical Strategy**

The study related the degree of income inequality in society as the dependent variable to three measures of entrepreneurial activity as the main independent variables. (The research used panel data from 54 economies.)

**Sample Selection.**

The sample was first trimmed to the 62 countries that appeared in both the WB’s annual Doing Business report and the GEM Adult Population Survey data datasets for the 2006–2012 period. China is not included in this sample for lack of data in the WB database. A second set of countries were eliminated because data was incomplete for six countries after the macroeconomic variables included in the WEO database were used: Bolivia, Guatemala, India, Macedonia, Switzerland, and Uganda. The final elimination (Tunisia and Algeria) reduced the sample to 54 countries that coincided with the use of the institutional data from the WGI.

As shown in Table 3, the final sample group of 54 countries mostly consists of “very high human development” countries, with none from the “low human development” category. This selection bias is a significant statistical limitation of the sample and is an inherent consequence of using GEM data. As GEM country surveys are relatively expensive, developed countries are more likely to be able to afford the costs of conducting these surveys (Aidis et al. 2012).

**Statistical Methods.**

Fixed effects (FE) instead of random effects were used because of the highly significant p-value of the Hausman test, which is not surprising due to the observed heterogeneity across countries. FE is the appropriate estimation technique because something within the country may impact or bias entrepreneurial activity or income inequality. FE models are specifically designed
to study the causes of changes within an entity such as a country; for example, exploring the relationship between entrepreneurship and inequality within a country. This is particularly relevant because each country has its own individual characteristics that may or may not influence the three measures of entrepreneurial activity.

The fixed-effects model controls for all time-invariant differences across countries. So the estimated coefficients of the fixed-effects models cannot be biased, since those time-invariant characteristics are unique to each country. Because each country is different, therefore the country’s error term and the constant (which captures individual characteristics) should not be correlated with the others. If the error terms are correlated, then FE is not suitable since inferences may not be correct. For the purpose of this study, FE removes the effect of those time-invariant characteristics in order to assess the net effect of entrepreneurship on income inequalities.

Robust standard errors are also computed, where potential heteroscedasticity and potential correlation of the error term across observations contained are corrected, within a cross-sectional unit in any given year. Moreover, as an effort to alleviate—but never eliminate—potential endogeneity issues, all independent variables entered the regression models with a one period (year) lag, with the exception of the two period initial inequality. However, it is important to note that the study did not aim to precisely establish causality. What really matters is that the association between income inequalities and the three measures of entrepreneurial activity are consistent with evidence drawn from other sources.
4. Results / Findings

As shown in the first column of Table 4, seven control variables reported significant coefficients, which corroborated the validity of the control variables as explanatory factors of income inequality. The highly significant and positive—but relatively small—coefficient of unemployment suggested that decreasing unemployment by about 10 percentage points would improve the Gini coefficient by about 2 units. The significant—at the 10% level—and negative coefficient of income was consistent with the theory that links inequality in income distribution to slow capital accumulation and growth (Mo, 2000). Also from column one, the macroeconomic factors seem to have captured most of the effect, followed by the basic and business factors. Moreover, the weak p-values reported in the formal institutional variables could indicate issues of multicollinearity; whereas, the insignificant sign of initial inequality was surprising. Reported here are the one- and two-period previous Gini, but additional tests that included the two controls separately the models did not report any significant results. These findings could suggest that the Gini coefficient does not change significantly from time to time.

Column two shows that the inclusion of the entrepreneurial-related variables increased the overall fit of the model from 32% to 42%. Out of the three entrepreneurial measurements, TEA was the only significant, as the net number of formal and informal entrepreneurs increased by about 20 percentage points, the Gini coefficient decreased by about 3 points (significant at the 5% level). This finding clearly contradicted the H3 hypothesis, which argued that total entrepreneurial activity leads to greater income inequality. One phenomenon that could explain this “optimistic” result could be that in contrast to the RGR theory the rich have no advantage over the poor because entrepreneurship consists discovering opportunities, not owning resources.
Choi (1999: 255) further argues that rich entrepreneurs “are less likely than the poor to venture off the proven, and beaten track, wherein consists entrepreneurship.”

The consistently significant positive coefficient of flexibility of wage determination is thought-provoking because it contradicts classical economic theory regarding the efficacy of minimum wages. As seen, this variable asks: are wages generally set by a centralized bargaining process or by each individual company? With this question in mind, a logical argument suggests that a centralized bargaining processes leads to greater employment benefits, including a higher fixed minimum wage. Therefore, increasing minimum wages in turn is strongly associated with a decrease in income inequalities.

Finally, because estimating an individual joint relationship between income inequality and its determining factors is not free from a potentially high degree of collinearity among explanatory variables, the variance inflation factor (VIF) test as an indicator of collinearity is specifically used. The following three variables reported extremely high VIF values between 30 and 40: rule of law, control of corruption, and voice and accountability. After dropping these variables, the average VIF decreased from 7.42 in the “main effect” specification to 3.24 in the “collinearity check” specification. Moreover, in the last specification all explanatory factors scored below the “rule of thumb” cutoff value of 10. In theory, VIF of 10 or greater is a concern for collinearity. The VIF cutoff value of 10 was originally suggested by Marquardt (1970: 610) and was later validated by Marquardt (1987), O'Brien (2007), and Mason and Perreault (1991).

5. Conclusion and Implications for Theory, Research, and Practice

Contrary to a growing stream of literature that associates income inequality to entrepreneurship, this study found that the total entrepreneurial activity—which includes
informal entrepreneurs—is linked to improving the coefficients of Gini. The statistical results are not significant for the proxies that measured tax-declaring registered startups or high-growth entrepreneurs (results are based on a panel data availability sample for the 2006-2012 period).

A limitation of the study is that the WB measure—new business registrations/population size—could be questioned since (i) developing and developed nations are hardly comparable, (ii) the procedures for registering a business are very unevenly regulated across countries, and (iii) in developed nations many newly registered firms are "shelf businesses" (holding companies, without any activity) or subsidiaries of existing firms. Similarly, the GEM measures could also be questioned since the data is drawn from random population surveys of highly unequal sample size (e.g., 30,000 a year from Spain, 3,000 from Norway, 5,000 from China). Without appropriate sampling weights, using these data as independent variables in a country level panel analysis is susceptible to biases (Reynolds et al. 2005).

Therefore, the results presented here open a door to dig deeper into some of the relatively less studied types of entrepreneurial activity and their relationship with income inequalities. Among “these” types of entrepreneurial activity is informal entrepreneurship. Far from being a hot topic of research (i.e., opportunity-driven, women, third-age), informality has been observed as a symptom of other constraints (Ihri and Moe, 2004); but with huge growth potential based on the necessity to survive. Some argue that informal entrepreneurship contributes to poverty alleviation (Tamvada, 2010).

6. References


### APPENDIX

#### Tables

**Table 1. Definitions of the dependent and independent variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Name</th>
<th>Definition</th>
<th>Mean</th>
<th>SD</th>
<th>N° Obs</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gini(*)</td>
<td>Gini index</td>
<td>Measures the degree of inequality in the distribution of family income in a country.</td>
<td>36</td>
<td>9.28</td>
<td>404</td>
<td>2004-2012</td>
</tr>
<tr>
<td>NBD(**)</td>
<td>New business density</td>
<td>Number of newly registered corporations per 1,000 working-age people (those ages 15–64).</td>
<td>4.27</td>
<td>4.87</td>
<td>434</td>
<td>2006-2012</td>
</tr>
<tr>
<td>TEA(***)</td>
<td>Total entrepreneurial activity</td>
<td>% of 18-64 population who are either a nascent entrepreneur or owner manager of new business, in logs</td>
<td>8.9%</td>
<td>5.8%</td>
<td>325</td>
<td>2006-2012</td>
</tr>
<tr>
<td>HAE(***)</td>
<td>High aspiration entrepreneurs</td>
<td>% of TEA who expects to employ at least 5 employees 5 years from now in logs</td>
<td>26.7%</td>
<td>10.3%</td>
<td>313</td>
<td>2006-2012</td>
</tr>
</tbody>
</table>

(**) Sources: CIA The World Factbook, UNDP, UNU-WIDER, WB.

(**) Source: WB’s annual Doing Business report (Entrepreneurship Project, June 2013).

Table 2. Descriptive statistics of control variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Source</th>
<th>N° Obs</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Macroeconomic environment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>WEO</td>
<td>486</td>
<td>4,14</td>
<td>0,46</td>
<td>3,04</td>
<td>5,01</td>
</tr>
<tr>
<td>Unemployment</td>
<td>WEO</td>
<td>486</td>
<td>8,7%</td>
<td>5,3%</td>
<td>0,7%</td>
<td>31,1%</td>
</tr>
<tr>
<td>Poverty</td>
<td>WPN</td>
<td>326</td>
<td>1,9%</td>
<td>3,6%</td>
<td>0,0%</td>
<td>23,1%</td>
</tr>
<tr>
<td>Inflation</td>
<td>WEO</td>
<td>486</td>
<td>4,2%</td>
<td>3,9%</td>
<td>-1,6%</td>
<td>51,5%</td>
</tr>
<tr>
<td>Investments</td>
<td>WEO</td>
<td>486</td>
<td>23,0%</td>
<td>4,6%</td>
<td>13,9%</td>
<td>40,0%</td>
</tr>
<tr>
<td><strong>Formal institutions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control of corruption</td>
<td>WGI</td>
<td>486</td>
<td>0,67</td>
<td>1,05</td>
<td>-1,12</td>
<td>2,59</td>
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<tr>
<td>Rule of law</td>
<td>WGI</td>
<td>486</td>
<td>0,64</td>
<td>0,93</td>
<td>-1,03</td>
<td>2,01</td>
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<tr>
<td>Voice and accountability</td>
<td>WGI</td>
<td>486</td>
<td>0,63</td>
<td>0,77</td>
<td>-1,22</td>
<td>1,83</td>
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<tr>
<td>Property rights</td>
<td>GCR</td>
<td>377</td>
<td>4,99</td>
<td>1,02</td>
<td>2,65</td>
<td>6,67</td>
</tr>
<tr>
<td>Political stability</td>
<td>WGI</td>
<td>486</td>
<td>0,24</td>
<td>0,84</td>
<td>-2,20</td>
<td>1,59</td>
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<tr>
<td><strong>Basic and business factors</strong></td>
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<td></td>
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<td></td>
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<tr>
<td>Quality of education</td>
<td>GCR</td>
<td>377</td>
<td>4,06</td>
<td>1,01</td>
<td>2,09</td>
<td>6,24</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>GCR</td>
<td>377</td>
<td>75,8</td>
<td>5,68</td>
<td>48</td>
<td>83</td>
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<tr>
<td>Ease of access to loans</td>
<td>GCR</td>
<td>377</td>
<td>3,44</td>
<td>0,89</td>
<td>1,69</td>
<td>5,51</td>
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<tr>
<td>Flexibility of wage determination</td>
<td>GCR</td>
<td>377</td>
<td>4,69</td>
<td>0,99</td>
<td>2,21</td>
<td>6,42</td>
</tr>
<tr>
<td>Total tax rate</td>
<td>GCR</td>
<td>378</td>
<td>45,4%</td>
<td>15,7%</td>
<td>0,0%</td>
<td>82,4%</td>
</tr>
</tbody>
</table>

Sources: GCR = The Global Competitiveness Report; WGI = World Bank’s Worldwide Governance Indicators; WEO = IMF World Economic Outlook Database; WPN = World Bank’s PovcalNet
Table 3. Statistical sample (in parenthesis average Gini, 2004–2012 period)

<table>
<thead>
<tr>
<th>Very high human development</th>
<th>High human development</th>
<th>Medium human development</th>
</tr>
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<tbody>
<tr>
<td>Argentina (46)</td>
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<td>Dominican Republic (49)</td>
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<td>Australia (31)</td>
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<tr>
<td>Italy (33)</td>
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<tr>
<td>Japan (34)</td>
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<td>Korea, Republic (32)</td>
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<td>Latvia (37)</td>
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<td>Netherlands (29)</td>
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<tr>
<td>New Zealand (34)</td>
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<tr>
<td>Norway (27)</td>
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</tbody>
</table>
Poland (34)
Portugal (37)
Singapore (47)
Slovenia (26)
Spain (34)
Sweden (26)
United Kingdom (34)

Notes: Countries are listed in alphabetical order and subdivided in categories based on the Human Development Index (HDI) value by the United Nations Development Program (UNDP).

**Table 4.** Cross-country results for income inequality (panel data 2006-2012, fixed-effects)

<table>
<thead>
<tr>
<th></th>
<th>Control Variables</th>
<th>Main Effect</th>
<th>Collinearity Check</th>
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<tbody>
<tr>
<td><strong>Entrepreneurial activity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New business entry</td>
<td>0.04</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.35)</td>
<td>(0.65)</td>
<td></td>
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<tr>
<td>High aspiration entrepreneurs</td>
<td>1.63</td>
<td>2.02</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.82)</td>
<td>(1.08)</td>
<td></td>
</tr>
<tr>
<td>Total entrepreneurial activity</td>
<td>-15.24</td>
<td>-12.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.27)**</td>
<td>(1.91)*</td>
<td></td>
</tr>
<tr>
<td><strong>Macroeconomic environment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>-4.25</td>
<td>-3.97</td>
<td>-3.76</td>
</tr>
<tr>
<td></td>
<td>(1.96)*</td>
<td>(1.62)</td>
<td>(1.64)</td>
</tr>
<tr>
<td>Unemployment</td>
<td>19.39</td>
<td>17.42</td>
<td>17.34</td>
</tr>
<tr>
<td></td>
<td>(2.89)***</td>
<td>(1.85)*</td>
<td>(1.83)*</td>
</tr>
<tr>
<td>Poverty</td>
<td>28.02</td>
<td>0.25</td>
<td>-2.61</td>
</tr>
<tr>
<td></td>
<td>(2.18)**</td>
<td>(0.01)</td>
<td>(0.07)</td>
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<td>--------------------------------</td>
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<tr>
<td><strong>Inflation</strong></td>
<td>-0.08</td>
<td>-6.98</td>
<td>-8.40</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(1.11)</td>
<td>(1.35)</td>
</tr>
<tr>
<td><strong>Investments</strong></td>
<td>10.06</td>
<td>8.24</td>
<td>5.95</td>
</tr>
<tr>
<td></td>
<td>(2.25)**</td>
<td>(1.52)</td>
<td>(1.12)</td>
</tr>
<tr>
<td><strong>Institutional framework</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Control of corruption</td>
<td>-2.13</td>
<td>-0.51</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.88)*</td>
<td>(0.35)</td>
<td></td>
</tr>
<tr>
<td>Rule of law</td>
<td>2.43</td>
<td>3.89</td>
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<tr>
<td></td>
<td>(1.50)</td>
<td>(1.91)*</td>
<td></td>
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<tr>
<td>Voice and accountability</td>
<td>-1.79</td>
<td>-3.59</td>
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</tr>
<tr>
<td></td>
<td>(0.84)</td>
<td>(1.27)</td>
<td></td>
</tr>
<tr>
<td>Property rights</td>
<td>-0.25</td>
<td>-0.35</td>
<td>-0.04</td>
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<td></td>
<td>(0.52)</td>
<td>(0.61)</td>
<td>(0.07)</td>
</tr>
<tr>
<td>Political stability</td>
<td>0.06</td>
<td>-0.35</td>
<td>-0.25</td>
</tr>
<tr>
<td></td>
<td>(0.08)</td>
<td>(0.33)</td>
<td>(0.26)</td>
</tr>
<tr>
<td><strong>Basic and business factors</strong></td>
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<tr>
<td>Quality of education</td>
<td>-0.68</td>
<td>-0.62</td>
<td>-0.73</td>
</tr>
<tr>
<td></td>
<td>(1.38)</td>
<td>(1.20)</td>
<td>(1.43)</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>0.22</td>
<td>-0.03</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>(1.63)</td>
<td>(0.14)</td>
<td>(0.59)</td>
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<tr>
<td>Ease of access to loans</td>
<td>0.82</td>
<td>0.61</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>(3.15)**</td>
<td>(1.96)*</td>
<td>(1.87)*</td>
</tr>
<tr>
<td>Flexibility of wage determination</td>
<td>0.95</td>
<td>0.94</td>
<td>0.99</td>
</tr>
<tr>
<td></td>
<td>(2.36)**</td>
<td>(2.10)**</td>
<td>(2.24)**</td>
</tr>
<tr>
<td>Total tax rate</td>
<td>2.32</td>
<td>1.44</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td>(0.84)</td>
<td>(0.47)</td>
<td>(0.27)</td>
</tr>
<tr>
<td><strong>Initial inequality</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two periods</td>
<td>0.03</td>
<td>-0.03</td>
<td>-0.05</td>
</tr>
<tr>
<td></td>
<td>(0.46)</td>
<td>(0.41)</td>
<td>(0.61)</td>
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<tr>
<td></td>
<td>0.02</td>
<td>0.032</td>
<td>0.05</td>
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<tr>
<td></td>
<td>(0.31)</td>
<td>(0.32)</td>
<td>(0.53)</td>
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<tr>
<td>$R^2$</td>
<td>0.32</td>
<td>0.42</td>
<td>0.38</td>
</tr>
<tr>
<td>$N$</td>
<td>198</td>
<td>140</td>
<td>140</td>
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</tbody>
</table>

Significance: * $p<0.10$; ** $p<0.05$; *** $p<0.01$. Heteroskedasticity-consistent $t$-ratios in parentheses.

Note: All independent variable were lagged one period (except the two periods previous Gini)
ENTREPRENEURSHIP EDUCATION AND THE ENTREPRENEURIAL UNIVERSITY – WHAT PLACES HAVE WE CREATED AND WHAT IS HAPPENING IN THE SPACE?

John Thompson, Leigh Morland and Jonathan Scott

ABSTRACT

We review experiential learning opportunities in United Kingdom (UK) Universities, utilizing various case examples where students experience relevant opportunities and risks, identifying evidence of excellent practice. However, these initiatives lack depth and breadth of coverage of the whole student population. The implications of doing more are then explored in the context of: students (learners), faculty (resources) and Universities in respect of space and place themes. Distinctively, we focus on the University, rather than specific courses and thus the main contribution of the article is its conceptual models to be applied in further research.

Introduction

Extensive prior research has explored entrepreneurship education (EE) and experiential entrepreneurship education (EEE), much of which focuses on courses, processes and assessment (for example, Blenker et al., 2014; Botham and Mason, 2007; Dainow, 1986; Gorman et al., 1997; Hannon et al., 2004, 2005, 2006; Heinonen and Poikkijoki, 2006; Kuratko, 2005; Mandel and Noyes, 2016; Pittaway and Cope, 2007a, b; Pittaway and Edwards, 2012; Pittaway et al., 2009; Rae et al., 2010; Solomon et al., 1994; Solomon, 2007). In this paper we contribute to the entrepreneurship education field by adopting an alternate stance: namely that of the University.
This paper is a stage reflection and a time for sense making by the authors in order to set a future research agenda. Empirical work on EE programme design and assessment has led to a working assumption that the University as a whole is now a more relevant research base if we are to understand the breadth and depth of EE and EEE in the context of an entrepreneurial university. Preliminary additional interviews with a purposive sample has reinforced this tentative conclusion.

We argue that analysing our empirical data from the University’s perspective enables us to explain how much progress has been made towards entrepreneurial universities when we are utilizing a definition that focuses on student experience and development. Although ‘great courses’ delivered by ‘great people’ are certainly required to achieve this aspiration, we must also ask whether those antecedent conditions are alone sufficient to create an Entrepreneurial University.

We argue that we need to consider the breadth and depth of entrepreneurship education. Universities do aspire to be seen as entrepreneurial (if we take published mission, vision and values statements seriously); and engaged faculty will inevitably (and rightly) seek recognition for their relevant contributions and achievements. In both cases, the interpretation of what it takes to be an entrepreneurial university is critical; the key focus in practice may or may not be the student. It is relatively straightforward to find evidence of good practice (in respect of entrepreneurial learning opportunities that demonstrate valuable outcomes), but the numbers of students involved (as a percentage of all the students enrolled at universities) and the extent of the entrepreneurial challenge involved in their studies and experiences will vary markedly. Many of the engaged students are already entrepreneurial; they have spotted an opportunity that could help their personal development and have taken it. Our findings confirm that EE and EEE are both extremely valuable, and significant achievements can be recorded. However, whilst there is evidence of excellent practice, the ‘entrepreneurship agenda’ remains a work in progress in the context of a student-
facing Entrepreneurial University which provides (all) students with opportunities (and risks) in preparation for the ‘New Normal’ world of employment and self-employment. It is, of course, understandable that universities and their faculty might prefer to report on their successes (in other words, the overall size and reputation of specific programmes, or the impact of specific initiatives) rather than the gap between where they are now and where they might wish to be in the future (i.e. added value and aspirations) in terms of provision across the institution.

Here we are not redefining entrepreneurship education or ‘the entrepreneurial University’ or making the case for these phenomena. Instead, utilizing a specific view as a benchmark and a particular challenge faced by an entrepreneurial University, we ask: how do we effectively prepare students (ideally all students, not just a large or small selection) for the ‘New Normal’ world of employment, characterized by uncertainty, complexity and ambiguity? Indeed, and in the context of growing evidence of career changes, portfolio careers and self-employment (e.g. for Master’s students, see Korotov et al., 2010), we might further debate the value of enabling every graduating student to answer the following question: “Were I to be in a position to either want/need to start my own business, to be self-employed or a freelancer, do I know what is involved and, further, do I believe I have what it takes to do this?”

The important relationships between faculty, students and university, are explored in this paper. A number of courses in a variety of universities have been examined in interviews with both engaged faculty and entrepreneurship support employees. Reinforcing the findings from other authors (e.g. Neck et al, 2015; Morris and Schindehutte, 2016), many outstanding examples were identified. The courses discussed differed in respect of their breadth (the number and diversity of students involved) and depth (the immersive extent of the entrepreneurial experience offered). While a student-centred entrepreneurial University needs strong, engaged and committed teaching faculty,
this entrepreneurship agenda might be seen to compete with an agenda of leading-edge research. Some courses were able to offer assessments where achievements beyond tightly-defined learning objectives were recognized as valuable. We see the entrepreneurial university as offering courses embedded and supported within a context of opportunity and risk. The courses offered are an example of what is provided in the University ‘space’; the ones on offer are a University-level decision in the final analysis, although the ideas may have originated with any individual or group of people involved there. The relationship between the faculty and students (and their expectations) then influences the ‘sense of place’ that people have (Tuan, 1969). We therefore ask “what places have we created and what is happening in the space?”.

We note a tendency towards the use of case studies of specific experiential learning opportunities; and these are clearly appropriate in discerning what exists in a relatively new area of University provision of increasing strategic relevance (Etzkowitz, 2013). As a result, there are implications for what can be generalized (Jones and Iredale, 2014). There is also, by the very nature of seeking out entrepreneurial education, widespread use of purposive sampling (Diaz-Casero et al. 2017). The researcher must make assumptions as to where entrepreneurial education is located and who is involved in delivery. They may know to look to curriculum, but it might be that initiatives that contribute to entrepreneurial places, and associated outcomes, may not be labelled in such a way as to bring them to the attention of the researcher. Just as gaps in literature are routinely identified in different disciplines, so gaps in the practice of entrepreneurship education led to insights into contributory initiatives but less appreciation of the overall ‘big picture’ of provision.

This paper is structured as follows. In Section 2 we review the literature, and in the following section we discuss the method we used. We then present our findings and conclude the paper with a discussion, implications, and offer a novel conceptual model for future research.
Theory: Experiential entrepreneurship education and the entrepreneurial university

EE has been acknowledged as a valuable approach to inculcate an entrepreneurial mindset and thus to prepare students for graduate employment (Gibb, 2005 – who had been influenced by links to the Kauffman Foundation in the US – when discussing what would be in evidence in a student-focused entrepreneurial university). A University degree, according to Gibb, does not guarantee entry to the world of work; there is, consequently, value in additional personal development. Cherwitz (2005) reinforces this argument and contends that entrepreneurship is not (just) about small business development, but about ‘developing an attitude for engaging with the world’. University education is ‘a process of cultural innovation’; it is important to think about opportunities more than it is planning a business (ibid).

Morris (2005, 2006) highlighted the value of learning opportunities that use both the ‘left’ (analytical side) and ‘right’ (creative side) of the student’s brain. Indeed, Penaluna and Penaluna (2008, 2009) argue forcibly that students must be encouraged and helped to express their creativity in their tasks and assignments. Well-designed action-based learning is valuable in EE (Biggs, 2003; Biggs and Tang, 2011); indeed ‘good practice uses active learning techniques’ (Chickering and Gamson, 1987). Yet ‘student activity [alone] does not imply that learning will take place’ (Ramsden, 2003). Gibbs (1988) argues: ‘It is not enough just to do, and neither is it enough just to think. Nor is it enough simply to do and think. Learning from experience must involve linking the doing and the thinking’. Pittaway and Cope (2007a) similarly concluded that entrepreneurship must be enacted, facilitated and reflected upon if real learning is to occur. The value of reflection for increasing self-awareness was reinforced by Jack and Anderson (1999) to make sense of events (Weick, 1995). The need for reflection and sense making applies to faculty as much as, and as well as, to students, given that they drive the learning agenda in many cases and should (ideally) be
seeking to innovate and improve practices. Student learning embraces their learning and personal
development; faculty learning is about critiquing and improving what they do, often by discussing
their experiences and relevant learning with colleagues. Scott et al. (2016) examined a set of
student learning diaries following a team-based business proposal assessment and realized that
some of the most (perceived) valuable lessons for the students were outside the boundaries of the
targeted learning objectives set for the course in question. These views will influence what
constitutes effective teaching and effective student learning and, in turn, course design; yet, the
student’s experience at university is more holistic and extends beyond the taught curriculum.

There appears to be no real agreement on a single definition of an ‘entrepreneurial university’
because, essentially, there are many ways to be entrepreneurial. Commercial activity and research
can also be important variables, for example. Clark (1988, 2004) clarified that entrepreneurial
universities seek to maximize the potential for commercializing their ideas to create economic and
social value, something they do not see as a threat to ‘academic values’. Incubating and starting
new businesses (by both faculty and students) is one way to do this, but it is one of several
opportunities. Similar to Crow (2008), he suggested that universities work alongside external
stakeholders and their (joint) research and enterprise activities generate ideas that have value if
they can be captured and exploited as opportunities. In a student context, this approach extends
beyond the paradigm of ‘new knowledge’ and implies degree-level education should focus on
creating ideas as well as learning about other people’s ideas. Clark (1998, 2004) suggested that
one might expect the US to be at the forefront of meeting these challenges because of the number
of private universities and also the fact that public universities are funded at the State-level and
conscious of their local and regional contributions. Earlier, Schramm (2006) had identified on-
going challenges for embedding entrepreneurship within University curriculum in the US; and he flagged that Business Schools are rarely the best place for incubating entrepreneurial aspirations.

Gibb et al. (2005, 2009) would expect to see evidence of Universities preparing their students for the ‘New Normal’ world of uncertainty, complexity and ambiguity by emphasizing ‘know how’ and ‘know who’ as well as ‘know what’. Critically, both students and faculty should be encouraged to demonstrate behaviour associated with opportunity and risk. Moreover, they counsel that risk taking must not be held back by systems and procedures. The UK Quality Assurance Agency (QAA) for Higher Education further provided a guide for fostering skills in enterprise and entrepreneurship (QAA, 2012). This current paper’s primary research has highlighted evidence of this approach happening in various ways in every sampled university, with each taking an approach that is relevant for them. However, this approach has not led to a conclusion that entrepreneurship is an embedded expectation that is positively encouraged as much as it is tolerated behaviour from ‘on message’ faculty who act as visible and enthusiastic champions.

The paper brings attention to the institution as stakeholder, in terms of setting strategic objectives (Gedeon, 2017; Pittaway and Cope, 2007; Solomon, 2007; Gibb, 2002; Diaz-Casero et al. 2017) and place shaping. Universities are becoming different spaces and places in terms of entrepreneurial education, reflecting, in part, the changing conditions in University context and governance (Gibb, 2002; Gibb, 2005; Gibb et al., 2009; Jones and Iredale, 2014). We propose that the provision of EEE has become both varied and complex, in terms of: established objectives, opportunities provided, and outcomes. It is therefore relevant to the wider debate of universities as entrepreneurial places in terms of teaching and learning and enterprise outcomes. Riviezzo et al. (2016) liken the entrepreneurial university to an entrepreneur; the personal capabilities associated with creativity, opportunity spotting and risk management being reflected in the wider
organisation. Alternatively, the entrepreneurial university is a pervasive culture, one which facilitates and motivates staff and students to engage in enterprising behaviours, thereby creating the antecedents for entrepreneurial ventures (Gibb, 2002). With an emphasis on creating a context in which entrepreneurship thrives, the culture is one of encouragement to be enterprising, entrepreneurial, creative or innovative for those wishing to take such opportunities (Hudson, 2001). This culture then becomes a resource from which further opportunities arise; from the classroom, to careers guidance and community engagement (Gibb et al. 2009). Guerrero and Urbano (2010) acknowledge that resources for entrepreneurial education can be tangible and intangible; part of formal provision or informally accessed. Some universities have created dedicated enterprise centres; suggesting that resources require distinct organisation and development. Whatever the approach to organising entrepreneurial education, resourcing must be conversant with the key areas of University provision, namely teaching, research and enterprise (Diaz-Casero et al. 2017; Morland and Thompson, 2016; Riviezza et al. 2016; Zollo et al. 2017).

The terminology for our sub-title “What places have we created and what is happening in the space?” emanates from regeneration literature (Tuan, 1969; Hudson, 2001) and refers to physical infrastructure (space) and the nature of the ‘community’ operating within that space (which we call ‘place’). To support both experiential and entrepreneurial opportunities for their students, Universities (can) invest in ‘space’ in several obvious ways, such as classrooms with flexible furniture and inter-active information technology (IT), open common areas for students to mingle and/or business incubation space. Physically enabling access to external project opportunities would be an extension of these. The various experiential and entrepreneurship opportunities that are available to students, regardless of whether these are ‘embedded’ (and part of the credit-bearing curriculum) or optional and adjunct to the taught courses contribute towards the ‘place’ and the
sense of place that students experience. Students may feel there is a culture of encouragement to be enterprising, entrepreneurial, creative or innovative, for example in activities and assignments – should they want to take up these opportunities. Equally, they may feel such behaviour is not encouraged and may even be discouraged. Their feelings about the place are not simply dependent on the physical provisions and opportunities; they are heavily dependent on the messages they receive from, and the interactions they have with, relevant faculty and support employees. Their enthusiasm can be incentivizing, encouraging or inhibiting. Faculty can – and some do – provide effective mentoring and coaching alongside their more formal teaching roles. Examining place and space thus leads us towards a discussion of the whole university domain and the prevailing culture, embracing values and beliefs alongside artefacts and infrastructure.

Method

This study makes use of secondary data relating to specific courses, activities and initiatives gathered at several conferences and presentations; to this data was added the personal experiences and direct observations of the researchers as practitioners in EE and EEE. Additional primary data has been derived from a mixture of structured and unstructured interviews with several other enterprise educators, utilizing purposive sampling (Diaz-Casero et al. 2017). The observations relating to courses and activities are taken from 12 Universities; and Faculty from 5 of these have participated in the structured interviews. Although we talked to both academic faculty (about courses) and entrepreneurship support employees (about specific initiatives they run), the italicized quotes we have included are all from our structured (and recorded) interviews with Faculty. Here we were interested in the commitment of the University, student awareness (of relevant learning opportunities) and faculty capability and commitment; we asked questions relating to: their EE and EEE experiences; their perspective on the student demands they were
responding to; the expectations they had for their students and the expectations the University placed on them personally; the outcomes and achievements; the barriers they had had to deal with and overcome; their views on innovative teaching approaches, assessment and reflective learning; and the involvement of both faculty and support employees in the delivery of the ‘entrepreneurship agenda’.

The data was analysed around two core themes: first, the ‘big picture’ that embraces the congruency (or lack of congruency) between learner and university and faculty in terms of expectations, commitment and contribution; and second, the extent to which the activities that were being talked about as entrepreneurial actually constituted entrepreneurial experiential education (clearly embracing opportunity and risk) as distinct from (still valuable) experiences that focused more on enterprising behaviour and employability skills. The research continues to be exploratory, and the findings illustrative, relevant to scoping a further study of university-level strategy. The findings suggest that, whilst there is evidence of excellent practice, the ‘entrepreneurship agenda’ remains a work in progress in the context of an Entrepreneurial University which provides students with opportunities (and risks) in preparation for the ‘New Normal’ world of employment and self-employment.
Figure 1: The Tendency to a Resource-Driven Approach in Universities

The university context: the prevailing culture of an Entrepreneurial University and this culture/value being seen as a resource.

Figure 1 above links strategy phraseology to the notion of place and space. It shows that a commitment to entrepreneurship, EE and EEE – and shown here as ‘Entrepreneurial Intent’ (EI) – stems directly from a University’s mission and aims. Although it is a new interpretation of EI, which we normally associate with individuals, here we are examining the institution. Of course, what matters is what happens in practice rather than what might appear in a published mission statement. The prevalent values then influence the extent to which this (declared) intent leads to a
culture of encouraging (rather than discouraging or simply ‘tolerating’) EE and EEE. Parallel to this is the University’s approach to strategy creation and whether it is predominantly opportunity-driven (in a devolved structure that readily allows change) or resource-driven (where systems and procedures will be important and potentially constraining). Gibb (2005, 2009) argued that entrepreneurial Universities will not allow systems and procedures to inhibit the process of change in the dynamic, turbulent and competitive ‘New Normal’ world of education. This research concluded that Universities are biased towards the resource-based approach.

Resource-based strategy contends that relevant, distinctive, high-quality resources are instrumental for creating and sustaining competitive advantage (Wernerfelt, 1984; Barney (1991)). These resources create and provide competencies and capabilities. Prahalad and Hamel (1990) took the core arguments forward and highlighted the notion of core competencies as a source of distinctive competitive advantage. The resource-based view would suggest that organizations should focus on building and further exploiting their existing resource strengths and expertise, and use these to innovate in order to stay competitive, rather than looking to turn relative resource weaknesses into strengths – unless, of course, they are relatively weak in terms of resources that are seen as critical for competitive success.

The key questions for any organization to ask are: (i) do we possess the resources we need to pursue our goals and ambitions, and to compete effectively?; (ii) are we successfully developing these key resources and innovating?; and (iii) will the prevailing values and culture support our ambitions? There will be a strategic risk of under-achievement and/or below-expectation performance if appropriate resources are neither present nor strong enough to support goals and ambitions. It is not inconceivable that a University would succeed with an entrepreneurship agenda despite not deliberately recruiting the faculty resources required to fulfil any stated
entrepreneurship aims and ambitions if it is fortunate enough to have individual faculty members who are instinctively entrepreneurial and willing to become involved without any formal encouragement. The problem then happens if (and when) they leave, because the chances have to be high, they will be replaced by someone different. Universities would be expected to be constantly monitoring these issues in respect of both teaching and research. Experiential education and the provision of entrepreneurship opportunities both demand a particular style and approach linked to opportunity and risk; not all Faculty are sympathetic to these approaches. Equally faculty who believe in this approach to higher education are likely to feel inhibited when it is actively discouraged.

Strategic risks are accentuated if a University decision is made to use existing (but inadequate or inappropriate) resources to carry out a particular activity which is seen as important because, perhaps, it is a requirement of an external body, a desire to mimic or keep up with what competing Universities are doing, or a wish to pursue fresh opportunities without a corresponding willingness to invest in new key people. The outcome here is likely to be both faculty frustration and maybe even stress as well as disappointing outcomes.

Figure 2 summarises the linkages and inter-dependencies between the three key stakeholders in EEE, namely faculty (educators), students (learners) and the university. The entrepreneurial university needs their interests to be aligned. Educators are guided by the aims, objectives and
Figure 2: The entrepreneurial university

values of the university, which may or may not espouse entrepreneurial intent; the outcome is faculty priorities. It is important to point out (i) that the priorities and intent can vary between different schools (departments or faculties), further influenced by external pressures from relevant professional bodies and faculty networks (see Mandel and Noyes, 2016), which can open the door to opportunities, and (ii) the university will decide whether, and how much, to invest in entrepreneurship support activities outside the curriculum and possibly separate from academic schools. The university agendas for teaching, research and enterprise must be reconciled, both centrally and within schools.

Importantly, Gedeon (2017) stresses the need to include Deans in the provision of EE as they are the nexus between teaching, research and enterprise agendas and determine how human resources will be dedicated; they must already resolve the relationship between research and
teaching… *Deans expect professors to produce large numbers of publications, whereas students want professors to be reliable, responsive and empathetic*.

The practices that emerge will be determined by the courses designed and provided by faculty, and also by student choices regarding both optional (entrepreneurship-related) courses and relevant activities which are adjunct to the curriculum. For effective EE and EEE, both faculty and students need to be committed. Faculty commitment and student disinterest, or faculty resistance in the face of student enthusiasm, will bring disappointing outcomes. Similarly, individual faculty enthusiasm may be biased towards either more conventional, research-driven, academic teaching or towards an experiential approach; each student may be more or less comfortable with an approach that demands left- or right-brain engagement. The experience for everyone involved will be affected by the complementarity of these two sets of variables.

Whatever students do (their choice or faculty choices), the university is interested in the outcomes. The number of students graduating, and the level of their awards, is critical for universities – and it also reflects well or badly on the faculty involved. For some students, their degree award is ‘everything’ – it is their primary reason to be there and, in their minds, their passport to the future. For others, the opportunities that exist in parallel to their degree studies are serious motivators; some of these will enhance their social enjoyment; some will directly boost their resumes/CVs; both will be a factor in their personal development, increasing maturity and readiness for what comes next. Students are expected to become more knowledgeable while at University, and this is an essential outcome; the extent to which they become, say, more inquisitive, inspired to act, innovative, even adventurous, would be worthy of greater debate around how desirable these each are. The entrepreneurial university (Gibb, 2005) encourages and sponsors relevant opportunities that enable students to strengthen their entrepreneurial capabilities.
Analysis: Experiential entrepreneurship education in practice

The empirical evidence from this study identified only a very limited presence of degrees that have entrepreneurship (and especially experiential entrepreneurship) as their core theme; where they do exist, these are very niche products rather than mainstream degrees. They are only suitable for certain students (and faculty) and they can be uncomfortable experiences for the ‘wrong’ students and faculty. We might categorize this as deeply experiential but only shallow or limited in the numbers engaged. Some entrepreneurship courses are compulsory within degrees but many more are either optional or feature entrepreneurship in some way (without necessarily being called entrepreneurship). Some are research and knowledge-driven, whilst others feature various levels of experience. Individual courses can be both broad and deep, but such examples seem to be limited.

As highlighted above, sometimes it can be difficult to be certain whether an experience is an entrepreneurial experience for every student, especially where groups or teams are involved and some members are passive followers as others chase the opportunity, allowing them to avoid any real risk. Alongside, we also saw considerable evidence of assignments that offer students the opportunity to be entrepreneurial – here they may have considerable influence on the exact nature of the assessment and, by taking personal initiatives, they are taking risks. One example was students being asked to find and invite a guest entrepreneur to be a speaker, and to organize and host the event, including the marketing to an external audience. Big-name (and busy) speakers may well attract a bigger audience but they are perhaps more likely to (have to) give back-word. However, there are many more examples of rigidly-defined assignments where students have little opportunity to demonstrate real individuality of approach, although there is perhaps always an opportunity to find unusual research or develop an individual argument.
Faculty contend that students can be attracted to the subject of entrepreneurship for various reasons: some because it is something they intend to follow up after graduation, maybe by freelancing; some believe it could be relevant at some point in the future; others are simply interested in the subject. For some students, experiential opportunities are ‘normal’, commonplace, widely available and compulsory. They are embedded into their (credit-bearing) curricula. In other cases, there are optional opportunities to find such courses. However, for many students, any entrepreneurial experience they engage with will be outside their credit-bearing commitments and available only if they (a) discover opportunities and (b) exploit them. Working with their University’s enterprise support team on developing a new business idea, for example, is widely available but chosen by only limited numbers of students who are interested to do this adjunct to their degree studies. Time pressures may persuade people not to engage only for them to later decide it was a missed opportunity.

Some experiential opportunities, then, are led by academic faculty; others, probably the majority, are championed by non-academic enterprise support employees – who, of course, may have been appointed for their enthusiasm and belief in entrepreneurship, behaviour not shared by all academics. Significantly, some of the activities are selected because they are ‘fun to do’, such that ‘doing it’ is more important than learning from it. Whist there may be implicit learning from the experience, it is not automatically captured by reflection and grounding. This mimics why many students enjoy TV shows such as *The Apprentice*, *Dragons’ Den* (UK) and *Shark Tank* (US): they are enjoyable entertainment; it does not follow that students either intend or even wish to follow this route themselves.

This point can be taken further and related to the argument by Gerber (2001) that – for many people in business – entrepreneurship is a myth. They may own and run a business but they are not
entrepreneurs: the reason, they spend all their time ‘doing it, doing it, doing it’ and never stand outside the business (metaphorically) and reflect at the business level on what works and why. Unless we require students to demonstrate they are reflective learners (possibly embedding this within their assignments) there is a real danger that they are ‘doing’, and enjoying doing, but not demonstrating learning. We might surmise they are learning by doing; we cannot be sure they are learning from doing.

In order to ensure a link between action and reflection, Schindehutte and Morris (2016) discuss a portfolio of student experiences built through in-class, co-curricula, community and international experiences, and its value for a student’s development (see also Mandel and Noyes, 2016). We have been able to identify a similar pattern in the UK, which is not at all unexpected. The issues that concern us are: the student’s motivation to engage outside the curriculum, and sometimes their willingness to own their learning agenda (Pittaway and Cope, 2007a); the willingness and ability of different faculty to support and enable these activities; and the University’s perception of their immediate and longer-term value. And, as already highlighted, the extent to which they truly reflect entrepreneurship.

The University may well place constraining boundaries (relevant to its culture and values) on what happens in practice:

‘Metrics risk driving creative teaching out of the window’. (Faculty Interviewee L)

Yet, some academic faculty were willing to look outside the boundaries for opportunities:

‘Universities demand that we accept and adopt the conventional HE paradigm (based around scholarship) but we try and embrace a different learning style for students who
either expect this or would respond better to it .. also we have to cater for those who just want to dip in and try something different’. (Faculty Interviewee J)

That said, the ‘grades agenda’ works well for certain students: ‘

When it comes to marks the students are transactional and pragmatic [their degree qualification is more important than their personal development]’ such that ‘Some students don’t want to think, let alone take risks’. (Faculty Interviewee L)

The motivation and commitment of faculty to embrace flexibility and opportunity was influenced by their perspective of their own role:

‘The more we see ourselves as contributing to the student’s personal journey, rather than organizing the journey for them, the greater the arguments in favour of the students making the choices’. (Faculty Interviewee N)

These statements are indicative of perceived constraints. Faculty appreciate the alternate research and teaching priorities of the University but those committed to EE and EEE can empathise with the specific needs of students as learners.

The student-centred entrepreneurial university might be expected to provide and engineer opportunities and that students /staff are enabled to take them. We found evidence of a range of experiential learning opportunities, including some that are genuinely entrepreneurial in nature, and involve risk on the part of the students (and sometimes the faculty). Considering (entrepreneurial) depth of the experience, some opportunities are deep and demanding, but others are valuable but shallower in nature. Typically, the deeper learning opportunities and related activities will be riskier for students as the outcomes are more uncertain; they are, then, not ideal opportunities or choices for some (more risk averse) students, especially if they believe their
degree classification might be at risk – either because of less predictable assessment or the opportunity-cost of (often) open-ended challenges.

Incubation and mentor support for student venture creation is widely available in universities, but it is rarely embedded in the curriculum. Less ubiquitous, but linked, are examples such as pop-up shop opportunities where students can trial something; these are particularly valuable for those interested in trading and those with a design or craft background.

Sometimes there are courses on business planning; and business models are featured in strategy courses. There are business plan competitions that students can enter (often in teams) – the fact the business may never get started is sometimes irrelevant - and often there are internal initiatives where individual students can bid for venture capital to help start real businesses. We found both compulsory curriculum-based and voluntary adjunct activities where students (usually in teams) organize fund raising events for local charities, and opportunities for students to (again in teams) compete in intensive and immersive project challenges dealing with real world issues and themes.

Case studies, problem-based learning and projects linked to external organizations are also commonplace, but realistically, whilst these are examples of application and experiential learning, they are not ‘entrepreneurship’.

Some Universities have Entrepreneurs in Residence, organize Guest Speakers and also engineer opportunities for students to spend time doing internships or shadowing executives; again these are valuable experiences but they do not involve risk on the part of the student, other than perhaps the opportunity cost of the time involved. At the same time, they can be excellent for helping students to be more creative and to develop ideas.
It also became apparent that some university employees (both academic faculty and non-academics) are appointed and deployed to support these entrepreneurial initiatives, but on other occasions there is a serious reliance on enthusiastic, visible champions from the teaching faculties across the whole University – teachers who are committed to an enabling role outside the core course agenda.

‘These courses and activities depend on a visible champion ... for this you have to find people with passion. (Faculty Interviewee N) ... Because ...

It can be discouraged by certain individuals who are themselves reluctant to take risks and drive change:

‘In my experience there is little reward for doing something new, different and innovative, but real flak if something goes pear-shaped’. (Faculty Interviewee L)

Our data gave us a bottom-up perspective on courses that (typically) were successful for the students who engaged with them. Sometimes these students were pre-selected because they were automatically enrolled on relevant courses; on other occasions, they (the students) chose a particular option. Parallel selection by both students (applying) and faculty (choosing) was rare.

Courses could be found in various schools across universities; where relevant experiences were offered as adjuncts to the taught curriculum students again could be found in all parts of the university. At one level, then, there was clearly breadth of coverage; however, the numbers of students engaged was typically not high.

Interviewees accepted their knowledge was partial, and related to their own experiences, in respect of where entrepreneurial education is located and who is involved in the delivery in their University. The picture may thus be incomplete. Faculty involved realize it is important to consider
currilum across all schools and all degree courses, but rarely is there a comprehensive understanding of all that happens with teaching and assessment. The challenge of collecting valid and reliable data to provide such insight has been highlighted (e.g. Hannon et al. 2006; Rae et al., 2010) and satisfying this need may be realistically impossible. It is also apparent that initiatives which contribute to entrepreneurial places, and associated outcomes, are frequently not embedded in credit-bearing courses and possibly provided by non-academic employees; whilst expert in their own domain, these important contributors are often unaware of (all) the relevant embedded credit-bearing courses. Just as gaps in literature are routinely identified in different disciplines, so gaps in the practice of entrepreneurship education seem to occur because not all ‘practice’ can be found.

Discussion and Conclusions

Opportunity and risk are two established and accepted key elements of entrepreneurship; they were manifest themes in the paradigm of an entrepreneurial university put forward by Gibb et al (2005). Building on earlier research this paper has looked at these themes in relation to three key stakeholders in (experiential) entrepreneurship education, namely the University, its university employees (both academic faculty and relevant non-academic support employees) and its students from across all its schools. We have concluded that the EE and EEE agenda offers both opportunities and risks for all three, but they are different – as illustrated in Table 1. The challenge, therefore, concerns the search for a strategy that can provide opportunities for everyone with inherent risks they can all accept.

Figure 3 suggests that effective EEE requires choices, decisions and commitments on the part of the three key stakeholder groups that are congruent and self-supporting. It assumes that EEE has
a key role to play in preparing students for the challenges of the ‘New Normal’ world they will face on graduation and also that their personal development (alongside their formal degree studies and qualification) matters. The challenge is to be in the North-East quadrant in each case; anything else risks under-achievement. Achieving this self-supporting congruency will not be easy and it will be very dependent upon the messages flowing top-down in the University – hence our belief in this paper that the University perspective is critical if we are to understand the EEE agenda and achievements. The ‘virtuous circle’ implies that the University must both espouse the value and significance of the entrepreneurship agenda along the lines we have discussed and be active in taking this agenda forward.
<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>STAKEHOLDER</th>
<th>POSSIBLE PERCEIVED RISKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>More graduate entrepreneurs</td>
<td>UNIVERSITY</td>
<td>Courses with a strong experiential element may require assessments that are individual to the student (and potentially negotiated with students) and which are harder to fit into a standard learning outcomes formula</td>
</tr>
<tr>
<td>More ‘intrapreneurs’ – graduates able to work entrepreneurially in established organizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More enterprising graduates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More self-employed and freelance workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The opportunity to be seen as people who inspire and support students to develop as individuals - as well as performing their teaching and learning roles</td>
<td>FACULTY</td>
<td>May well conflict with the research output agenda that matters to Universities and to many faculty who see their future career progression as research driven</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This approach may be at variance with how individual faculty are ‘wired’ and it may be outside their comfort zones</td>
</tr>
<tr>
<td>Real opportunity for personal development</td>
<td></td>
<td>Demands a right-brain approach to learning that may be very different from students’ past experiences from school and initially require confidence building</td>
</tr>
<tr>
<td>Potential to know whether they could – should they ever wish – create their own job</td>
<td>STUDENTS</td>
<td>May be seen as a threat to the degree award – which might be the case for some although this is not automatically the case</td>
</tr>
</tbody>
</table>
Table 1: Opportunities, risks and key stakeholders in (experiential) entrepreneurship education

### Table 1: Opportunities, risks and key stakeholders in (experiential) entrepreneurship education

<table>
<thead>
<tr>
<th>University</th>
<th>Staff</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Espouses Entrepreneurship</td>
<td>Worldly as well as knowledgeable</td>
<td>Actively searching for “experiences” to learn from</td>
</tr>
<tr>
<td>Passive approach</td>
<td>Belief that know what is dominant</td>
<td>Very left brain</td>
</tr>
<tr>
<td>Shows little real interest in Entrepreneurship in practice</td>
<td>Role for experience &amp; application</td>
<td>Both left &amp; right brain</td>
</tr>
<tr>
<td>*Assuming: This is appropriate, feasible &amp; desirable for the “new normal” we have today</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Personal development &amp; self-awareness matters alongside the degree qualification</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

**Virtuous Circle**

*Assuming: This is appropriate, feasible & desirable for the “new normal” we have today*

Personal development & self-awareness matters alongside the degree qualification

**Figure 3: Experiential entrepreneurship education: the virtuous circle of success**

The University may well espouse the value of the entrepreneurship agenda but be passive or indifferent about making sure this declared Entrepreneurial Intent is taken seriously by staff and students and enacted. Without this direction and championing, then individual activities and courses may well demonstrate entrepreneurship in action but they are not likely to become all-pervading and embedded.

Faculty need to support experiential approaches; equally significant, they need to have some clear understanding of the ‘world’ the students will face after graduation and ideally have external
networks and contacts they can call upon to help them. This helps develop the ‘know how’ and ‘know who’ to accompany the ‘know what’ provided by theory-inspired knowledge. Essentially, those involved need to be ‘worldly’: potentially challenging for some who have spent their whole lives in academia. Where faculty with external ‘real-world’ experience are engaged to support academic faculty this may well be less of an issue.

Students must be willing to embrace right-brain, more creative approaches to teaching and learning and also be willing to search out, find and seize opportunities they feel could be beneficial. Our evidence suggests that evidence of the EEE ‘virtuous circle’ can be seen in Universities in certain (local) activities and learning opportunities, where some faculty and students are both actively engaged. The University is supportive, although a degree of ambivalence may well be present. This does not necessarily mean the University can be fairly and firmly placed in the North-East quadrant, nor that both depth and breadth of coverage have been achieved. These activity- and course-level initiatives, and what they achieve, can, and should be, celebrated; but without other changes of perspective, further developments and improvements might well be limited. The reasons for this are understandable and, in many cases, defensible; and they relate to all three stakeholder groups. However, without strong championing of the EE agenda at the University level – rather than by selected individuals – then achieving both breadth and depth of coverage will remain a declared aspiration rather than become an achievement.

If we are to have a better sense of place in our Universities our challenge going forward is to understand in greater depth what we are doing, who is doing it, for whom, why and how. Our experiences to date suggest that we have identified pertinent questions that are relevant for UK Higher Education Institutions. We have sampled enough Universities to demonstrate a degree of consistency in approach and outcomes – but it has become clear that we have not investigated each
one in sufficient depth and need to carry out more systematic research. We need more data about the University as an institution as well as from staff and students.

To understand the situation more clearly, part of the research challenge going forward relates to perceived constraints, especially at the University level. In conducting this research we would suggest that including the entrepreneurship aspiration in a mission statement, where there will be other (potentially conflicting) priorities, will not necessarily generate sufficient action.

The key themes of this further research, then, might be: the University as a place; the student agenda; the faculty resource; and the University from a strategic perspective.

We need to better understand universities as ‘places’; what it feels like to be there. Is it ‘buzzing’? Are opportunity and risk taking freely encouraged or restrained by procedures? How much EE and EEE is currently available? How much is embedded. How much is outside the credit-bearing curriculum? Which students are engaged and how does this come about? Who champions what happens? What achievements are most visibly celebrated?

Students are not homogeneous individuals. An argument might be put forward that preparing them for the post-graduation ‘New Normal’ world is important, and maybe even essential – but does the student body agree with this contention? Is it legitimate that students might be very strongly focused on their degree award, and be happy to focus on becoming more knowledgeable and professionally qualified? If so, should we not allow and enable them to choose this approach? Students learn in different ways; experiential opportunities may not be their priority. That said, it will still be important to provide entrepreneurial learning opportunities for those who wish to take them – which we do at the moment. The question then becomes one of how much more should be done? We propose that an ideal way of gaining this insight would be track longitudinally the
(entrepreneurial) learning journeys of selected students. We need to know what courses they choose (as options) alongside those they have to study, what activities they opt to participate in outside and beyond the curriculum, who they network with (from amongst other students and staff, as well as outside the University). We anticipate that some students will have an all-round learning experience that is much more entrepreneurial in nature than is the case for other students. We acknowledge that in part this will depend on their personal attributes and how they find and act on opportunities and take risks. It will be influenced by the people they meet, relate to and trust.

Faculty (as resources) may well not fit the EE and EEE agendas very closely – but they may be excellent contributors in other ways and linked to other declared priorities. Their willingness to engage with the students and help facilitate and enable their learning will be affected by the work pressures they face and how they are evaluated and rewarded by their line managers – as well as by ‘who they are’.

The University mission statement (and related strategy documents) will be a good starting point for providing insight into the ‘space’ that will be made available. But how is entrepreneurship valued when set against research? Who will own the entrepreneurship agenda? Will it be actively championed at a senior level or relegated below other priorities, such as leading-edge research? Is it properly resourced? How is it enacted, with Faculty and other staff engaged? When other universities are cited as role-model universities, or as competitors who should be monitored for their achievements, will their entrepreneurial intent feature significantly? This will demand cooperation from senior management to provide a top-down perspective to supplement bottom-up data collection from staff and students.

It is, then, quite possible that we could conclude that what we have at present is ‘as good as it gets’. Because there is evidence of excellent EE and EEE practice. That said, what we have discerned at
the moment in the UK is still short of what Gibb (2005) suggests would be widely evident in an entrepreneurial university. Whilst it is conceivable that priorities and constraints will make this student-focused perspective of an entrepreneurial university, where all students are faced with challenges, opportunities and risks, an ambition we are unlikely to see fulfilled, then the issue remains that the demands of the ‘New Normal’ world are not likely to be going away – but maybe it is unrealistic to assume that universities can contribute much more to this agenda than they currently do, given the other priorities and constraints that exist. Our view is that further research can investigate what is feasible and how much senior management in universities feel they can commit to – so we have a better understanding of what is meant and implied when the term ‘entrepreneurial’ appears in mission and values statements. We might, then, surmise that the issues going forward will relate more to ‘place’ than to ‘space’ if we are keen to improve the Virtuous Circle featured in Figure 3.

From a strategic perspective, it seems defensible that universities should take a resource-based approach; they need well-qualified and credible academic faculty who can conduct leading-edge research. Students can be expected to take a short- or medium-term perspective and seek to maximise the value of their time with a good degree. This means sound procedures and quality management. But at the same time universities will want ‘good stories’ to help with recruitment and they will want their graduates to be well-prepared for what comes next. They should not stop looking for opportunities to be different from those they see as rivals.
REFERENCES


Morland, L and Thompson, J.L. (2016) *New Venture Creation as a Learning Agenda: experiences, reflections and implications from running a venture creation programme*. In: Norris, M.H. and


Abstract
The paper is based on teaching practices of entrepreneurship and financial education encompassing five aspects of extant literature: action, empathy, creation, experimentation and reflection. It aims at showing how board games could be used in teaching ‘Investment Analysis’. Classes were divided into groups of six members each, and attributed three different investor profiles to students: aggressive, moderate and conservative. Students were monitored when ‘investing’ in rounds of twenty minutes and reported their experience. Financial trajectory of each participant was identified, drawing a parallel behavior to the reality in which the entrepreneurs are exposed. Implications for entrepreneurship education are discussed.

Keywords: teaching cases; entrepreneurship; financial education; Monopoly.

Executive Summary:

Synopsis: This study aims at analyzing the use of board games on teaching practices of entrepreneurship and financial education, encompassing five aspects presented in the academic literature: action, empathy, creation, experimentation and reflection.

Methodology: the researchers conducted three classes of ‘Investment Analysis’ using Monopoly board game as a teaching tool. It was measured every twenty minutes the results
of the three profiles of players, namely conservative, moderate and aggressive investors. Authors report students’ impressions at the end of each game.

Findings: Authors essay to draw a parallel behavior to the reality in which the entrepreneurs are exposed, subject to environmental effects.

Implications for theory: the research on different teaching methods is crucial for the development of entrepreneurship studies, including different contexts of students.

Implications for practice: the paper contributes to entrepreneurship education with its insights about entrepreneurial behaviors and the use of board games as a cost-effective and motivating tool for learning.

1. Introduction

The teaching of entrepreneurship is linked to stimulating creativity, development of leadership and the internalization of the ‘culture of doing’. (Neck, Greene, Brush, 2014). In addition, knowledge of financial issues and market behavior is essential, especially when entrepreneurs analyze their opportunity costs.

Currently, the use of new learning technologies is increasing, with virtual interactions and a multitude of innovative tools that help teachers (Katz, 2014). However, this does not reflect a higher degree of student motivation. In addition, board games might be used as an effective tool. Some teachers, looking to motivate their students, try to elaborate more dynamic and attractive classes, changing the routine of their students. These practices are also used to foster assimilation of more difficult subjects. Regarding the Brazilian educational reality, the use of new technologies, such as mobile and computer apps may not be spread-out, since the vast majority of students, especially those attending to public schools, would not have access to new technologies (Savóia,
Saito, Santana 2007). Nevertheless, board games are more accessible to a much larger range of students. In addition, they both improve student motivation and enhance teamwork skills.

Based on these premises, this paper aims at demonstrating how to improve teaching of finance, as well as discussing the implications of the use of board games, such as Monopoly. The results obtained in the classroom, were very positive, after its use by three classes of ‘Investment Analysis’. Classes became more playful and fun, besides encouraging the sociability and integration of students. Board games were a proven instrument of learning facilitation. Therefore, the secondary objectives of this research is to explore current issues about financial education in an entrepreneurship course and the existing difficulties, demonstrating that there is room for new active-learning practices.

Through the presentation of the results obtained with the use of Monopoly in the classroom, the authors discuss aspects related to content learning, the degree of interaction and the motivation of students due to a playful learning practice. When analyzing the use of the board game in the classroom, the authors demonstrate how concepts are put into practice, providing the experience of small investment decisions, as opposed to the theoretical large investments examples of extant finance books. Through this experience of plausible investments for small businesses, students participate actively in the educational process, absorbing, through practice, the advantages and disadvantages of each investor profile and the fluctuations of investments over time. Therefore, the implications for entrepreneurship pedagogy are quite clear. The results obtained show considerable improvement of students’ motivation for learning finance through a more playful tool. Students learn, through the board game rounds, how entrepreneurs, regardless of their risk tolerance - aggressive or conservative profiles, is subject to external factors of which either compromise the good functioning of their business or become opportunities.
2. The Use of Games on Entrepreneurship Education

The learning processes in the field of entrepreneurship have much room for improvement. Processes applied in the upper-level classroom tend to emphasize the development of systemic business thinking. That is, to develop the ability to analyze diverse everyday situations with a business analytical look. In this way, games and simulations can contribute in a relevant way to the processes of active learning, based on experimentation. Entrepreneurs-forming institutions cannot and should not be limited to a theoretical approach. The use of games in teaching, in addition to attracting greater attention and interactivity of students, contextualizes the learning in practical means, working several skills such as teamwork, logical reasoning, creativity, among many other fundamental elements to entrepreneurship (Moizer, Lean, Towler, Abbey, 2009).

Business education is constantly improving, but authors such as Gibb (1987), since the 1980s, have pointed to the fact that the business education approach should be different from other subjects. Conventional educational methodologies, of more theoretical approach, seemed inadequate to teaching entrepreneurship. According to the author, entrepreneurship education should involve more flexibility, experimentation and active learning.

Entrepreneurial education is understood as an educational process that aims at encouraging entrepreneurial thinking, attitude, values and behavior. Therefore, it can be suitable either for developing a business career, or to make students better employees. In addition it can simply stimulate the ‘culture of doing’, improving the roles of individuals in society, thus generating a corporate society (Mwasalwiba, 2010).

This definition is in line with the one proposed by Jones and English (2004) that entrepreneurship education would be a learning process that develops the entrepreneurial analytical capacity of
individuals to recognize commercial and social opportunities, gaining the skills to act in the face of such opportunities.

One of the benefits of using classroom games is to relate theoretical content to practical reality. In this context, games that include a prior or post-game analysis, involving students' discussions and perceptions about the subject, promote greater emotional involvement of classes, therefore causing a lasting effect on learning (Tasnim, & Yahya, 2013).

The teaching of entrepreneurship is broadly tied to the belief that it can really be taught, and not necessarily an individual vocation. The importance of entrepreneurship education is so great that it extrapolates the student-teacher relationship. The success of its teaching is measured by not only student performance measures, but else by measuring the impacts of entrepreneurial education on society itself (Katz, 2014).

To increase the degree of student learning and participation, in a playful way, games have long been used to aid teaching and learning. Huizinga (1971, p.33) elaborated one of the current definitions in game playing:

The game is an activity or voluntary occupation, exercised within certain limits of time and space, according to rules freely allowed, but absolutely obligatory; endowed with an end in itself, accompanied by a feeling of tension and joy and an awareness of being different from everyday life.

Thus, studies in the area of education and pedagogy demonstrate the importance of including games for practical assimilation of content, as described by Murcia (2005, p.10):

The characteristics of the game make it a vehicle of learning and communication ideal for the development of personality and emotional intelligence of the child, having fun while
learning and engaging with learning means that the child grows, changes, and actively participates in the educational process.

Regarding adult education, theoretical underpinnings suggest that “business games” are an adaptation of existing games in the military sphere that emerged in the United States in the 1950s, focused on the business environment. Actually the term “serious games” appear in corporate contexts (e.g. Michael, & Chen, 2005; Gros, 2016). In addition, Martinelli (1988) conceptualizes ‘company games’ as an activity in which a sequence of decision-making occurs, based on a business model. Moreover, Tanabe (1977) describes four basic characteristics existing in any set of companies: (i) have a simulated environment; (ii) all the decision variables are expressed in the model; (iii) develop interactions between the participants and the simulated object, and (iv) are always simpler than the real world.

Extant literature explored extensively the game theory (e.g. Gibbons, 1992). Hindle (2002), for instance proposes a grounded theory for teaching entrepreneurship using simulation games. Ruskovaar and Pihkala (2013), for example, approach classroom practices of teachers implementing entrepreneurship education.

Nevertheless, other papers cite the use of computer games as an educational tool (Amory, Naicker, Vincent, & Adams, 1999), software games and digital games (e.g. Virvou, Katsionis, & Manos, 2005; Gros, 2007; Becker, 2017).

Finally, the use of board games for teaching and learning are reported in various creative ways (e.g. Ramani, Siegler, & Hitti, 2012; Sardone, & Devlin-Scherer, 2016). So taking it to the classroom is no novelty, especially for small group learning activities. Moreover, researchers of the subject report the use of number board games as promoting broad and stable improvements in low-income children’s numerical knowledge (Ramani, & Siegler, 2008), which could give some
hints about the use of the same kind of games for teaching finance for entrepreneurship students and entrepreneurs.

For Lara (2003), there are four types of games, when related to learning: construction games, training games, deepening games and strategic games. The use of Monopoly in the classroom falls within the definition of a strategic game, which according to the author, could be used for Mathematics teaching. Therefore, strategic games might foster the creation of action strategies for a better performance as a player. While the student is proposing hypotheses and developing a systemic thinking, they are able to think of multiple alternatives to solve a certain problem.

Notwithstanding, the use of games for entrepreneurship and financial education, besides being a strategy of motivation, it stimulates creativity, logical reasoning and teamwork. It can also serve to develop values such as honesty and complicity, as well as increasing the capacity to deal with losses and adverse situations (Theodoro, & Almeida, 2010).

3. Financial Education in Brazil

Basic questions about financial education, such as evaluating inflation behavior, planning household budgets, comparing prices before making a purchase, are not so common in Brazilian contexts (Dana, 2016). A study conducted by the Organization for Economic Cooperation and Development [OECD] in 2016, compared the financial literacy index of 30 countries. Brazil performed 1.2 % (percent) below world average, which, according to the study, was an alarming situation. In practical terms, when comparing Brazil with other countries of the European Union and the United States, it lags far behind regarding the issues of ‘saving and investing’ (Savoia, Saito, & Santana, 2007).

Nevertheless, the Brazilian imaginary still hovers over state paternalism. In the last twenty years, at a global scale, neoliberal progress has gained momentum through globalization practices,
technological development and changes in the state-society relationship. At the Brazilian level, inflation control and economic stability have changed the conception of how Brazilians treat money. With the economic rise in the last ten years, the Brazilian government has stimulated the supply of credit, encouraging the consumption of goods and services. Nevertheless, there was a setback because the population was so overwhelmed about new consumption possibilities. Due to the increase of people’s purchase power they, irresponsibly, ‘shop until they drop’, without planning their savings or investing their money, in order to encourage growth. The result of that, coupled with the current crisis caused an exponential increase in delinquency and indebtedness, probably enhanced by lack of a basic financial education (Savoia, Saito, & Santana, 2007).

Nevertheless, the basic objectives of financial education permeate the teaching of spending and saving concepts; credit and debit; employment and income; investment; risk management, insurance and financial decision-making (Dornelas, 2005). One can establish a relation of these principles with those liked to entrepreneurial education, themes fomented by private organizations as well as by the public sphere.

In terms of both entrepreneurship and financial education in Brazil, according to Junior, Traspadini, Sant'ana, Nascimento, Nunes, and Nobre (2015), it is evident that there have been advances in pedagogical practices, mainly related to new technologies, online games, and software, among others. However, this progress is still insignificant in the face of the Brazilian reality, mainly because public education at all levels is not able to offer such advances and possibilities to all its students. Therefore, the use of traditional board games is shown as more accessible and functional, showing in simple ways several situations that require financial analysis and decision-making. An interesting outcome of the use of games for financial education is the paradigm break in relation to mathematics and financial management. Unlike a traditional lecture,
while playing Monopoly, the student understands what is happening in a more natural way, which facilitates knowledge absorption.

Some authors posit that education that stimulates creativity, leadership, coupled with finance and management are basic precepts for promoting a modern entrepreneurship teaching approach (e.g. Harrison, & Leitch, 1994; Kuratko, 2005; Chen, 2007). However, according to the author, there is a need for adaption of both the content itself and the didactic-pedagogical practices. Therefore, in order to improve entrepreneurial actions through theory and practice, teaching of entrepreneurship should encompass other methods apart from traditional approaches.

In addition, entrepreneurship teaching in Brazil got totally related to the entrepreneurial spirit, meaning that it is much more linked to practice than theory. Moreover, according to Bernardes and Martinelli (2007, p.1):

> With growing interest in entrepreneurship, research and the study of entrepreneurship and SMEs has developed enormously. Many specific Programs and/or Entrepreneurship Centers linked to higher education institutions are created, with a growing number of reported experiences, aimed at disseminating practices and sharing the results that increase the understanding of the risks and facilities of those who intend to work in such way.

However, a pioneer study conducted by Endeavor (2012) has shown a different reality on entrepreneurship education. The study was conducted among 46 Brazilian universities, present in 11 different states. Although more than 90% of the sample offered some type of course/subject related to entrepreneurship, their approach was very superficial. At the same time, the students demand for these subjects is quite low, revealing issues on the disclosure of the subjects as well as regarding the quality of the offer. In the medium to long-term this fact becomes worrying, because in the same study, 60% of the young people interviewed stated that they intended to open their
own businesses. However, without the minimum necessary training, Brazil will continue to lag behind other nation’s performance in terms of entrepreneurship. Nowadays, 60% of firms shut down in their initial five years of operation.

5. **Method**

The nature of the paper is qualitative exploratory, aiming at promoting an analysis of students’ behaviors and testimonies regarding the use of Monopoly as a teaching tool. Investment Analysis is a subject inserted in the fourth term of the curriculum of Entrepreneurship and Management undergraduate course. It includes discussions regarding business risks, cost of capital, budgeting, and investment analysis indexes, such as IRR [internal rate of return], NPV [net present value]. Monopoly board game was chosen because it simulates in simple manners the life of the entrepreneur while investing in their own businesses. In a controlled environment, students are able to experience the ups and downs of venturing.

In order to accomplish the research objectives, the study was conducted during four semesters, between 2015 and 2017, using Monopoly board game in the classroom, as a teaching tool. The authors were inspired by the works of Ramani, Siegler and Hitti (2012) and Sardone and Devlin-Scherer (2016), regarding the use of board games as a teaching tool.

Data collection followed a protocol divided into two steps, and it was conducted by the professor, which recorded both the financial data of each participant - every twenty minutes – asking them to report what happened during the game rounds, regarding their moves. Examples are shown at the Presentation and Analysis of Results section.

The evolution of the balances of each student was recorded in MS Excel graphs. Both the individual and collective student performance was recorded by each investment profiles. Therefore, the professor could evidence, in qualitative terms, a possible trend among those who
had the same profile. Moreover, the students’ testimonies helped identify the reasons for an outlier behavior of each investment profile. The students’ reports were transcribed and coded in different categories, in order to facilitate the discussion of results. At the end of the paper, authors also discuss the implications for teaching.

5.1. Class Dynamics

The classes were divided into four groups averaging six people each. In addition, each group was split in three divisions related to different entrepreneurial profiles: conservative, moderate and aggressive. Therefore, in each group there were two students of each of the three profiles. The professor proposed the following rules of the game. During the rounds, the first profile did not make any investments; the second profile made investments, every other round; the third profile made investments in all rounds, as long as possible (see table 1).

Insert Table 1 about here

The initial balance of each participant was then recorded and one student was responsible for updating the financial data of all components of their groups, every twenty minutes.

The games had a total duration of 140 minutes (length of regular classes). It was used different versions of the board game. Therefore, depending on the version, groups started with different amounts of capital. In order to equalize the figures, all results were converted to the same base.

6. Presentation and Analysis of Results

In this section, first authors present the financial evolution of each of the three profiles. Second, it is presented the qualitative data regarding the individual testimonies of students.
6.1. Financial Evolution of Players

The financial data were analyzed in MS Excel, first separating each investor profile, and then conducting an overall graphical analysis, which shows some trend curves of each profile, besides highlighting outlier players. Nevertheless, the testimonies of players, recorded after the game rounds were fundamental for the understanding of these divergent situations, observed in the graphs. The results (capital accumulated) were recorded every 20 minutes. Then they were set for a homogeneous analysis, converted into the same base. Although the total number of players recorded did not match a statistically significant sample, authors chose to use graphs as illustrations of trends of each profile. In addition, it was found that the use of the game facilitated learning, motivating students to participate in class activities and influenced on the absorption of theoretical concepts, all in a practical and playful way.

It was noticed that the natural tendency of the aggressive profile was to start the first rounds by capitalizing, and investing in everything possible. Therefore, the graph shows a slope that begins as decreasing but grows as time progresses. At the end of the game, almost all participants in this profile had good returns on their investments, making this profile the biggest accumulator of gains, apart from some specific cases in which the participant has left without playing for being trapped or suffering some setbacks in the game (see figure 1).

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Insert Figure 1 about here

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The moderated profile basically remained modest in its earnings curve. However, due to a specific case of a student who repeatedly drew lucky cards, it is observed graphically an exponential
increase of gains at the end of the game, however this profile was the one which accumulated fewer gains (see figure 2).

Curiously, due to the nuances of the game, the conservative profile achieved more gains than the moderate profile at the end of the game. Without investing in anything, after a few rounds, the participants in this profile had only expenses and no sources of revenue. However, because some players spent much time in jail and receiving gains due to lucky cards, some participants were not decapitalized over time (see figure 3).

On figure 4 a comparative graph of all three profiles is drawn.

6.2 Individual Testimonies
At the end of the game, students wrote their general perceptions about the game, agreeing on some definitions. First, to make profit, one needs investment. In popular saying, to make money, you have to spend money, a fact demonstrated in the gains curve of the aggressive profile. Another realization is that, apart from luck, if you do not risk anything, you do not invest in anything, and consequently you will not get returns. Finally, the students understood that factors unrelated to our
wills, considered as luck or bad luck, happen to good or bad entrepreneurs. Therefore, one must be prepared for luck or setbacks in life.

The nuances pertinent to the game and student perceptions are demonstrated as follows.

As an example of the moderate profile outlier, the student C.M. (figure 5) excelled in profits earning because his moves matched properties with the highest rents – values are generally multiplied by dice numbers. Therefore, luck in that case is a variable to be considered. Despite the fact that professors do not encourage students to count on luck, it should not be ignored as a factor affecting gains and losses.

"I ended up with more money than everyone else because I bought the company houses (electric company, railroad) and made considerable gains when I got the rent."

As an example of students’ perceptions, A. P. R. (figure 5) - the second most well placed in the moderate profile - accumulated neither profits nor losses. According to her, the conservative profile is the most inclined towards bankruptcy:

"... I think that the tendency during the match would be bankruptcy. Since, they did not invest in anything, they would have no return. They only pay the rent and, eventually, the taxes."

Her perception was corroborated by other students in the following classes, when the professor encouraged them to discuss their lessons learned.

Nevertheless, the student J. V. (figure 6) had a conservative profile, but still managed to obtain good profits, thanks to her luck.
I went through a few properties where I had to pay the rent to other participants. In chance, I got only the lucky cards where the amount I was supposed to win was quite high. It can be concluded that I was an outlier of the "standard" behavior that the professor showed at the end of the game.

The student M. V. (figure 6) also had the conservative profile, however, unlike his colleague J. V., after some rounds the student did not have any source of income and only expenses with each round, accumulating losses.

I had the perception that by not risking on investing in a certain businesses, I would save money. However, considering a service which presents great demand (represented at the game by properties where many players land) I think now that not buying represents an opportunity lost.

In the aggressive profile, it was observed that, despite decapitalizing at the beginning, the gains happen over time. Therefore, in order to make money, one has to invest first. The student G. L. (figure 7) was the most outstanding; however, his other colleagues of the same profile maintained practically the same gain curve. For him, one of the highlights was not going to jail or pulling backhand cards. He mentioned:

*It was explicit that with an aggressive profile, with a bit of luck and diversification one can make more money.* (G.L.)

An interesting fact in this profile was the case of the student M. P. (figure 7). She managed to accumulate money in the first rounds due to lack of luck, as she explains:
I started the game with $2,448.00 and in the first two rounds I did not buy due to lack of opportunity. In the third round I did not play because I went to prison. These three rounds allowed me to accumulate money and only in the fourth, I started to buy. (M.P.)

Neck, Greene, and Brush (2014) highlight five aspects of entrepreneurship education: action, empathy, creation, experimentation and reflection.

Empathy and experimentation is cited by a student that declares:

*The simulation reflects the importance of the activity, which also gives the opportunity for us to see and feel how an entrepreneur might behave. It is like wearing other people shoes as each round of the game one might experience some kind of loss or gain in the short, medium or long term. I know that in real life it is ever more complex. It demands much more effort, being subject to more risks, but I have understood in practice what I need to succeed as an entrepreneur... (A.P.M.)*

Two of the students mentioned the action of playing as means for active learning:

*In years playing the game Monopoly had not seen how important is trying to predict what may or may not make a profit, even though at the present time it seems like an expense with no return. Fortunately, when finishing a match, we start again from scratch and start another row without suffering many consequences. It would be nice if in real life this was also the case, but as it is not, the use of the game is the basis for the study on investment analysis. (M.M.)*
The game showed what happens in the reality of an investment, first the investor has a capital flight because he needs to acquire assets for his business, with the course of time, the investor's struggle is to recover that capital with the assets, when the investor has the payback he makes capital stock for any risks he assumes while running. It is not possible to take no risk when investing, it is not guaranteed to have a quick return or even a return, all the investor can do is to have a good base of studies and apply their knowledge of management, economics, investment analysis and financial mathematics. (V.H.)

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Insert Figure 8 about here

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One of the students mentioned experimentation as means of learning, in a positive way:

*Playing the game was very good both to review the concepts learned during class and to open my vision of investments in ways I had never thought. It was great fun learning to play a game that almost all of us have played as a child. It is certainly a simple and cheap way of learning.* (R.O.)

One of the outputs of playing Monopoly board game during classes is reflection, which was mentioned by one of the players:

*Playing Monopoly was interesting for us to realize that we had to take certain risks to make a profit. Obviously, it the luck factor contributed to winning or losing money. In the game is much easier to take risks because money is fake. In real life, we know that we are going*
to take some risks. One should analyze beforehand the implications of assuming that risk. 

The game allows us to reflect about it. (J.)

Although players did not directly engaged either on business creation or business planning, business model canvas or spreadsheets could complement the use of the board games during the investment analysis classes.

7. Final Considerations

The use of a board game, in the midst of the technological era in which we live, is paramount when we come across realities of teaching in emerging countries, such as Brazil. The neediest students could be encouraged to learn in a playful, cheap and accessible way, without depending on any computer, tablet or device. The combination of both theoretical content and the practice of the game, led to a better assimilation of learning, and fostered teamwork among students.

While teaching a more dense or complicated subject, playful practices attenuate students’ difficulties. When a professor uses inclusive game practices in classroom, changing the traditional routines of lectures, students become more interested. Although video games are a growing trend among all ages, students might benefit from face to face interaction of board games, as opposed to individualistic technologies. In addition, the use of Monopoly as a teaching tool for entrepreneurship enhanced the levels of motivation and interest of students. Besides their greater participation, the use of the game stimulated their interactivity, facilitating assimilation of the contents exposed in the classroom.

Recalling that the paper aim at demonstrating how to improve teaching of finance, as well as discussing the implications of the use of Monopoly, authors highlight through students quotes various aspects, namely the relationship between investments and gains, risk and return, the role
of externalities (such as luck) in the construction of investment portfolios. Moreover, students were able to absorb the concepts not only on account of the professor's explanations or through case studies, but rather by experiencing the feeling of winning and losing. Therefore, the teaching of investment analysis can go beyond IRR, NPV or payback exercises or simulations with MS Excel.

The use of traditional board games in the teaching process is a valuable instrument, which helps educators, especially in subjects of difficult understanding. Therefore, the use of Monopoly game was fundamental for the consolidation of the content exposed in the classroom, in a practical and playful way, contributing to the formation of new entrepreneurs. It brought action, empathy, creation, experimentation and reflection into the classroom.

Recommendations for future studies encompass deeper descriptive statistic analysis, including ANOVA, discriminant analysis, in order to allow generalization of the results. In addition further qualitative studies may be conducted using other Monopoly teaching contexts or other board games.

7. References


Table 1: Profile and Round Investment Rules

<table>
<thead>
<tr>
<th>Profile</th>
<th>When to invest?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative</td>
<td>Never</td>
</tr>
<tr>
<td>Moderate</td>
<td>Every other round</td>
</tr>
<tr>
<td>Aggressive</td>
<td>All rounds</td>
</tr>
</tbody>
</table>

Figure 1: Aggressive Profile Behavior – average of all classes (four semesters)
Figure 2: Moderate Profile Behavior – average of all classes (four semesters)

Figure 3: Conservative Profile Behavior – average of all classes (four semesters)
Figure 4: All-Profiles Behavior – average of all classes (four semesters)

Figure 5: Moderate profile – students participating on Class 2
Figure 6: Conservative profile – students participating on Class 2

Figure 7: Aggressive profile – students participating on Class 2
Figure 8: Students playing
Abstract

Growing numbers of women are taking leadership positions in family firms. As environmental conditions change, a clear understanding of the leadership of women in family firms is needed. Using the theoretical lens of stewardship theory, we examined women’s leadership in family firms. We employed a qualitative case study approach and grounded theory analysis involving 15 U.S. family firms. Our findings revealed four leadership roles for women: Rising Stars, Team Players, Steel Magnolias (a traditionally feminine yet strong woman), and Dominant CEOs. We relate these roles to associated leadership styles and provide suggestions for practitioners, researchers, and entrepreneurship educators.

Executive Summary

Women now hold the position of CEO in 24 percent of family firms in the U.S. and this number is expected to rise as women increasingly occupy top management positions. In this study, we apply stewardship theory and challenge the theory of the invisible woman in family firms. We envision women as stewards in the leadership of family firms, often placing the interests of the company ahead of their own self-interests. Yet, we found women to be active, important, and visible family firm leaders, rather than invisible in family firms. Using four propositions, we develop a model of evolving leadership roles and leadership styles, relating the leadership roles of Rising Stars, Team Players, Steel Magnolias, and Dominant CEOs to the
corresponding leadership styles of developing, collaborative, nurturing, and directive. We emphasize that the four roles constantly change with women moving from Rising Star to Team Player to Steel Magnolia to Dominant CEO as changes in management responsibilities and company ownership occur. Entrepreneurship educators should be aware of the changing landscape for women as leaders in family firms and they should encourage practitioners to fully develop all family members as valuable human resources.

**Introduction**

Although scholars have expressed interest in the roles of women in family firms, the topic of women as leaders in family firms is under researched. Women have been described in terms of supporting roles (Gillis-Donovan & Moynihan-Brandt, 1990; Rowe & Hong, 2000) or secondary roles (Frishkoff & Brown, 1996; Danes & Olson, 2003) or family roles (Sharma, 2004; Jimenez, 2009), but never in primary or leadership roles to our knowledge. Therefore, we propose that there is a lack of understanding concerning the roles of women leaders in family firms. To enhance the understanding of the leadership of women in family firms, we identify four leadership roles for women: Rising Stars, Team Players, Steel Magnolias (a traditionally feminine yet strong woman), and Dominant CEOs and explore the leadership styles associated with these types of women leaders.

In growing numbers, women are taking on leadership roles in family firms. Researchers report that women CEOs or presidents lead 24 percent of family-owned businesses; the next successor is a woman in 31.3 percent of family firms, and that 60 percent of family businesses have women in top management positions (Mass Mutual American Family Business Survey, 2007). Additionally, female family members are more interested in joining the family firm at 41% of the companies reporting. In terms of future CEOs, 70% of the respondent firms are considering a woman, and
30% are strongly considering a woman for the top position (EY & Kennesaw State, 2014). In comparison, women managed about five percent of family firms in 1997 (Arthur Anderson/MassMutual American Family Business Survey, 1997) and owned less than five percent of all U. S. businesses in 1972 (Nelton, 1998). Women have made great progress in family firms over the past few decades, but there still is a long way to go for them to reach parity with men.

Family firms are major contributors to the world economy with an estimated 70% to 90% of the global GDP and 50% to 80% of jobs created worldwide (EY & Kennesaw State, 2014). In the U. S., family firms are also important economic drivers with 35% of Fortune 500 firms being family controlled and family businesses generating 64% of the GDP (Statistic Brain, 2017). A working definition of a family firm is a company in which the governance and/or management are controlled by one family or a small number of families and in which behavior in the firm reflects the vision and values of the controlling family or families (Chua, Chrisman & Sharma, 1999).

Leadership is a skill used to influence followers in an organization to work enthusiastically towards goals specifically identified for the common good (Barrow, 1977; Cyert, 2006; Plsek & Wilson, 2001). The role a woman leader plays in an organization may affect her leadership style, the approach she takes to influencing followers towards goals in her family firm. Specifically, we examine the questions: What are the evolving leadership roles of women in family firms and how do these roles affect women’s leadership styles in family firms?

We studied 15 multigenerational family firms with at least one woman involved in a leadership position, following a case study approach with detailed retrospective interviews of firm leaders. The transcribed interviews were analyzed through an iterative grounded theory approach, leading to a typology of women’s leadership roles, a model of the evolving leadership roles and leadership styles
of women in family firms, and four propositions. Although our study was not longitudinal in nature, an important contribution of the study is a conceptualization of the behavioral aspects of leadership roles and styles among women in family firms over long-term time spans. The average family firm tenure of our women respondents was 22.7 years, which is roughly equivalent to one family firm generation. Therefore, this study should greatly aid researchers, practitioners, and entrepreneurship educators in their understanding of women family leaders in family firms.

**Conceptual Grounding**

The next section of the paper examines current theory in the following areas of family business studies: stewardship theory, women’s roles in family firms, women’s leadership styles in organizations, and women’s leadership styles in family firms.

**Stewardship Theory**

Although stewardship theory and agency theory both address individual-level behaviors and firm-level governance, scholars have turned to stewardship theory to explain aspects relevant to family firms, such as noneconomic goals and family involvement (Madison, Holt, Kellermanns, & Ranft, 2016). Built on sociology and psychology, stewardship theory points to instances in which a manager is not motivated by individual goals, but rather behaves as an overseer or steward whose objectives are in alignment with those of the firm (Donaldson & Davis, 1991; Davis, Schoorman, & Donaldson, 1997; Corbetto & Salvato, 2004). The behavior of the steward reflects pro-organizational, collectivistic goals, rather than individualistic and self-serving goals. In contrast, agency theory is built on an industrial organization (IO) economics framework and draws on the property rights literature and transaction cost economics (Jensen & Meckling, 1976; Fama & Jensen, 1983; Eisenhardt, 1989a). In agency theory, a principal delegates work to another (agent)
who performs that work. The assumptions of agency theory are that people are boundedly rational, self-interested, and opportunistic.

According to stewardship theory, managers seek rewards that are intrinsic, such as growth, achievement, and affiliation, rather than extrinsic rewards as in agency theory. The steward’s actions in behalf of the organization may also benefit the steward, linking the two together (Corbetto & Salvato, 2004). Family leaders may have higher goals to benefit the business and the family, rather than self-serving economic goals (Miller & LeBreton-Miller, 2006). Zahra (2003) highlighted the stewardship perspective in which owner-managers are likely to act as good stewards of the firm’s resources. Moreover, a key aspect of the stewardship perspective is altruism, where the owner-managers attempt to benefit the organization and its stakeholders and not simply satisfy their own needs (Davis, Schoorman, & Donaldson, 1997). In another sense, altruism means placing the objectives of the business ahead of the objectives of the individual (Miller & LeBreton-Miller, 2006). An important instance of altruistic behavior occurs when incumbent generation family leaders choose actions that favor intergenerational succession, rather than their own financial gain (Meier & Schier, 2016).

**Women’s Roles in Family Firms**

Typically, women have played roles related to the family side of the firm, such as spouse, daughter, parent, in-law, and family leader, as opposed to the business side (Jimenez, 2009). For many years, women have served behind the scenes as household managers and child care providers (Sharma, 2004). Women have been cast in secondary roles, which were poorly paid and not properly acknowledged, and carried role labels, such as mom, spouse, caretaker, sounding board, negotiator, and bookkeeper (Frishkoff & Brown, 1996; Danes & Olson 2003). Additionally, the role of daughter-in-law has often been overlooked in family firms, which has been known to lead to
problems with negative consequences for the family, such as divorce, which may even drive the family business into bankruptcy (Marotz-Baden & Mattheis, 1994).

Negative roles for women in family firms have been captured in the notion of invisibility. The concept of invisible women in family firms has been widely described in the literature (Dumas, 1989, 1990, 1992). Invisibility occurs because of two factors: one external and one internal to women in family firms (Gillis-Donovan & Moynihan-Brandt, 1990; Salganicoff, 1990). First, social forces propagate typecasting and discrimination against women in society and this is reflected into the family business. Family culture may echo these social forces and limit the role of women in family firms by creating rules to guide behavior among family members (Hollander & Bukowitz, 1990). Secondly, women may place limitations on themselves in their roles in the family firm (Salganicoff, 1990). These limiting factors have led to observations that women are invisible in family firms and that women have been marginalized without decision making power (Cesaroni & Sentuti, 2014).

Hollander and Bukowitz (1990) reported on two roles for women in family firms: the over-nurturer and the invisible woman. The over-nurturer is excessive in her role of mothering; by doing too much of a good thing, she may suffocate family members in the family business. The invisible woman is not honored or respected for her achievements and qualifications, either inside or outside of the family firm, to such a degree that she may not only feel disrespected, but invisible as well. In another study, Iannarelli (1992) found three types of women in family firms – those interested in leading the business, invisible women who acted behind the scenes with little formal recognition, and women who worked in family firms, but were not interested in leadership. In a study of family firms in Brazil, Curimbala (2002) discovered three separate roles for daughters: professional, invisible, and anchors. Factors affecting these roles included the daughters’ positions in the family in
regards to birth order and the presence of male siblings. Professionals worked in larger family firms with male family members and acted as professionals trying to separate business from family matters. Invisible heiresses were part of large families with older brothers and male family members, who made these heiresses appear to be unnecessary and invisible. Anchors were heiresses in families with predominately female offspring and were viewed as necessary for firm survival.

Echoing studies from the 1990s, Cappuyns (2007) found that women are expected to play household and child care roles, but they ran into obstacles against playing larger roles in the family business. Women were, therefore, restricted in their participation as leaders in family firms. In contrast, Cole (1997) found that the traditionally feminine roles, such as nurturing and peacekeeping and listening, may carry over from the family to the business and be helpful to both. Thus, women should have a valued place in the family firm.

**Women’s Leadership Styles in Organizations**

We turn to the larger research domain of organizational studies to examine women’s leadership styles. There have been a number of research studies to examine whether men and women exhibit different leadership styles (Vera & Dean, 2005; Eagly & Johnson, 1990). In early organizational research, scholars reported that there was no difference between the leadership styles of men and women (Powell, 1990). This argument followed from comparing women and men in the same managerial role in organizations. This line of reasoning suggested that managers were concerned more with organizational effectiveness, and thus subordinates judged them on their managerial skills, rather than on the basis of gender (Eagly & Johnson, 1990). However, many studies have showed differences between the two genders. For example, Alimo-Metcalf (2002) found that women rated higher on transformational leadership than men. Transformational leaders exhibited charisma, individualized consideration, and intellectual stimulation (Vallejo, 2009; Bass, 1985). In
other studies, women showed more trust, flexibility and cooperation, and less directive behavior than men (Vera & Dean, 2005; Eagly & Johnson). Additional research regarding organizational leadership styles reported that women were less hierarchical, take more time to make decisions, and seek more information on others’ opinions than do men (Jackson, Alberti, & Snipes, 2014).

In another organizational research trend, scholars labeled leadership characteristics and leadership styles as masculine and feminine but proposed that either gender may employ the characteristics or style (Burke & Collins, 2001). In the U.S., there has been agreement among researchers that the masculine leadership style, which is productivity-driven and result oriented, was more successful (Geddes, 2011; Jackson, Alberti, & Snipes, 2014). Hasan et al, (2011) described men as direct in decision-making and autocratic and that women were less aggressive and more nurturing. Eagly and Johnson (1990) earlier proposed that female leadership was consistently democratic and male leaders more autocratic. In this research, context was also very important for leadership style. If the leader was in a role congruent with their gender, they were more likely to organize activities and accomplish relevant tasks (Eagly & Johnson, 1990). Similarly, Schieman and McMullen (2008) found that women taking on masculine attributes were not highly rated by subordinates.

Women’s Leadership Styles in Family Firms

From the relatively sparse studies on women’s leadership styles in family firms, we can make some comments. Researchers have found that women are more flexible, balanced, collaborative, caring, and loyal leaders than are men in family firms (Dumas 1990; Salganicoff, 1990; Vera & Dean, 2005). Women supply intuitive thinking and are very loyal to the family firm, while expressing concerns for the needs of all members, sensitivity to individual needs, and flexibility in roles and decisions (Capuyns, 2007; Salganicoff, 1990). Therefore, women provide unique
benefits to their family firms and contribute in large measure to the success and survival of the business.

While women benefit family firms, there are reciprocal factors in which family firms benefit women. Women continue to bear the major responsibility in child rearing; however, there are several advantages provided by family firms for women, including flexibility in work scheduling and family concern for their children, access to male dominated industries, and job security after leave (Salganicoff, 1990). Family firms have more centralized and informal decision-making processes than non-family firms in which managers are constrained by more formal control systems (Daily & Dollinger, 1992; Morris, Williams, Allen, & Avila, 1997). This informality may lead to increased flexibility in decision making (Poza, Alfred, & Maheshkwari, 1997), which, in turn, may have contributed to the increased numbers of women in family firms as gender bias is reduced in the U. S. Compared to corporate businesses, family firms are often less bureaucratic, which allows owner/managers to make quicker decisions when needed and to respond to environmental changes more rapidly (Dreaux, 1990; Ward, 1987).

In summary, there is a substantial theoretical foundation of research on stewardship theory in family business and there is conceptual grounding on women’s roles in family firms and women’s leadership styles in organizations, resulting in the beginning of the discussion on women’s leadership styles in family firms. However, there is a gap in the literature in that the leadership roles and leadership styles of women in family firms are not clearly delineated. Women are serving as leaders in family firms in growing numbers and the roles they play and the styles they use vary between individuals and change over time for individuals. Our study seeks to add to existing evidence concerning women’s leadership roles and styles in family firms.
Method

We explored the evolving leadership roles and leadership styles of women in family firms using a qualitative case study approach of 15 companies. Data from a series of 38 in-depth, semi-structured interviews were analyzed using grounded theory methodology (Corbin & Strauss, 2008; Strauss & Corbin, 1998). Our study was designed to build on existing theory in family firm studies.

The Case Study Approach

Following the conceptual grounding in the previous section of this paper, our study requires a flexible research program in order to increase knowledge of the leadership roles and leadership styles of women in family firms. The case study approach is suitable for studies involving ‘how’ and ‘why’ questions (Eisenhardt, 1989) and focuses on involved participants (Howorth & Ali, 2001). Case study researchers seek to connect ideas of global significance from localized findings (Chenail, 2009). A case study is “an empirical inquiry that investigates a contemporary phenomenon within its real-life context” (Yin, 2003: 13). The researcher may utilize case studies to explore existing circumstances and to offer explanations leading toward theory building (Lambrecht, 2005).

The case study investigator may purposively choose cases that are likely to replicate or extend the theory (Eisenhardt, 1989). The researcher may also select cases that illustrate applicable concepts (Patton & Applebaum, 2003). Therefore, qualitative samples may have the objective of developing theory, rather than testing it (Eisenhardt & Graebner, 2007). Qualitative methods help researchers examine the complicated relationships among components in a particular case. In exploratory studies, case studies may be useful in developing new theory compared to the natural science approach (Patton & Applebaum, 2005). Case study researchers may look for critical cases
to prove their main findings or confirming cases, disconfirming cases, extreme cases, or typical cases (Siggelkow, 2007).

Increasing the number of cases involved in a particular study adds confidence to findings until the responses become repetitive. Yin (2003) compared the addition of cases to the addition of experiments, looking for replication. Eisenhardt (1989) proposed that researchers should continue adding cases in an iterative process until the incremental improvement is minimal. Our study follows the positivistic case study approach (Leppaaho, Plakoyiannaki, & Dimitratos, 2016).

**Study Participants**

One of the authors obtained formal permission from their university’s Internal Review Board to conduct research using human participants at the beginning of this project. All respondents were advised of confidentiality and anonymity in their participation. All names of people, places, and companies have been disguised. We refer to the respondent family firms in the study as Company A through O with the letters randomly assigned. We received assistance in finding respondents from many individuals, including local business leaders, university colleagues, friends, acquaintances, and students. We included one firm in the study upon the recommendation of an early respondent. The authors have no ties to any of the family firms contacted for this study. One of the authors has experience in owning and managing a family business, which gave some insight in the research process. We contacted approximately 50 family firms for the study, employing the requirements of multi-generational family involvement, presence of a woman family member in the leadership of the company, and willingness and compatibility to participate in the research project. We concentrated on the focal woman leader(s) in each family firm, interviewing them and other family members and/or managers who knew them well. We collected data over an eight-month time period. After interviewing respondents from 15 family firms, we found a level of redundancy of responses
(Merriam, 2009) with little new information forthcoming at the end of this time. A copy of the interview elicitation questions is available upon request.

Firms from a variety of industries participated in the study, including five retail companies, five service companies, two restaurant operations, two wholesale firms, and one manufacturing company. The number of employees in the respondent firms ranged from 11 to 430, with a median of 40. The respondent businesses varied in age from 30 years to 150 years, and generations of family participation from two to four. Each company involved from four to 10 family members in management and ownership. The firms were located in two U.S. states, but several have expanded beyond the local region or own multiple, but related, businesses (see Table 1). All of the family firms remain in operation except for Company D which was closed.

Among the 38 respondents, there were 29 family-member owner/managers, four family-member managers, three non-family managers, and two former owners (see Table 2). There were 24 women respondents and 14 men respondents. The total number of respondents exceeds the number suggested by Reay (2014). In grouping the 35 family member respondents, seven were first generation family members, 15 were in the second generation, 11 were in the third generation, and two were in the fourth generation.

Data Collection

The research requirements for the respondent companies were family control of management and ownership, at least 25 years in business and multiple generation participation,
and at least one woman in a leadership position. The focus was on established family firms as opposed to start-up companies. We began with an exploratory interview of a senior family member to obtain consent for participation in the study and determine suitability of the firm. Next, we interviewed available owners and managers in the organization. The interviews were semi-structured and involved open-ended questions concerning women’s roles in the leadership of the firm. For example, one question was: “Has the treatment of women in your family business changed in your experience over the years? Please describe.” The data collected consisted almost entirely of qualitative interviews along with some company documents.

**In-depth interviews.** The authors conducted in-depth interviews with 38 respondents, which were tape-recorded with each respondent individually at each family firm. The authors transcribed about 28 hours of interviews, which varied in length from 30 minutes to one hour, averaging 45 minutes each. The transcribed interviews totaled 320 pages, for an average of 8.4 pages per respondent.

**Documents.** For each interview, the researchers carefully read information from each respondent company’s website and relevant information online. Although observations and documents about each company were collected, they were supplemental in nature. The in-depth interview transcriptions formed the basis of the data analysis.

**Data Analysis**

We followed the analytic techniques and procedures described by Strauss and Corbin (1998) as grounded theory analysis. First, we analyzed each case separately and developed case histories of each company (available upon request). Then, we performed cross case analysis of the data, looking for insights and patterns across the cases. The transcribed interviews were the basis for our study as we coded and analyzed the data, using the NVivo10 qualitative software program. Merriam (2009) described this procedure as “simultaneous coding of raw data and the construction of categories that
capture relevant characteristics of the document’s content” (Merriam 2009:205). We identified and separated important thoughts and phrases and labeled them as "references" and then "nodes" (which were very similar references) in the NVivo system. This process is similar to unitizing methods described by Glaser and Strauss (1967) and Lincoln and Guba (1985). In the midst of the analysis, we developed an initial model to organize our thoughts in the project. Simultaneously, as we progressed through the steps of coding, we refined and expanded our typology of the “Leadership Roles of Women Family Members in Family Firms” and our model of “The Evolving Leadership Roles and Leadership Styles of Women in Family Firms” through several iterations until we arrived at our final typology and model (see Figures 1 and 2).

In the first step of the analysis, called “open coding” by Strauss and Corbin (1998), we began with 320 pages of transcripts and through a comparative process identified 811 "references" or incidences of significant, recurring expressions, which we placed in 636 "nodes" or sub-categories.

In the second step, “axial coding” (Strauss and Corbin, 1998), we placed the 636 "nodes" or sub-categories into 391 categories, labeling the categories by company and respondent (A1 through O3), (see Table 3). This is the category level of analysis and the beginning of interpretative analysis of the data (Harry, Sturges, & Klingner, 2005).

The third step of the process, referred to as “selective coding” by Strauss and Corbin (1998), involves the development of themes across the cases. In this step, we coded the data into 13
central categories (see Table 4). We identified clusters of thoughts and phrases and looked for unifying phrases and connective language to build a framework for analysis (Cresswell, 1998). Among the differences in the 15 family firms in the study, some recurring themes emerged. We traced these themes across the cases and built a theoretic base to understand the leadership roles of women in family firms. According to Strauss and Corbin, 1998, this is Level 4 analysis – testing the themes. From this theoretical base, we developed a typology and then four propositions and a model to explain the relationships of these propositions. Strauss and Corbin (1998) refer to these steps as Level 5 – interrelating the explanations and Level 6 – delineating the theory. In the rest of the paper, we explain the typology and the four propositions and then examine our findings compared to the literature in a separate discussion section.

Findings and Propositions

Early in the data collection process, it became apparent that differences existed among our 22 family women respondents concerning levels of ownership and management. To capture these differences, we conceptualized a two-by-two matrix using the level of ownership and formal management authority as axes (see Figure 1). We labeled the four quadrants as follows: Rising Star -- low level of ownership and low level of formal management authority; Team Player -- low level of ownership and high formal management authority; Steel Magnolia -- high level of ownership and low formal management authority; and Dominant CEO -- high level of ownership and high formal management authority. As the data collection progressed, we found that the four types fit the respondents in our study. Of the 22 women family member respondents, we classified four currently as Rising Stars; eight as Team Players; four as Steel Magnolias; and six
as Dominant CEOs. The four roles are progressive with respondents constantly changing roles and evolving over time (see Table 5). These women respondents ranged in tenure in their family firms from two years to 40 years, averaging 22.7 years.

Rising Star. In this study, a Rising Star was a daughter or wife who has entered the family firm and progressed through stages of successor development, such as training and education in the company, and has risen to the rank of manager, but has no ownership in the company. All of the women family member respondents in this study have worked through the position of Rising Star inside the family business, except for Respondent L1, who co-founded her family firm with her husband. For example, at Company L, Respondent 2 described his daughter, Respondent L3, “She has worked for us since she was in high school and then college. Now, she does all of the landscape estimating and lawn maintenance estimating for Company L. She also does some of the marketing or creative work that we do here at Company L.”

Team Player. A Team Player was a daughter or sister who has advanced through periods of socialization to the family firm and growth as a family firm manager to a formal leadership position in the family firm, but is not the CEO. She may lead a division of the company (Respondent F1, N1) and/or hold a top management position (Respondent A1, A2, E1, H1, I2, and O1). She owns a share of the company, but not a controlling interest. She is highly respected and acknowledged for her work in the family firm. At Company I, Respondent 2 explained her position in the company, “I am the total operations manager. I will not ask anybody to do something that I am not willing to do. I am not anybody’s boss – I work with
them. I am not a superior telling them what to do – I work with them. I do not like “uppity” management. I am a team leader.”

**Steel Magnolia.** A Steel Magnolia is a wife and/or mother who owned a controlling interest in the family business with her spouse (Respondents B1, K1, L1, and O2). The term “steel magnolia” combines the contrasting images of steel, a hard metal, and a flower and may be defined as “(chiefly Southern U.S.) a woman who exemplifies both traditional femininity and an uncommon fortitude” (Wiktionary, 2016). She has decided to take a lesser role in the formal management of the company but is well versed in the company and takes part in major decisions. She is a powerful figure in the family firm. At Company K, Respondent 1 described her situation, “My husband is president and I am vice president. If there is a difference of opinion, my husband wins because there can only be one boss. He started the store. Sometimes, we will plead our case and after a while he will see our point.”

**Dominant CEO.** A Dominant CEO is the recognized leader and controlling owner of the family business. She is the chosen successor (Respondents C1, G1, I1, M1) or has taken over the company after the death of her husband (Respondents D1, J1). She is a strong and independent leader who is committed to the success of her family business. She fits with national trends of increasing numbers of women CEOs in family firms (Mass Mutual American Family Business Survey, 2007). Respondent 1 at Company I explained, “My father chose me as the leader even though that was unusual for the time period. I guess he saw that I had the interest in the business. There have been times when my brother does not have the people skills or personality. He has never really just loved the tire business. My dad knew that I would take on the business and take hold of it. Every time that something went wrong, I was the one that the employees would come to for help.”
Progression through Leadership Roles

The leadership roles of women in family firms are constantly evolving, not static (see Figure 2). On the left side facing of Figure 2, a series of arrows denotes the upward mobility of women in family firms. The typical progression through the leadership roles follows a pattern of four periods: a period before joining the family firm, a period of socialization to the family firm, a period of growth as a family firm manager, and a period of leadership in the family firm.

Period before joining the family firm. Joining the family by birth or marriage, a female family member learns about the family firm through part-time work. She may work elsewhere for another business for a period of time. It is important for the female to learn about attitudes concerning gender that may pervade her family firm and the industry in which it operates.

Period of socialization to the family firm. Upon the invitation of the incumbent leader, she decides to enter the family firm. In the socialization process, she acquires training and education in the family business and learns to understand and manage the gender composition of family members within her successor generation. She becomes a Rising Star in her family firm during this period of time.

Period of growth as a family firm manager. As a Rising Star, she experiences a period of growth as a family firm manager. She comes to accept the shared values of her family, and thus conflict is reduced within and between generations in her family firm. She manages the responsibility of child care, often with assistance from her parents. The incumbent leader chooses the successor(s), and a partial division of ownership occurs in which she is given or buys some stock in the company. During this period of growth as a family firm manager, she becomes a Team Player, a recognized leader in the business.
**Period of leadership in the family firm.** During the period of leadership in the family firm, many women in this study remained as Team Players or top managers for many years, earning respect from other family members and outside stakeholders as well. If her husband became the CEO of the family firm, the Team Player may decide to move into the role of Steel Magnolia, where she took less of a formal role in the daily operation of the family firm but continued in a position of power as a co-owner of the business with her spouse. Upon the death or retirement of the incumbent leader, the Team Player may become the Dominant CEO in the family firm as the chosen successor. At Company C and Company I, women were chosen over brothers to become Dominant CEOs. At Company G and Company M, women were chosen as Dominant CEOs, but no brothers were involved. A Steel Magnolia may also become a Dominant CEO upon the death of her husband, the incumbent family leader. This occurred at Company D and Company J.

**Leadership Styles of Women in Family Firms**

The leadership styles of women in family firms also change over time, roughly corresponding to their leadership role (see Figure 2). On the right side facing of Figure 2, a series of diamond shaped boxes denotes leadership styles associated with the four leadership roles described above. In this section, we propose relationships between the leadership roles and leadership styles described by our respondents.

**Rising Stars**

Most often in our respondent firms, Rising Stars were young women who were new to the business and fully aware that they did not know everything. They understood the importance of listening. For example, at Company D, Respondent 2 stated, “It is important to listen, and I think women are better at listening.” When asked about her leadership style, at Company L, Respondent
3 explained, “I would say that I listen and then lead because my parents have more wisdom. It is definitely, a listen and then lead approach. My parents have so much experience, and they are generally right…It has been said that the older you get, the smarter your parents get.”

Our respondents also understood the importance of learning and developing as managers and future company leaders. At Company F, Respondent 4 described her training as a manager.

I don’t really have a permanent position. But as far as this year goes, I’m doing financial analyst stuff, generalizing the cost per load, and what we’re making on each load, and then trying to problem solve to make it more efficient on transport and commercial fuels. That will be the first part of the year and then I’m going to help propane convert their computer system that they’re using now to do orders and whatever else. After that they’ll have their next board meeting and decide where I go from there.

The Rising Star is being groomed for future leadership. Therefore, we propose the following:

**Proposition 1: Rising Stars will use a developing, listening, and learning approach to leadership.**

**Team Players**

In our study, Team Players were experienced managers in the family firm, who had also gained some ownership in the business, but not a controlling interest. These women held positions of authority and were part of the top management team. In describing their leadership style, they often referred to being part of a team and allowing others to participate in decision making. At Company E, Respondent 1 defined her leadership style as follows: “It is democratic. Every employee would tell you that they have confidence to ask for forgiveness rather than permission. They have the confidence to make decisions and go ahead.”

At Company F, Respondent 1 emphasized a reasonable approach to leadership style, “I would like to think that my style is firm, but fair. I am pretty demanding; however, I think that I
am reasonable enough. I would like to be described as demanding, but not unreasonable or unbearable. I love to have fun and laugh.” At Company H, Respondent 1 stated, “You see all types. There are some heavy-handed strong-willed women. I think women have a more emotional link to leadership than men do.”

At Company O, Respondent 1, who was an equal partner with her two brothers in a sibling ownership team, described her leadership style, “I am much more collaborative in my approach than my dad. I have a lot more structure than my brother who is younger than me. My approach is to create as much clarity as possible.”

These observations lead us to propose the following.

**Proposition 2: Team Players will use a collaborative or participative leadership style.**

**Steel Magnolias**

In this study, a Steel Magnolia was a controlling family business owner with her husband. She was an experienced family business manager in her 50s or 60s with an average of over 25 years in the firm. All of the Steel Magnolias happened to be mothers of daughters, who were also working in the family business as Rising Stars or Team Players. Although successful in the family business as managers, the Steel Magnolias also put a high value on developing their children. For example, at Company B, Respondent 1 said the following, “One of the things I appreciate the most about a family business is working with my kids: spending time with them, seeing their progress, and having business conversations while not a work.” Further, they were not motivated by extrinsic rewards or acknowledgment. For example, at Company O, Respondent 2 described her situation:

*My husband always said that he and I were equal, but it was his 900 shares. We were able to pay his brothers and sisters for their treasury stock. It was his business. He did not have to do that for me. He was*
always in charge even though he said that we were equal partners. I did not need any more feathers in my hat or more work to do.

Steel Magnolias exhibited genuine warmth and concern for their employees and family members, but underneath they were strong like steel and maintained behavioral boundaries. At Company L, Respondent 1 explained:

My leadership style is that I care about every employee that works for us--from the one who mows lawns to the ones who wash dishes. You have to do your job. There has to be accountability. With my personality as a woman, I am very nice and courteous, but at the same time, you need to do your job. If you do not do your job, you need to be held accountable for that.

Therefore, we propose the following:

Proposition 3: Steel Magnolias will use a nurturing leadership style with clearly set boundaries.

Dominant CEOs

In this study, there were six Dominant CEOs, women who led the management of the family firm and owned a controlling ownership interest individually. Although these women were strong leaders, they balanced task and relationship very well in their companies. Compared to Team Players, who use a participative or collaborative leadership style as members of a team without individual controlling ownership of the company, Dominant CEOs do have individual controlling power and authority. The leadership power emanates from them, and, therefore, they make decisions and delegate responsibility. For example, at Company G, Respondent 1 described her leadership style as follows:

I lead in some instances by example. I work on the business, not in the business. It is a little bit different. Leadership to me is all about inspiring people to want to excel and excelling yourself. Doing well yourself is a way to inspire people and making sure that the ones underneath you have the tools to learn and grow.
Further, at Company C, Respondent 1 explained her leadership style, “I delegate a lot actually. I shut down the catering business. Financially, I have to be smarter… I am learning to live day by day. None of us know what the future holds. I learned to delegate—now, life is great.” At Company C, Respondent 2 confirmed her employer’s statement, “Respondent 1 has her way things are done. Out of respect, you learn her ways. I had my ways but hers were more efficient.”

As Dominant CEOs, women family firm leaders have to deal with men as employees, which is occasionally troublesome. At Company D, Respondent 1 took over the leadership of the business after her husband died suddenly and unexpectedly. She experienced some “push back” from employees as she described:

*Women have to overcome the fact that some men are resentful because you are a woman and you are telling them what to do. Also, that can be exaggerated in certain cultures. Some men feel that they do not have to do what I tell them to do because I should be home cooking supper. I experienced this and it is the truth. There is a saying that men can be aggressive, but if a woman tries to be assertive, more than aggressive, they look at you as being a b____. I think that women have to recognize that and understand it and work with it. Women have to be careful in how they present things. There is a lot of psychology involved.*

Family firm leaders, male or female, have to give directions and expect employees to produce results. Women CEOs may have additional issues as described above.

These findings lead us to propose the following:

*Proposition 4: Dominant CEOs will use a directive and delegating leadership style.*

**Discussion and Conclusion**

Our typology of leadership roles of women family members in family firms and our model of the evolving leadership roles and leadership styles of women in family firms are worthy of further comment. We believe that our typology and process model contribute to an understanding of how
the leadership roles and leadership styles of women are changing in family firms. We conclude with some comments concerning our study’s limitations and suggest some ideas for future research.

**Leadership Roles of Women Family Members in Family Firms**

In our typology of women’s leadership roles, we addressed women in primary roles for the first time in the literature to our knowledge. We based the typology on the key elements of level of ownership and formal management authority (see Figure 1). Previous studies referred to women’s roles as supporting (Gillis-Donovan & Moynihan-Brandt, 1990; Rowe & Hong, 2000) or secondary (Frishkoff & Brown, 1996; Danes & Olson, 2003). Our typology addressed all women family members, not just spouses (Posa & Messer, 2001) or daughters (Curimbala, 2002). Also, our typology addressed women in business roles, not family roles (Sharma, 2004; Jimenez, 2009).

Previous studies described invisible women in typologies (Hollander & Bukowitz, 1990; Iannarelli, 1992; Curimbala, 2002), but invisible women were not a part of our study. According to recent surveys, conditions for women in family firms are improving and more women are taking on leadership roles (Mass Mutual American Family Business Survey, 2007; EY & Kennesaw State, 2014). Although invisible women undoubtedly continue to exist in family firms, we did not focus on them. We found four leadership roles; Rising Star, Team Player, Steel Magnolia, and Dominant CEO. None of the four roles we described included invisible women, although the Steel Magnolia may have come closest. We found the Steel Magnolias in our study to be honored and respected, not marginalized without decision making power (Cesaroni & Sentuti, 2014). The Steel Magnolias’ qualifications are noted professionally, not ignored (Cole, 1997). Several women respondents (F1, N1, G1, and I1) described breakthroughs by acquiring leadership positions in trade associations in male dominated industries. We also report on two daughters (Respondents C1 and G1) who were
chosen over their brothers as successors. These cases provide two examples of breaking the glass ceiling previously imposed by fathers (Dumas 1989, 1990).

In their typologies of women in family firms, Iannarelli (1992) listed leaders as one role and Curimbala (2002) described two leadership roles: (1) professionals as women working with many male family members and (2) anchors as women with few male family members in the company. In comparison, our study provides four categories of women leaders with original terminology. The term “Rising Stars” has been commonly used in many other settings but has not been used before in family firm studies to our knowledge. Women in family firms which we call Rising Stars have been recognized as next generation leaders and potential successors for many years (Birley, 2002; Handler, 1994). Women as “Team Players” have been described in studies of groups or teams of successors (Cater, Kidwell, & Camp, 2016). We borrow the term “Steel Magnolia” from current American vernacular usage. The term denotes a woman of uncommon strength and bravery, which we have contrasted to the term invisible women above. Growing numbers of women are becoming CEOs in family firms (Mass Mutual American Family Business Survey, 2007), which we describe as Dominant CEOs or sole leaders of family firms. All four of the terms that we apply in our study are positive and uplifting to women in their rise in family firms.

Further, we describe women in the four roles of leaders in family firms as predominantly stewards, who seek the best for their family business above self-serving goals (Donaldson & Davis, 1991; Davis, Schoorman, & Donaldson, 1997; Corbetto & Salvato, 2004). Of the four roles, Team Players and Steel Magnolias clearly exhibit pro-company behaviors, placing the objectives of their family firms ahead of their own objectives (Miller & LeBreton-Miller, 2006) and acting altruistically toward other team members (Team Players) and other family members (Steel Magnolias). By working harmoniously and sharing their skills and talents, Team Players benefit
the family firm, while Steel Magnolias work without great fanfare or title to benefit both the business and the family beyond simply satisfying their own needs (Davis, Schoorman, & Donaldson, 1997).

**Leadership Styles of Women Family Members in Family Firms**

Early organizational studies reported little difference in leadership style between men and women (Powell, 1990: Eagly & Johnson, 1990). However, later studies found difference between the genders with women scoring higher in transformational leadership (Alimo-Metcalf, 2002), women showing more trust, flexibility and cooperation, and less directive behavior than men (Vera & Dean, 2005; Eagly & Johnson) and women being less hierarchical, taking more time to make decisions, and seeking more information on others’ opinions than do men (Jackson, Alberti, & Snipes, 2014). In nearly every case, our respondents reported differences between the genders. At Company H, Respondent 1 commented, “I think there are differences between women’s and men’s leadership styles. I think women have a more emotional link to leadership than men do.”

Not only did our respondents view women’s leadership styles as different from men’s, but they also reported distinct differences among women’s leadership styles in family firms. Our respondents’ answers tended to be congruent with their leadership roles as Rising Stars, Team Players, Steel Magnolias, or Dominant CEOs. For example, at Company B, Respondent 1, speaking as a Steel Magnolia, replied, “There is absolutely a difference in leadership styles between men and women...I believe that women are more nurturing.” Similarly, Respondent I2 speaking as a Team Player, said “I will not ask anybody to do something that I am not willing to do...I am a team leader.” Overall, we found that the leadership role of the respondent influenced
their view of leadership style, and we found multiple leadership styles rather than one common leadership style for all women in family firms.

Organizational research has reported that masculine leadership characteristics and styles have been preferred over feminine leadership styles (Geddes, 2011; Jackson, Alberti, & Snipes, 2014). Our respondents reported a place for both men’s and women’s leadership styles in family firms. For example, at Company L, Respondent 4 gave his view, “We are a family, so we are in everything together. My mom and sister will help more with the marketing and design. I think it really helps to have a male perspective and a female perspective...I am very much about having men and women in leadership roles in organizations. My mom and sister are instrumental at Company L as far as the feel of everything and the menu and all the behind the scenes things.” Additionally, the role of the Steel Magnolia with the associated leadership style of nurturing, caring, and boundary setting is appropriate for family firms in maintaining the “family” dimension (Salganicoff, 1990) and not commonly associated with masculine leadership.

The family firm literature has reported several factors that benefit women in family firms, including, flexibility in work scheduling, concern for child care, and access to male dominated industries (Salganicoff, 1990). Our respondents confirmed such beneficial aspects. For instance, at Company L, Respondent C is a young mother who is a Rising Star working in marketing for the company. She explained her situation, “We have had some opportunities to move out of town. But here my child can be with me at all times, and I can make my work schedule. The main reason we stayed in town is that we have the family business and my parents can help with the child care. It is a big advantage.” According to our respondents, most of the family firms in our study were in male dominated industries. Typical of this situation, Company O was in the gasoline distributing industry. Company O, Respondent 1 described the following, “My position
with the state trade association is vice president this year and will be president next year. There are only about 90 jobbers in the state. Because I worked for the association for 3 years and have grown up going to the conventions and have worked with our company for over 10 years, I have a certain amount of credibility and recognition.”

Other family firm advantages or benefits found by researchers include informality and flexibility in decision making (Daily & Dollinger, 1992; Poza, Alfred, & Maheshkwari, 1997). Our respondents also confirmed these findings. At Company A, Respondent 1 explained, “It is extremely flexible here, less rigid management styles, particularly coming from banking where so much is federally regulated. After I got here, the first few years I walked around and said, ‘Good grief, I can’t believe that they do this.’” Additionally, at Company G, Respondent 1 stated, “Yes, definitely. It is more flexible. You can turn things on a dime. You can make a decision to change something and it can be changed tomorrow and be implemented immediately.”

Implications for Entrepreneurship Education and Conclusion

Using a qualitative case study approach and grounded theory analysis of 15 U. S. family firms, we examined the questions: What are the evolving leadership roles of women in family firms and how do these roles affect women’s leadership styles over time? Our study provides evidence that women are advancing as leaders of family businesses using four key roles: Rising Stars, Team Players, Steel Magnolias, and Dominant CEOs and employing leadership styles congruent with those roles. Whereas our qualitative case-study based approach is rich in detail and description, we recognize its limitations as to sample size and generalizability. Additionally, we acknowledge that there may be cultural limitations because this study took place in a North American context.
Overall, because conditions have changed greatly over the past 15 to 20 years (EY, & Kennesaw State, 2014) and much of the family firm research on women dates from the 1990s, we believe that it is time for scholars to re-address issues concerning women in family firms. We suggest that future research in other cultural contexts outside North America could provide additional insight into women’s leadership roles and leadership styles in family firms. Although studies concerning the roles of daughters (Dumas 1989, 1990; Hollander & Bukowitz, 1990; Vera & Dean, 2005) and spouses (Posa & Messer, 2001) exist, it may be time to update the research in specific roles of women in family firms. Another suggestion for future research is to re-assess the advantages and disadvantages for women in managing and owning family firms (Salganicoff, 1990). Finally, entrepreneurship educators may address questions concerning the authenticity of advances for women in family firms: Are the reported advances real or are they politically correct facades for keeping things the way they have been?

In this study, we describe the roles of women family firm leaders and the associated leadership styles. We emphasize that the four roles constantly evolve with women moving from Rising Star to Team Player to Steel Magnolia to Dominant CEO as changes in management responsibilities and company ownership occur. Our study fills an important gap in the understanding of the leadership roles of women in family firms not previously described to our knowledge in the literature.

We suggest that entrepreneurship educators could play an active role in facilitating and providing assistance in developing women leaders within family firms. When interacting with family firm leaders, entrepreneurship educators should carefully consider the leadership roles and leadership styles of women presented in this study. Entrepreneurship educators should recognize that women may hold powerful positions of equal responsibility to men. Even though
their leadership style may contain feminine elements, such as caring and nurturing, or team related elements, such as tendencies to favor collaboration and participation, women may also possess the strength of steel underneath a feminine surface. Finally, we encourage entrepreneurship educators to advise practitioners to make full use of their available family human resources, including women.

References


**Figure 1: Types of Leadership Roles of Women Family Members in Family Firms**

<table>
<thead>
<tr>
<th>Leadership Roles of Women in Family Firms</th>
<th>Formal Management Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of Ownership</strong></td>
<td>High</td>
</tr>
</tbody>
</table>
| High                                    | **DOMINANT CEO** (Mother, Sister, Widow)  
Higher formal management authority,  
High level of ownership, controlling individually | **STEEL MAGNOLIA** (Wife of owner, Mother)  
Lower formal management authority,  
Higher level of ownership, controlling with spouse |
| Low                                     | **TEAM PLAYER** (Sister, Daughter)  
Higher formal management authority,  
Lower level of ownership, part owner | **RISING STAR** (Daughter)  
Lower formal management authority,  
Low level of ownership or none |
Figure 2: Evolving Leadership Roles and Leadership Styles of Women in Family Firms

Evolving Leadership Roles

- Dominant CEO
- Steel Magnolia
- Team Player
- Rising Star

Leadership Style/Approach

- Directive, Delegating
- Nurturing, Caring, Boundaries
- Collaborative, Participative
- Listening, learning, developing
### Table 1: Respondent Companies

<table>
<thead>
<tr>
<th>Firm</th>
<th>Industry</th>
<th>Age of Firm (Years)</th>
<th>No. of Employees</th>
<th>Est. Sales US $ 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Wholesale Refrigeration</td>
<td>71</td>
<td>119</td>
<td>$53M</td>
</tr>
<tr>
<td>B.</td>
<td>Health Care Shopping Center</td>
<td>30</td>
<td>300</td>
<td>$55M</td>
</tr>
<tr>
<td>C.</td>
<td>Bakery and Café</td>
<td>31</td>
<td>15</td>
<td>$1M</td>
</tr>
<tr>
<td>D.</td>
<td>Seafood and Steak House</td>
<td>68</td>
<td>50</td>
<td>$1.5M</td>
</tr>
<tr>
<td>E.</td>
<td>Paper Company</td>
<td>40</td>
<td>98</td>
<td>$29M</td>
</tr>
<tr>
<td>F.</td>
<td>Convenience stores &amp; gas dist.</td>
<td>35</td>
<td>430</td>
<td>$429M</td>
</tr>
<tr>
<td>G.</td>
<td>Pest Control</td>
<td>43</td>
<td>40</td>
<td>$3.5M</td>
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<tr>
<td>H.</td>
<td>Direct Mail Company</td>
<td>77</td>
<td>85</td>
<td>$14M</td>
</tr>
<tr>
<td>I.</td>
<td>Tire Retailer</td>
<td>63</td>
<td>32</td>
<td>$8M</td>
</tr>
<tr>
<td>J.</td>
<td>Hardware and Ranch Store</td>
<td>76</td>
<td>20</td>
<td>$4M</td>
</tr>
<tr>
<td>K.</td>
<td>Jewelry Store</td>
<td>39</td>
<td>11</td>
<td>$2.5M</td>
</tr>
<tr>
<td>L.</td>
<td>Lawn Service and Restaurant</td>
<td>31</td>
<td>100</td>
<td>$6.1M</td>
</tr>
<tr>
<td>M.</td>
<td>Sign Company</td>
<td>71</td>
<td>20</td>
<td>$5M</td>
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<tr>
<td>N.</td>
<td>Insurance and funeral services</td>
<td>150</td>
<td>40</td>
<td>$10M</td>
</tr>
<tr>
<td>O.</td>
<td>Convenience stores and wholesale fuel</td>
<td>46</td>
<td>208</td>
<td>$80M</td>
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</table>
Table 2: Individual Respondents

<table>
<thead>
<tr>
<th>Family Firm</th>
<th>Respondent(s)</th>
<th>Company Position</th>
<th>Family Bus. Generation</th>
<th>Respondent Age Range</th>
<th>Family Position</th>
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<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Owner/Mgr.</td>
<td>3rd</td>
<td>60s</td>
<td>Daughter, Sister</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Owner/Mgr.</td>
<td>3rd</td>
<td>50s</td>
<td>Daughter, Sister</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Owner/Mgr.</td>
<td>3rd</td>
<td>60s</td>
<td>Son, Brother</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>Owner/Mgr.</td>
<td>1st</td>
<td>50s</td>
<td>Wife, Mother</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Family Mgr.</td>
<td>2nd</td>
<td>20s</td>
<td>Daughter</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>Owner/Mgr.</td>
<td>2nd</td>
<td>40s</td>
<td>Daughter, Sister</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Manager (Female)</td>
<td>None</td>
<td>40s</td>
<td>Worked w/ 2nd Generation</td>
</tr>
<tr>
<td>D</td>
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<td>Owner/Mgr.</td>
<td>2nd</td>
<td>60s</td>
<td>Wife, Mother</td>
</tr>
<tr>
<td></td>
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<td>Family Mgr.</td>
<td>3rd</td>
<td>30s</td>
<td>Daughter</td>
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<tr>
<td></td>
<td>3</td>
<td>Manager (Female)</td>
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<td>50s</td>
<td>Worked w/ 2nd, 3rd Gen.</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>Owner/ Mgr</td>
<td>3rd</td>
<td>30s</td>
<td>Daughter</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Owner/Mgr</td>
<td>2nd</td>
<td>50s</td>
<td>Father</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>Owner, Mgr.</td>
<td>2nd</td>
<td>50s</td>
<td>Daughter, Sister, Aunt</td>
</tr>
<tr>
<td></td>
<td>2</td>
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<td>1st</td>
<td>70s</td>
<td>Father, Grandfather</td>
</tr>
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<td></td>
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<td>Owner/Mgr.</td>
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<td>50s</td>
<td>Son, Brother</td>
</tr>
<tr>
<td></td>
<td>4</td>
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<td>3rd</td>
<td>30s</td>
<td>Niece, Daughter, Gdaughter</td>
</tr>
<tr>
<td>G</td>
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<td>50s</td>
<td>Daughter, Mother</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Former Owner</td>
<td>1st</td>
<td>70s</td>
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</tr>
<tr>
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<td>Owner/Mgr.</td>
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<td>40s</td>
<td>Daughter, Niece</td>
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<tr>
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<td>2nd</td>
<td>70s</td>
<td>Brother, Uncle</td>
</tr>
<tr>
<td>I</td>
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<td>50s</td>
<td>Daughter, Sister</td>
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<tr>
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<td>50s</td>
<td>Daughter, Sister</td>
</tr>
<tr>
<td>J</td>
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<td>Owner/Mgr.</td>
<td>2nd</td>
<td>70s</td>
<td>Wife, Mother</td>
</tr>
<tr>
<td></td>
<td>2</td>
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<td>3rd</td>
<td>50s</td>
<td>Son</td>
</tr>
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<td>K</td>
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<td>60s</td>
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<td></td>
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<td>1st</td>
<td>70s</td>
<td>Husband, Father</td>
</tr>
<tr>
<td>L</td>
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<td>1st</td>
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<tr>
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<td>30s</td>
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<td>30s</td>
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<td>40s</td>
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<td>40s</td>
<td>Husband</td>
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<tr>
<td>N</td>
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<td>Owner/ Mgr</td>
<td>4th</td>
<td>60s</td>
<td>Sister</td>
</tr>
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<td>4th</td>
<td>60s</td>
<td>Brother</td>
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<td>Manager (Male)</td>
<td>None</td>
<td>70s</td>
<td>Worked w/ 3rd, 4th Gen.</td>
</tr>
<tr>
<td>O</td>
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<td>Owner/Mgr.</td>
<td>3rd</td>
<td>30s</td>
<td>Daughter, Sister</td>
</tr>
<tr>
<td></td>
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<td>Former Owner</td>
<td>2nd</td>
<td>50s</td>
<td>Wife, Mother</td>
</tr>
<tr>
<td></td>
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<td>20s</td>
<td>Son, Brother</td>
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<td>Axial Coding</td>
<td>Company (Respondent)</td>
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<td></td>
<td></td>
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<tr>
<td>--------------</td>
<td>----------------------</td>
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<tr>
<td>General Categories</td>
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<tr>
<td>Rising Star</td>
<td>A1, A2, A3, B1, B2, C1, D1, D2, E1, F1, F4, G1, H1, I1, I2, J1, K1, L2, M1, N1, O1, O2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Team Player</td>
<td>A1, A2, E1, F1, G1, H1, I1, I2, N1, O1, O2</td>
<td></td>
<td></td>
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<tr>
<td>Dominant CEO</td>
<td>C1, D1, G1, H1, J1, M1</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Steel Magnolia</td>
<td>B1, D1, J1, K1, L1, O2</td>
<td></td>
<td></td>
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<tr>
<td>Personal background</td>
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<tr>
<td>Company history</td>
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<tr>
<td>Join family by birth</td>
<td>A1, A2, A3, B1, C1, D1, D2, E1, E2, F1, F3, F4, G1, H1, H2, I1, I2, J1, J2, J3, L1, L2, M1, N1, N2, O1, O2</td>
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<td>Join family by marriage</td>
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<td>Founder</td>
<td>F2, G2, K2, L1, L2</td>
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<td>Non-family manager</td>
<td>C2, D3, N3</td>
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<tr>
<td>Learn about family firm</td>
<td>A2, C1, D1, E1, F1, G1, H1, N1, N3</td>
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<tr>
<td>Work part time child</td>
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<tr>
<td>Work elsewhere first</td>
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<td></td>
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<tr>
<td>Industry attitude – male dom.</td>
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<tr>
<td>Invitation to join ff</td>
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<tr>
<td>Decision to enter ff</td>
<td>A1, B2, C1, D1, D2, E1, F1, F3, F4, I1, I2, N1, O1</td>
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<tr>
<td>Training &amp; education ff</td>
<td>D1, E1, F1, F2, F4, G1, G2, H1, I1, I2, O1</td>
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<td></td>
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<tr>
<td>Composition by gender</td>
<td>A2, C1, F1, F3, F4, G1, H1, I1, I2, J1, K1, M1, N1, O1, O2</td>
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<td>Growth as mgr</td>
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<tr>
<td>Shared values</td>
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<td></td>
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<tr>
<td>SV faith</td>
<td>B1, D1, D2, D3, E1, L1, L3, O1, O2</td>
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<tr>
<td>Conflict</td>
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<tr>
<td>Get along, relationships</td>
<td>A2, A3, G1, G2, H1, I1, I2, K2, L1, M1, N1, N2, O3</td>
<td></td>
<td></td>
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<td>Flexibility of ff</td>
<td>B1, F1, G1</td>
<td></td>
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<tr>
<td>Child care</td>
<td>B1, D1, F1, G1, H1, H2, I1, I2, L1, L2, L3, L4, O1</td>
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<tr>
<td>Successor(s) chosen</td>
<td>C1, E1, F2, G1, H1, I1, I2, N1, O1, O2</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Division of ownership</td>
<td>A3, F2, G1, H1, I1, I2, K1, L1, M1, N1, O1, O2</td>
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<tr>
<td>Death of incumbent</td>
<td>C1, C2, D1, D2, D3, J1, J2</td>
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<td></td>
</tr>
<tr>
<td>Purchase of ff</td>
<td>G1, I1, I2, O1, O2</td>
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<td></td>
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<tr>
<td>Listening, learning, develop</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Collaborative, participative</td>
<td>A1, A2, E1, F1, G1, H1, I1, I2, N1, O1, O2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Nurturing, caring, boundary</td>
<td>C1, D1, G1, H1, J1, M1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directive, delegating</td>
<td>B1, D1, J1, K1, L1, O2</td>
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Table 4: Selective Coding – Central Categories

<table>
<thead>
<tr>
<th>Central Categories</th>
<th>Corresponding Findings and Propositions</th>
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<tbody>
<tr>
<td>Rising Star</td>
<td>Finding, P1</td>
</tr>
<tr>
<td>Team Player</td>
<td>Finding, P2</td>
</tr>
<tr>
<td>Steel Magnolia</td>
<td>Finding, P3</td>
</tr>
<tr>
<td>Dominant CEO</td>
<td>Finding, P4</td>
</tr>
<tr>
<td>Founders, first generation leaders</td>
<td>Finding</td>
</tr>
<tr>
<td>Period before joining family firm</td>
<td>Finding</td>
</tr>
<tr>
<td>Period of socialization to family firm</td>
<td>Finding</td>
</tr>
<tr>
<td>Period of growth as family firm manager</td>
<td>Finding</td>
</tr>
<tr>
<td>Period of leadership in family firm</td>
<td>Finding</td>
</tr>
<tr>
<td>Listening, learning, developing</td>
<td>P1</td>
</tr>
<tr>
<td>Collaborative, participative</td>
<td>P2</td>
</tr>
<tr>
<td>Nurturing, caring, boundaries</td>
<td>P3</td>
</tr>
<tr>
<td>Directive, delegating</td>
<td>P4</td>
</tr>
</tbody>
</table>

Table 5: Women Family Member Respondents – Leadership Roles in Family Firms

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Initial Role</th>
<th>Subsequent Role</th>
<th>Years in Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Rising Star</td>
<td>Team Player</td>
<td>39</td>
</tr>
<tr>
<td>A2</td>
<td>Rising Star</td>
<td>Team Player</td>
<td>30</td>
</tr>
<tr>
<td>B1</td>
<td>Rising Star</td>
<td>Steel Magnolia</td>
<td>28</td>
</tr>
<tr>
<td>B2</td>
<td>Rising Star</td>
<td>Rising Star</td>
<td>4</td>
</tr>
<tr>
<td>C1</td>
<td>Rising Star</td>
<td>Team Player &gt; Dominant CEO</td>
<td>31</td>
</tr>
<tr>
<td>D1</td>
<td>Rising Star</td>
<td>Steel Magnolia &gt; Dominant CEO</td>
<td>20</td>
</tr>
<tr>
<td>D2</td>
<td>Rising Star</td>
<td>Rising Star</td>
<td>8</td>
</tr>
<tr>
<td>E1</td>
<td>Rising Star</td>
<td>Team Player</td>
<td>6</td>
</tr>
<tr>
<td>F1</td>
<td>Rising Star</td>
<td>Team Player</td>
<td>28</td>
</tr>
<tr>
<td>F4</td>
<td>Rising Star</td>
<td>Rising Star</td>
<td>2</td>
</tr>
<tr>
<td>G1</td>
<td>Rising Star</td>
<td>Team Player &gt; Dominant CEO</td>
<td>37</td>
</tr>
<tr>
<td>H1</td>
<td>Rising Star</td>
<td>Team Player</td>
<td>24</td>
</tr>
<tr>
<td>I1</td>
<td>Rising Star</td>
<td>Team Player &gt; Dominant CEO</td>
<td>37</td>
</tr>
<tr>
<td>I2</td>
<td>Rising Star</td>
<td>Team Player</td>
<td>32</td>
</tr>
<tr>
<td>J1</td>
<td>Rising Star</td>
<td>Steel Magnolia &gt; Dominant CEO</td>
<td>40</td>
</tr>
<tr>
<td>K1</td>
<td>Rising Star</td>
<td>Steel Magnolia</td>
<td>24</td>
</tr>
<tr>
<td>L1</td>
<td>Steel Magnolia</td>
<td>Steel Magnolia</td>
<td>31</td>
</tr>
<tr>
<td>L2</td>
<td>Rising Star</td>
<td>Rising Star</td>
<td>8</td>
</tr>
<tr>
<td>M1</td>
<td>Rising Star</td>
<td>Team Player &gt; Dominant CEO</td>
<td>12</td>
</tr>
<tr>
<td>N1</td>
<td>Rising Star</td>
<td>Team Player</td>
<td>25</td>
</tr>
<tr>
<td>O1</td>
<td>Rising Star</td>
<td>Team Player</td>
<td>11</td>
</tr>
<tr>
<td>O2</td>
<td>Rising Star</td>
<td>Team Player &gt; Steel Magnolia</td>
<td>23</td>
</tr>
</tbody>
</table>
ACADEMIC ABSTRACT
The entrepreneurial competencies literature posits that nascent entrepreneurs can be taught skilled behaviors to improve the efficacy of entrepreneurial activities. Recently, Morris et al. (2013) demonstrated that 9 of 13 entrepreneurial competencies were improved for 40 students after a six-week international consulting project. The current study explores whether the same competencies can be developed in a classroom setting. Using a quasi-experimental design with a sample of undergraduate students, we conducted pre- and post-tests of entrepreneurial competencies and found that students enrolled in an Entrepreneurial Thinking course increased competencies in 6 of 13 areas.

Keywords: entrepreneurial competencies, entrepreneurship education, measurement

EXECUTIVE SUMMARY

1. Introduction

One of the oldest questions in academic entrepreneurship is whether entrepreneurs are born or made and, if made, whether those entrepreneurial skills can be taught (Henry, Hill, & Leitch, 2005; Kirby, 2004). Malcolm Gladwell (2008) suggests that a minimum of 10,000 hours of “deliberate practice” are necessary, but not sufficient, to attain mastery in a complex field of endeavor. This represents a significant challenge for entrepreneurship education. Students in undergraduate degree programs have approximately 300 contact hours in entrepreneurship courses (and perhaps 1,000 hours if you include outside preparation, internships, or work experiences). Even counting other business-related courses, contact hours will rarely reach more than 1,000 hours in a degree program. This leads to two observations. First, entrepreneurship students will probably not master the field during their undergraduate education. Second,
entrepreneurship educators do not have time to waste teaching the wrong content or using ineffective pedagogies.

Evidence-based decision-making means that decisions should be based on the latest and best evidence of what works. Evidence-based techniques began in medicine but have since been extended to management (Pfeffer & Sutton, 2006) and education (Davies, 1999; Slavin, 2002). Applying this concept to entrepreneurship education means sorting through research findings and identifying what constitutes good evidence. However, such information continues to be insufficient in the field and research has indicated a gap between the startup activities of nascent entrepreneurs and what is taught in entrepreneurship textbooks (Edelman, Manolova, & Brush, 2008). One of the few long term studies in this area found that the number of entrepreneurship courses taken did not correlate with the operational performance of new ventures and that writing a business plan had no effect on success beyond initial fund raising (Lange, Marram, & Bygrave, 2012).

Morris et al. (2013) have addressed this issue by proposing a competency-based approach to entrepreneurship education. In their study, the authors generated a set of 13 entrepreneurial competencies via a Delphi technique and then created an instrument to measure each competency via self-report. In the data collection phase, they demonstrated both the reliability of the instrument and an increase in 9 of the 13 competencies during a six-week international entrepreneurship project. Implicit in this approach is a long chain of causal reasoning that links competency training with entrepreneurial success (see Figure 1). However, this study is one of the few that addresses the first three blocks in the chain.

Figure 1. The Competency-Based Causal Chain

Clearly, much work remains to be done, including demonstrating that the competencies can be retained over time and then applied to impact the number of startups and startup success. Some, no doubt, may also wish to revisit the list of competencies and the measurement model. The modest aim of this study is to provide evidence that the Morris entrepreneurial competencies can
be acquired in a formal classroom setting as few institutions can engage their students in the type of immersive global experience contemplated by Morris et al. (2013).

2. Literature Review

Entrepreneurship educators have always relied upon a variety of pedagogies, both traditional and experiential, to foster entrepreneurial development. The pedagogical questions of what to teach and how to teach it are constantly shifting and adapting as we learn more about how students learn and what approaches are most effective within the higher education context. These questions, in turn, can only be answered when we consider the goals and objectives of entrepreneurship education. Clearly, one purpose of entrepreneurship education has been to instruct people on how to create new ventures (Rasmussen & Sorheim, 2006). However, even with this goal in mind, questions continue to arise regarding the best practices with respect to organization and content (Neck & Greene, 2011; Ronstadt, 1987). Neck and Green report that a consensus about the learning outcomes of an entrepreneurship education remains elusive although creating an entrepreneurial mindset (McGrath & MacMillan, 2000) and building entrepreneurial competencies have tended to figure prominently.

Entrepreneurial competencies have been defined as “underlying characteristics…and skills which result in venture birth, survival, and/or growth” (Bird, 1995, p. 51). Kyndt and Baert (2015, p. 14) have argued that these competencies are “changeable, learnable and attainable through experience, training, or coaching”, and contrast the competency-based approach with a personality-based approach, which assumes that characteristics are relatively immutable. The attraction of the competency-based approach to entrepreneurship educators is thus apparent as it supports the belief that entrepreneurship can be taught (Dickson, Solomon, & Weaver, 2008; Fayolle, Gailly, & Lassas-Clerc, 2005; Kuratko, 2005). Moreover, entrepreneurship scholars have argued that entrepreneurial competencies, like opportunity recognition and risk mitigation, can be distinguished from general business competencies thus creating a raison d’etre for the field (Chandler & Jansen, 1992). The ability to demonstrate that entrepreneurial competencies can be acquired and then used to influence entrepreneurial outcomes is thus critical to the successful development of a competency-based approach in entrepreneurship.
Selecting a competency framework

Unfortunately, there has been little consensus on the development of a canonical set of entrepreneurial competencies and a recent review has argued that this lack of agreement is limiting progress in the field (Mitchelmore & Rowley, 2010). Earlier frameworks have also been criticized by Morris et al. (2013) because they focus on a small number of competencies (often only four to six items). At the same time, governments have stepped forward to fill the gap, given the importance of entrepreneurship to national economic outcomes. Examples include reports from the UK government on enterprise education (Davies, 2002) and the European Union’s ENTRECOMP framework (Bacigalupo, Kampylis, Punie, & Van den Brande, 2016), which provides a comprehensive list of entrepreneurial competencies and learning outcomes (15 competencies and 442 learning outcomes).

The current paper utilizes the entrepreneurial competence framework developed by Morris et al. (2013). There are several reasons for this choice. First, it is derived from a Delphi survey of successful entrepreneurs and entrepreneurship educators giving it some face validity. Second, it is one of the most comprehensive lists of competencies available and overlaps with the EU framework in at least nine areas (see Table 1 for a comparison). Most importantly, it provides a measurement tool for each competence and has existing data for comparative purposes.
### Table 1. Comparison of the EU and Morris Frameworks for Entrepreneurial Competencies

<table>
<thead>
<tr>
<th>EU Framework</th>
<th>Morris Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spotting opportunities</td>
<td>Opportunity recognition</td>
</tr>
<tr>
<td>Creativity</td>
<td>Creative problem solving/Imaginativeness</td>
</tr>
<tr>
<td>Vision</td>
<td>Conveying a compelling vision</td>
</tr>
<tr>
<td>Valuing ideas</td>
<td>Opportunity assessment</td>
</tr>
<tr>
<td>Self-awareness and self-efficacy</td>
<td>Self-efficacy</td>
</tr>
<tr>
<td>Motivation and perseverance</td>
<td>Tenacity/Perseverance</td>
</tr>
<tr>
<td>Mobilizing resources</td>
<td>Resource leveraging</td>
</tr>
<tr>
<td>Financial and economic literacy</td>
<td>Value creation</td>
</tr>
<tr>
<td>Coping with uncertainty, ambiguity and risk</td>
<td>Risk management/Mitigation</td>
</tr>
<tr>
<td>Mobilizing others</td>
<td>Building and using networks</td>
</tr>
<tr>
<td>Learning through experience</td>
<td></td>
</tr>
<tr>
<td>Ethical and sustainable thinking</td>
<td></td>
</tr>
<tr>
<td>Taking the initiative</td>
<td></td>
</tr>
<tr>
<td>Planning and management</td>
<td></td>
</tr>
<tr>
<td>Working with others</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maintain focus yet adapt</td>
</tr>
<tr>
<td></td>
<td>Guerrilla skills</td>
</tr>
<tr>
<td></td>
<td>Resilience</td>
</tr>
</tbody>
</table>

### Measuring Competence

Researchers studying entrepreneurial competencies have employed multiple methods and various sample types. For example, some have used the Delphi method in identifying entrepreneurial competencies (Correa, Hurado, & Cardona, 2013; Mojab, Zaefarian, & Azizi,
2011; Morris et al., 2013; Robles & Zárraga-Rodríguez, 2015). Schelfhout et al. (2016) used a focus group. Numerous researchers have studied entrepreneurs and aspiring entrepreneurs (Kyndt & Baert, 2015; Lerner & Almor, 2002; Mojab et al., 2011; Morris et al., 2013; Robles & Zárraga-Rodríguez, 2015). Students were research subjects for several (i.e., Mojab et al., 2011; Morris et al., 2013; Schelfhout et al., 2016). Faculty, instructors and/or teachers were engaged in the identification/selection of the competencies as well (i.e., Correa, 2013: Morris et al., 2013; Schelfhout et al., 2016). The instruments used to measure entrepreneurial competencies have overwhelmingly used Likert scales with more recent studies transitioning to behavioral measures (Kyndt & Baert, 2015; Schelfhout, Bruggeman, & De Maeyer, 2016). While a direct behavioral demonstration of a competence is probably the most desirable form of measurement, this must be weighed against the cost and time required to collect such data, including the development of activities and scoring systems that capture the relevant facets of the underlying competence. For the purposes of this exploratory study, Likert scales have been utilized albeit with the clear recognition that they will not correlate as well with the desired end behaviors nor serve as the best measure for a given competence (Ajzen, 2005).

**Competencies and Outcomes**

Longitudinal information regarding entrepreneurship students after they leave entrepreneurship courses and programs is elusive. Several studies seek to link entrepreneurship education to entrepreneurial intentions. Vanevenhoven and Liguori (2013) have created a longitudinal dataset through the Entrepreneurship Education Program (EEP) based upon data provided by 180,000 students around the world but results are still pending. Shinnar, Hsu and Powell (2014) found that students taking an introductory entrepreneurship courses improved entrepreneurial self-efficacy and entrepreneurial intentions. Kyndt and Baert (2015) assessed the competencies that predict continued entrepreneurship in three to five years, finding that perseverance and insight into the market were significant and positive.
The present study has chosen to focus on competency definition, acquisition and measurement. If educators are unable to raise competency levels then the rest of the causal chain is moot. It may be we are trying to improve the wrong competencies but the relatively high level of agreement among comprehensive competency frameworks such as the EU and Morris et al (2013) gives us some comfort that these skills are, and will continue to be, important.

**Competencies in the Classroom**

This study examines whether students instructed in the 13 core competencies of entrepreneurship as identified by Morris et al. (2013) gain competencies and at what level of significance. The quasi-experimental research includes students in ENTR 100 – Entrepreneurial Thinking (experimental group) and those enrolled in FINC 100 – Financial Literacy (control group). As these are both University core courses in transitional studies within a College of Business and Economics, the composition of the groups is as close to a true experimental design as possible. The specific questions to be addressed are:

1) Does providing instruction and activities focused on entrepreneurial competencies improve student competencies?
2) Do some students acquire competencies at a different rate than other students?
3) How do the results compare with the findings of Morris et al. (2013)?

Through the administration of pre- and posttests using a previously validated, reliable instrument for the competencies (opportunity recognition; opportunity assessment; risk management/mitigation; conveying a compelling vision; tenacity/perseverance; creative problem solving/imaginativeness; resource leveraging; guerilla skills; value creation; maintain focus yet adapt; resilience; self-efficacy, and building and using networks) and factor analysis and t-Tests, the changes in each competency and the differences between groups can be identified and assessed for statistical significance.

Faculty in entrepreneurship education will have the benefit of better understanding specific entrepreneurial competencies and their teaching in a classroom setting.

3. **Method**

The method section of the paper considers the design, sample, instruments, and procedure used to collect the data presented in the results section.
Design

This pilot study consists of a two-group quasi-experimental repeated measures design. Undergraduate students enrolled in an Entrepreneurial Thinking (ENTR100) course focused on the 13 core entrepreneurial competencies were the treatment group, while others enrolled in a Financial Literacy (FINC100) course served as the control group. The ENTR100 and FINC100 two-credit courses are available to all undergraduate students are part of the university’s general education curriculum as ‘life skills’ in the transitional studies block. Students in these courses are primarily minority freshmen who have chosen to meet this general education requirement by taking a course in the College of Business and Economics. While students were not randomly assigned to each class, the demographics of the two classes did not vary substantially thus providing a good test of whether entrepreneurial competencies improved for both groups simply by an exposure to a program of higher education versus improving as a function of the ENTR100 competency education. We also used repeated measures to determine the improvement for each individual student rather than aggregate results in each group/class.

Sample

The sample initially comprised 108 students taking either ENTR100 or FINC100 during Spring 2017 – 59 in ENTR100 and 49 in FINC100. Of the 108 students in the sample, 86 (80%) completed the pretest, 63 (58%) completed the posttest, and 56 (53%) completed both tests. These 56 students formed the final sample (28 in each class). Descriptive statistics for the final sample and each group are provided in Table 2. There were no significant differences between the two groups on age, ethnicity, credit hours, or marital status. The finance group had more women but the difference was not significant at the 0.05 level of significance ($\chi^2=3.54, p<0.06$). There were also no significant differences in demographics between the students that completed both tests and students that completed only one test.

<table>
<thead>
<tr>
<th>Table 2. Descriptive Statistics for the Sample</th>
<th>Total</th>
<th>ENTR100</th>
<th>FINC100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Students</td>
<td>108</td>
<td>59</td>
<td>49</td>
</tr>
<tr>
<td>Valid Response - pre</td>
<td>86</td>
<td>47</td>
<td>39</td>
</tr>
<tr>
<td>Valid Response - post</td>
<td>63</td>
<td>35</td>
<td>28</td>
</tr>
<tr>
<td>Matched Pairs – pre- and post</td>
<td>56</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Previous ENTR100</td>
<td>13</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>-----------------</td>
<td>----</td>
<td>---</td>
<td>----</td>
</tr>
<tr>
<td>Previous FINC100</td>
<td>19</td>
<td>11</td>
<td>8</td>
</tr>
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</table>

**Race**

<table>
<thead>
<tr>
<th>Race</th>
<th>48</th>
<th>23</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>25</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>White</td>
<td>31</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>Asian</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

**Gender**

<table>
<thead>
<tr>
<th>Gender</th>
<th>25</th>
<th>16</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>31</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Age**

| Age (mean) | 21.5 | 22.2 |
| Age (median)| 20   | 21   |

**Level (Credit Hours)**

<table>
<thead>
<tr>
<th>Level</th>
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<th>20</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>20</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>Sophomore</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Junior</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**Marital Status**

<table>
<thead>
<tr>
<th>Marital Status</th>
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<th>26</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single, never married</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Married</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Divorced</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Partnered</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Separated</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
**Instruments**

The study utilized the same entrepreneurship competency tool given by Morris et al (2013). This instrument comprised 104 items on a 5-point Likert scale ranging from Strongly Agree to Strongly Disagree. We also collected the demographic information summarized in Table 2. Reliability scores for the Morris instrument in the original and current sample are presented in Table 3 with scores above 0.70 indicating acceptable reliability according to Nunnally’s (1978) criterion. It became apparent that the 104-item inventory provided by Morris was not the same instrument used in the Morris et al (2013) study, the latter identifying subscales for 8 of the 13 competencies and reducing the original 104 questions to 78 questions. Our results indicate low reliabilities for 6 of the 13 scales in the 104-item version. Attempts to replicate the factor structure of the subscales in Morris et al (2013) were unsuccessful.

**Table 3. Reliability (Cronbach’s Alpha) of the Morris Instrument**

<table>
<thead>
<tr>
<th>No. of Items</th>
<th>Morris et al (2013)</th>
<th>Present Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity recognition</td>
<td>6/6</td>
<td>0.79-0.94</td>
</tr>
<tr>
<td>Opportunity assessment</td>
<td>3/5</td>
<td>0.94</td>
</tr>
<tr>
<td>Risk Management/Mitigation</td>
<td>6/5</td>
<td>0.62-0.83</td>
</tr>
<tr>
<td>Conveying a compelling vision</td>
<td>3/6</td>
<td>0.67</td>
</tr>
<tr>
<td>Tenacity/Perseverance</td>
<td>10/14</td>
<td>0.73-0.95</td>
</tr>
<tr>
<td>Creative problem solving</td>
<td>9/7</td>
<td>0.80-0.97</td>
</tr>
<tr>
<td>Resource Leveraging/Bootstrapping</td>
<td>9/8</td>
<td>0.76-0.86</td>
</tr>
<tr>
<td>Guerrilla skills</td>
<td>2/2</td>
<td>0.75</td>
</tr>
<tr>
<td>Value creation</td>
<td>7/15</td>
<td>0.76-0.90</td>
</tr>
<tr>
<td>Ability to maintain focus yet adapt</td>
<td>6/6</td>
<td>0.89</td>
</tr>
<tr>
<td>Resilience</td>
<td>5/9</td>
<td>0.84-0.91</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>4/4</td>
<td>0.90</td>
</tr>
<tr>
<td>Building and using networks</td>
<td>8/17</td>
<td>0.87-0.97</td>
</tr>
<tr>
<td>All Items</td>
<td>78/104</td>
<td>n/a</td>
</tr>
</tbody>
</table>
N=149, representing all students who took completed either a pre- or post-test in Spring 2017

Procedure

The pretest instruments were provided to each class section during the second week of the semester and the posttests were offered during the final week of classes. All students who were present on the day of the assessment were offered it. Students were given class time to complete the paper questionnaires and participation was not required of any students. The primary researcher was not the instructor for any of the classes. Only students age 18 and older participated.

The treatment group received specific training in the 13 competencies through a combination of lectures, video, role play, guest speakers, and classroom exercises. The program was developed by the primary author in consultation with other entrepreneurship faculty at the university. Students were not required to engage in a consulting experience like in Morris et al. (2013). However, they invested considerable time in learning about each competency, viewing videos of people who exhibited the competency, having guest speakers, and engaging in experiential exercises related to each competency. They also had to select their “Super Hero” entrepreneurs, apply their understanding of competencies by identifying and articulating examples for their entrepreneurs. Students reflected on how they have exhibited competencies and how they could incorporate them in their lives.

4. Results

We calculated the mean scores for each competency using the data from the start and end of the spring 2017 semester using student identification numbers to match the responses to individual students. Student pre-test scores were not significantly different from the Morris sample except for self-efficacy, which was two standard deviations lower. We then computed one-sided t-tests to determine whether the self-reported competencies had improved from the beginning to the end of the semester. The results of this analysis are presented in Table 4. The treatment group showed increases in three competencies, the control group improved in two competencies, and both groups improved in a further two competencies.

We also examined the interaction terms between the treatment (ENTR100) and non-treatment (FINC100) students. The treatment group reported a decline in one area while the control group saw a decline in six areas. This resulted in a significant interaction effect between the two groups.
with the treatment group seeing a net increase in competence over the period, while the control group experienced a slight decline. The decline in control group scores may have been a function of disinterest as they took a test that was unrelated to their area of study for a second time. However, both classes had the same instructor, so this is unlikely to be an instructor effect.

We constructed a multiple regression model to test for differences between students in the level of reported competence. The dependent variable was the change in the sum of all 13 competency levels from the start to the end of the semester, while the independent variables were dummy variables for gender, race, and degree status (freshman, sophomore, junior, senior). This model was not significant ($R^2=0.14$, $F=0.83$, $p>0.10$, $n=56$) indicating no difference in competency acquisition by gender, race, or degree status.
<table>
<thead>
<tr>
<th>Competency</th>
<th>Treatment Group (ENTR100)</th>
<th>Control Group (FINC100)</th>
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<tr>
<td></td>
<td>Mean (pre-test)</td>
<td>Mean (post-test)</td>
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<tr>
<td>Opportunity Recognition †</td>
<td>3.65</td>
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<td>Opportunity Assessment</td>
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<td>3.58</td>
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<tr>
<td>Tenacity/Perseverance †</td>
<td>3.74</td>
<td>3.75</td>
</tr>
<tr>
<td>Creative Problem Solving †</td>
<td>3.77</td>
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<td>Value Creation †</td>
<td>3.49</td>
<td>3.76</td>
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<tr>
<td>Ability to Maintain Focus Yet Adapt</td>
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<tr>
<td>Resilience †</td>
<td>3.52</td>
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<td>Self-Efficacy</td>
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<tr>
<td>Building and Using Networks†</td>
<td>2.65</td>
<td>2.78</td>
</tr>
</tbody>
</table>

* p < 0.10

** p <0.05

† - changed in Morris et al (2013)

Table 4. Changes in Reported Competencies by Group
5. **Discussion**

The results suggest that a course focused on the explicit introduction of key entrepreneurial competencies in a face-to-face setting using a mixture of lecture, videos, guest speakers, and other experiential exercises can, in fact, increase entrepreneurial competencies in six of thirteen areas, four of which were unique to the treatment group. The control group also saw an increase in competence in four areas, suggesting that entrepreneurial competencies can be acquired in non-entrepreneurship classroom settings. No differences were reported in the competency acquisition rate for gender, race, or degree level suggesting that students uniformly benefited from the instruction.

The data showed a mixed pattern of results when compared with Morris et al. (2013). In the aggregate, Morris et al. (2013) reported an improvement in 9 of 13 competencies compared with 6 of 13 in the current study. However, given that SAT scores are significantly lower at our institution than the University of Florida, such widespread gains hearten us. Furthermore, the freshman population at our historically black university (HBCU) is predominantly drawn from minority groups and first-generation college students from low income backgrounds. The ability to increase six entrepreneurial competencies in an introductory entrepreneurship class, without the need for a costly international consulting project, is a welcome development for access to entrepreneurship education that may ultimately improve the rates of minority business ownership.

At the level of individual competencies, four of the six improved competencies in our study were the same as those in the Morris et al. (2013) study. Opportunity assessment and vision creation improved in our study but not in the Morris study. Two competencies, self-efficacy and ability to maintain focus, also increased in the FINC100 control group but did not increase in either entrepreneurship cohort. We intend to examine what curricular or pedagogical techniques made this possible.

**Limitations and Future Research**

Given the relatively small sample size, we would like to continue collecting data on the classes to demonstrate that the results can be replicated over time. This will strengthen the evidence that the curriculum is the causative factor in increasing competence levels. At the same time, we intend to systematically vary the curriculum to target competencies that were not improved in
this cohort. It may not be possible for one course to improve all thirteen competencies and it is likely that a portfolio of courses targeted at developing and reinforcing different competencies would be the best approach. It is likely the Morris competency instrument could accelerate this process by providing a common system of measurement that could directly compare the results of different pedagogical approaches at different institutions.

Ideally, student cohorts should be tracked over time to measure whether the competencies are retained and then subsequently deployed to increase startup activity and successful outcomes. This would be an ultimate vindication of the competency-based approach. It would also enable us to test whether competencies need to reach a certain level (or threshold) to be effective as the relationship may not be a continuously linear function (Bird, 1995).

The measurement of entrepreneurial competencies also requires future research. Our reliability measures in Table 3 were lower than those reported by Morris et al (2013) and the sub-scale structure was not the same. Our results also utilized the full 104-item survey provided directly by Morris rather than the abbreviated 78-item results reported in Morris et al (2013). More work is thus required to standardize on a reliable instrument before any major research project, such as the cross-campus project outlined above, commences in earnest.

The issue of validity is also a problem that needs more attention. As Morris et al. (2013) note, “The reliance upon self-report measures raises the potential for subjective biases in judging one’s abilities, especially where instructors emphasize the importance of competencies throughout the course” (2013, p. 365). Still another cautionary note arises with respect to the use of Likert scales for assessment. Schelfhout et al. state, “As such Likert scales do not provide the necessary information on the behavior of students, essential for evaluating the student’s progress” (2016, p. 32). They suggest the use of scaled behavioral indicators to assess competencies and behavioral measures have been adopted in a recent study of behavioral competencies by Kyndt and Baert (2015). However, as we state in the introduction, behavioral measures are time consuming to collect and thus, in the first instance, it may be more prudent to study whether the levels of self-reported competencies correlate well with behavioral measures thus providing a greater level of comfort using survey data.
**Conclusion and Implications for Entrepreneurship Education**

The implications of these results for entrepreneurship education are significant. We have demonstrated that several entrepreneurial competencies can be increased in a semester-long classroom setting with only two contact hours per week. We have also demonstrated that different experiences in entrepreneurship and non-entrepreneurship courses will elevate different competencies. The promise, over time, is that we will be able to use evidence from studies such as this one to design curricular content and pedagogical techniques to improve targeted entrepreneurial competencies beyond a threshold level where they will start to have a quantitative impact on venture founding and success.

However, we must bear in mind the study limitations and that the results are not yet generalizable. The study continues in the fall of 2017. Additional institutions and populations must be added, the reliability of the instrument must be improved, and validity strengthened by relating self-report measures to behavioral measures, and linking competencies to outcomes.

### 6. References


USING A NEW VENTURE COMPETITION TO PROVIDE EXTERNAL ASSESSMENT OF A UNIVERSITY ENTREPRENEURSHIP PROGRAM

Gaylen Chandler and J. Christian Broberg

ABSTRACT

We use the framework of a university new venture competition to score new venture business model summaries in an effort to assess the learning of students in an entrepreneurship major. We collected data in 2014 and 2016. We compare the business model summaries of teams that include entrepreneurship students and teams that do not have entrepreneurship students. The results indicate that teams with entrepreneurship students score higher than teams without entrepreneurship students. We show how our findings help us improve instruction and curricula in the program.

IMPLICATIONS FOR ENTREPRENEURSHIP EDUCATION

One of the great conundrums in business education in general and in entrepreneurship education in particular is to show that students are actually learning. Accrediting organizations have placed increasing focus on assurance that learning is occurring. In some business fields this can be relatively straightforward because there is an agreed upon body of knowledge and standardized tests to assess that knowledge. For example, in accounting, finance, and human resources there are groups external to the university that have defined a body of knowledge and have developed certification exams related to that body of knowledge. There are Certified Public

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Accounts, Certified Financial Planners, and Certified Human Resource Professionals. If a student takes and passes a certification examination, it provides evidence that the training received was adequate when compared against the criteria used by the external certifying agency. However, in entrepreneurship there is not an agreed upon body of knowledge that would grant certification, nor are there any standardized tests. In some ways, it seems somewhat improper to think about there being such a thing as a Certified Entrepreneur.

In the real world, entrepreneurs gain their credibility through establishing successful ventures. Yet, from an assessment perspective the “if” they establish a venture, and “when” they establish a venture are so sporadic and non-systematic, that eventual venture performance cannot provide a useful indicator of the efficacy of current instructional efforts. We believe that it is for that reason that numerous researchers have measured “entrepreneurial intentions” (e.g. Bae et al, 2014; Fayolle and Gailly, 2015; Piperopoulos and Dimov, 2015; Von Graevenitz 2010). If the objective of a program is to convince students that they should be entrepreneurs, then “entrepreneurial intentions” would be a relevant outcome variable. However, if the objective of a program is to impart entrepreneurial knowledge and skills, intentions are not a viable outcome measure.

To address that conundrum, we define a set of objectives that we believe are relevant for our program and develop a parsimonious set of measures to assess achievement relative to those objectives. We use the framework of a university new venture competition to engage external judges who rate business plan and business model summaries relative to the established criteria. The results provide evidence that teams including entrepreneurship students are able to articulate their ideas more clearly than teams that do not include entrepreneurship students, relative to the
criteria used in the competition. In addition, the scores in the competition can help to identify areas of weakness and help us improve the teaching in our program.

INTRODUCTION

Entrepreneurship courses and programs at the university level have become increasingly popular over the past few decades. Training and education in entrepreneurship have been found to influence both the current behavior and future intentions of students (Kolvereid and Moen, 1997; Tkachev and Kolvereid, 1999; Fayolle, 2002). Scholars have shown that firms founded by university graduates and faculty are likely to employ more people than their non-academic counterparts (Dietrich, 1999). In addition, founders with university education invest more money into their businesses than founders who lack academic credentials (Reynolds et al., 1994). Moreover, their firms perform disproportionately better (Shane, 2004). University spin-offs create important spill-over effects for the regional economy (Harhoff, 1999; Shane, 2004). While each of these outcomes is important in the long-term, the instruction and the outcome are temporally distant. It can be years down the road before we can measure these outcomes, eventual performance of an entrepreneurial venture is not practical as a means to assess current curriculum and teaching efforts.

Perhaps the most frequently measured outcome of entrepreneurship education is the change in entrepreneurial intentions of students (e.g. Bae et al, 2014; Von Graevenitz 2010). In a meta-analysis of 73 studies, participation in entrepreneurship programs is shown to be associated with higher intentions to start a future business; however, after controlling for pre-program intentions, the difference was no longer significant (Bae et al. 2014). Other research has shown that the positive effects of an entrepreneurship educational program are more evident when previous exposure to entrepreneurship training has been weak or nonexistent, but that there were
counter-effects for those who had significantly been exposed to entrepreneurship previously (Fayolle and Gailly, 2015). Another recent study indicates that higher self-efficacy is associated with lower entrepreneurial intentions in the theoretically oriented courses, and higher entrepreneurial intentions in the practically oriented courses (Piperopoulos and Dimov, 2015). While there has been broad-level assessment, there has been surprisingly little assessment of specific courses and programs pertaining to reaching specific learning objectives published in academic journals.

While entrepreneurial intentions are one interesting outcome, after reviewing the existing literature, it became apparent to us that most of the assessment of entrepreneurship programs fails to tackle the central premise of the objectives of the assessment of educational programs. In general, assessment is an ongoing process designed to monitor and improve student learning (Allen 2006). Assessment denotes the collection and use of aggregated data about student accomplishment to determine the degree to which course and program goals are being achieved (Ewell 2001). Thus, assessment of specific areas of study should occur at both the course level and at the program level (Bers 2008). Assessment requires the use of a systematic methodology for collecting valid and reliable evidence of what students know at various stages in their academic progress (Ewell, 2006).

Implicit in the definition of assessment is that assessment requires clearly defined objectives as the basis of measures. However, a comprehensive review of 108 articles that focus on the assessment of entrepreneurship programs shows that courses and programs focus on different objectives including the start-up and creation of new businesses, the contribution to society that comes through economic development and job creation, the increase in
entrepreneurial skills, and seeking to increase entrepreneurial spirit, culture and attitudes (Mwasalwiba, 2010).

While assessment has the potential to improve teaching and learning, it is also a source of many frustrations to those charged with doing it, as they grapple with the numerous requirements, approaches, and required evidences required by external stakeholders (Allen 2006; Brittingham et al. 2008; Ewell 2001). In spite of the frustrations, assessment of student learning plays a vital role in the process of improving the effectiveness of the core institutional mission of helping students acquire knowledge, skills, and competencies.

To make continuing improvement in curriculum and teaching, instructors need to know how their students are performing relative to appropriately defined criteria. In addition, accrediting organizations, federal and state governments, and potential employers are increasingly interested in viewing evidence that students learn the relevant content of the course or program (Allen 2006; Bers 2008; Brittingham et al. 2008; Ewell 2001, 2006). Stakeholders also want to know that colleges and universities appropriately prepare students for the labor force through development of relevant skills and competencies (Toutkoushian 2005; Voorhees and Harvey 2005). Growing interest in assessment appears is occurring around the world. In the United States, the Department of Education (DOE) and regional accrediting organizations are increasingly requiring institutions to provide evidence of student learning (Ewell 2001). The United Kingdom, Australia, and Denmark have qualification systems that seek to provide metrics for specified student competencies. Indeed, these qualification systems have an impact on perceived institutional quality (Voorhees and Harvey 2005). The Russian Ministry of Education and Science has instituted an assessment of the education outcomes and is setting standards for the competencies that the graduates of colleges and universities must acquire (Karpenko et al.)
Overall, various stakeholders increasingly use the evidence of student learning—rather than inputs into the system—to assess quality of educational programs (Allen 2006).

To that end, we develop and test a methodology for assessing student competence at a program level. We define program objectives, propose and implement measures of those objectives, and document how we used assessment information to modify and improve instruction over a four-year period.

**RESEARCH FRAMEWORK**

For this research, we employ a quasi-experimental design. The simplest of all experimental designs is the two-group posttest only randomized experiment (Trochim, 2005). One group receives entrepreneurship training, while the second group does not receive the training. It is a quasi-experimental design because we did not randomly select the participants.

The test is a New Venture Competition sponsored by the Center for Entrepreneurship at the university. The initial step in the competition is the submission of a two-page business summary. A team composed of faculty members in the business school and entrepreneurs from the community evaluate the two-page business summaries.

The objective of the study is to provide an evaluation or assessment of the effectiveness of the training for entrepreneurship majors and minors. The experiment requires a treatment group and a control group. The treatment group (majors and minors) are students who are in the Entrepreneurship capstone new venture creation course that is required for Entrepreneurship majors and Entrepreneurship minors. The capstone course combines with a capstone course from the college of engineering. The course design integrates engineering students and entrepreneurship students into teams to develop the technology and a business model for a new
venture. When any team includes at least one entrepreneurship student, we consider them to a member of the treatment group.

The competition is open to students across campus and across the state. Although there are usually a few participants from other universities, most of the participants are on-campus participants. Thus, the control group consists of teams of students from all other areas in the University and other universities that have not participated in the entrepreneurship major and minor at our university. Because students choose to participate in the New Venture Competition, it is not a randomized design.

We have collected two years of data and documented curriculum and training changes.

Objectives

In the field of entrepreneurship, there is not a clear set of agreed upon learning objectives. However, for assessment purposes it is essential to have clearly defined objectives. We do not believe it is necessary for all programs to have the same objectives, but we do believe that for valid assessment to occur, it is essential for clear and unambiguous objectives to be defined at the program level.

Instead of measuring attitudes and intentions (e.g. Bae et al, 2014; Fayolle and Gailly, 2015; Piperopoulos and Dimov, 2015; Von Graevenitz, 2010) as has been the case in much of the research that assesses entrepreneurship programs, our framework is skill and competency based. Our objectives are broadly based on the frameworks provided by the business model canvas (Osterwalder and Pigneur, 2010) and the lean start-up (Ries, 2011; Blank 2013). However, the concepts are ubiquitous throughout the entrepreneurship literature. Based on these frameworks, supported the broader entrepreneurship literature, we identified five key objectives for the program.
**Objective 1:** Clearly describe the product or service and how it solves a customer problem (Course 1 and Course 4). (e.g. Wiklund and Shepherd, 2003; Short, Ketchen, Shook and Ireland, 2010).

**Objective 2:** Clearly articulate the value proposition for customers and other stakeholders and show why the value proposition is better for the target customers than competing alternatives. (Course 1 and Course 4). (e.g. Anderson, Narus, and Van Rossum, 2006).

**Objective 3:** Display a good understanding of the context of the business including competitors, substitutes, threat of new entrants. (Course 3 and Course 4). (e.g. Porter, 2008).

**Objective 4:** Understand the revenue streams and financial requirements for a business including projected financial statements that detail start-up costs, operating expenses, and revenue generation. (Course 2 and Course 4). (e.g. Covin and Slevin, 1991).

**Objective 5:** Understand and be able to compose a viable management team that has the required competencies to deliver the value proposition to customers, including the use of investors and strategic partners. (Course 3 and Course 4). (e.g. Chandler, Honig, and Wiklund, 2005)

**The Treatment**

The treatment consists of four courses required for both entrepreneurship majors and minors. Each course is taught in the traditional 15 week three credit hour course format, thus to complete the program students participate in 180 contact hours of entrepreneurship training over two years. Methodologies in the course include traditional lecture, discussion, cases, experiential exercises, and hands-on projects. At the time that the new venture competition occurs, students
have completed courses 1, 2, and 3 as listed below, and participation in the venture competition is a capstone project in course 4.

**Course 1. New Venture Feasibility Analysis  3 credit hours**

Focuses on identifying the sources of business opportunities, understanding industry characteristics that are more or less favorable for new ventures, generating business ideas, evaluating the feasibility of business ideas, and investigating appropriate business models. Students keep an active idea log throughout the semester, have opportunities to pitch, their favorite ideas to class, and complete a feasibility assessment of their three favorite ideas. Teaching techniques include lecture, discussion, experiential learning activities and a project.

**Course 2. Entrepreneurial Finance  3 credit hours**

Exposes students interested in business start-up or management of a growing firm to the principles, methods and tools used in financial planning, analysis and control of the small business enterprise. Covers short-term financial planning and control, creation of pro forma financial statements and business valuation techniques. Presents how and where to seek financing via a variety of debt and equity sources. Teaching techniques include lectures and problem solving. Students complete homework each week and complete a project in which they develop pro forma financial statements for their own proposed company, and a thorough financial analysis of a relatively early stage (less than five years old) small, but growing business.

**Course 3. Growing and Managing an Entrepreneurial Firm  3 credit hours**

Focuses on the organization, operation, marketing and financial management of an ongoing entrepreneurial firm. Emphasizes the strategic management of growth associated with a rapidly changing business, as distinguished from small business management, which could include small
enterprise units that are static. Teaches the practical aspects of managing a growing business on a
day-to-day basis. There is also a practical application to intrapreneurship, such as growing a
division or department within a larger organization. Teaching methods are lecture, case-based
discussion, and experiential learning.

Course 4. New Venture Development 3 credit hours

This is a project-based course. It emphasizes the development of a business model around a
unique product or service idea that satisfies a customer need or solves a customer problem. It
focuses on conceptualizing a value proposition and business model for a new venture and
validating them with customers and industry experts. Requires the development of financial and
organizational principles including the proposed organizational structure of the firm and the
financial structuring of the firm, including pro forma development of financial statements, and
the capitalization of the firm. Provides the opportunity to pitch and present one's business
concept and plan as well as to learn how to evaluate the business ideas of others. Teaching
techniques include some lecture and discussion, but the focus of the course is project focused and
students work together in multi-disciplinary teams to develop and validate a business model.

The Test

In 2014, all participants in the new venture competition were required to submit a ten-
page business plan summary. In 2016, the task was changed and participants were required to
submit a two page a two-page summary of the proposed business model. Participants receive the
following instructions:

Teams will be judged based on their ability to succinctly encapsulate their business
concept through a market analysis, a clear value proposition, and a sustainable
competitive advantage. The competition staff requests that all judges provide constructive feedback, strengths, weaknesses & recommendations, on the business summaries. Their feedback provides teams the opportunity to further develop, grow, and advance their new venture concept.

Contestants should strive for ideas that will produce revenue and/or investments to employ at least three people within a year and many more over time.

Ask yourself and your partners: What's the value proposition: What problem are we solving for customers and what makes our idea special? What's the market we're trying to serve and is it big enough to matter? How will we reach it? What's our sustainable competitive advantage? Your entry should answer these questions: How you have tested this idea with potential customers? How you arrived at your costs, pricing, and expected profit margin? How long will it take you to get to profitability? How will you finance the work before it becomes profitable? What are your qualifications for pursuing and managing this business and who else are you going to rely on for help?

Judges

Center for Entrepreneurship staff members select judges from among entrepreneurship faculty members, faculty members from other colleges in the university who incorporate entrepreneurship content into their programs, and business people from the local business community including serial entrepreneurs and angel investors. Typically, there are a total of 15 to 20 judges, roughly half from the university and half from the business community. Faculty
members do not judge summaries from their own students. All business community judges are in leadership roles in their organizations.

More than one judge evaluates each summary, with at least one judge from the business school and one judge from somewhere else in the university or from the business community. Therefore, depending on the number of entries, each judge typically scores between 10-12 entries. Averaged scores are used to make comparisons.

Measures

We developed eight items to assess performance relative to the five objectives defined above. These items are designed to tap into the objectives of the program and to be simple for judges to respond to and easy for student teams to understand. They are single item measures, scored by more than one rater. We display specific items in Table 1.

INSERT TABLE 1 ABOUT HERE

RESULTS

Round 1 data collected in April, 2014.

The 2014 new venture competition attracted 55 plan summaries. Fourteen of the 55 teams that made a submission included an entrepreneurship student that had completed courses 1 through 3 and were almost through course 4 in the entrepreneurship program. Seventeen judges scored the screening round. Five were entrepreneurship faculty members, five were non-business faculty members who include entrepreneurship content in their programs, and seven were business people from the Wichita business community. In 2014, two judges scored each plan. Center for Entrepreneurship Staff members collected judge’s scores and entered them into a spreadsheet. The score that drove decision-making was the average score of the two raters.
On seven of the eight questions, judges rated teams with entrepreneurship students to be significantly better by the judges than were teams without entrepreneurship students. To us that indicates that the instruction in our program is helping students conceptualize and present their venture ideas. We display results in Table 2.

**Focal area of improvement**

The business plan summaries of teams including entrepreneurship students were scored significantly higher than those for non-business students on all dimensions except Q5. These numbers create a baseline for future assessments. On each scored section of the business plan, summary aggregated scores were provided to the instructors of the four core courses in the entrepreneurship major. The instructors met to discuss results and develop plans for improvement. After the 2014 assessment there was one item with no significant difference between Entrepreneurship students and non-entrepreneurship students: “The management team has the necessary background and abilities to create a business around the product or service.” In Courses 1 and 3 the instructors enhanced the discussion regarding how to compose new venture teams and advisory boards. Since the 2014 assessment, in Course 4 each new venture team has been required to create an advisory board.

**2016 Results**

The procedure changed somewhat for 2016. Instead of submitting a 10 page business plan, student teams submitted a 2 page business model summary. Sixty six summaries were submitted by teams across campus. Twelve of those teams included entrepreneurship students. As in 2014, 17 judges scored the screening round. Four were management and entrepreneurship faculty members, eleven were non-business faculty members who include entrepreneurship
content in their programs, and two were business people from the Wichita business community. Each plan was scored by four judges and the results were averaged. The judge’s scores were collected and collated by the Center for Entrepreneurship Staff. Results are displayed in Table 3.

**INSERT TABLE 3 ABOUT HERE**

**Closing the Feedback Loop**

In 2014, there was one item where there was not a significant difference between teams with entrepreneurship students and those without entrepreneurship students: The management team has the necessary background and abilities to create a business around the product or service. After our interventions, the score on that item increased from 3.45 to 3.72 and the difference between teams with entrepreneurship students and those without is now significant, providing evidence that our interventions were successful. In the 2016 assessment, all differences are significant.

By 2016, we have baseline comparison to 2014 scores and we also have the treatment group and control group comparisons. While we believe that information is valuable, it is difficult to interpret the numbers across years. First, in 2014, we required a 10 page business plan summary and in 2016 we required a 2 page business model summary. Thus, the tasks were not equivalent. Second, many of the non-entrepreneurship student teams are mentored by faculty members from across the University who have received some training in how to teach entrepreneurship concepts. As a result, the non-entrepreneurship mentors should also be improving in their ability to teach entrepreneurship concepts. Therefore, the control group is not a true control group. Third, the eight scoring questions require subjective assessments rather than rating relative to an objective standard. Thus, we expect judges to compare the 10-12 summaries they receive to each other and rate them accordingly. Thus, differences between teams with
entrepreneurship students, and those without entrepreneurship students are likely to be more relevant than differences across years.

**Areas to focus in for improvement in 2016-2017 academic year**

The scores from the new venture competition provide information that allows instructors to pinpoint areas of weakness and adjust instruction accordingly. The instructors who teach the core courses in the major have met to discuss results and to develop plans for improvement. We plan to continue to enhance the curriculum in all key objectives. However, we will pay greater attention to those areas where there was less differentiation between entrepreneurship and non-entrepreneurship students. Although entrepreneurship students scored higher than non-entrepreneurship students on all questions, the following three questions displayed the smallest difference.

Q1. The product or service described is clearly explained.

Q4. It is clear how the business will produce revenue in a cost effective way.

Q6. The idea has the potential for growth in revenue and employment.

Regarding question 1, developing product descriptions and value propositions is a key issue in Course 1 and Course 4. The instructors have met and developed some enhancements to the teaching of these concepts. Specifically, in Course 1 we have compiled a set of company websites that do a very strong job of communicating the value proposition, and have made those available to students. Also in Course 1, students keep an idea log in which they have now been asked to formulate their ideas in value proposition language. When they finish the course they have written 46 value propositions, whereas in the past they only had written one.

With regards to question 4, describing how the business will produce revenue in a cost effective way is the domain of Course 2 and Course 4. In Course 2 there is an increased focus on
the development and understanding of cost structures and revenue models. Specifically, a session has been added in which we show how traditional balance sheets and income statements can be used to clearly document cost structures and revenue models. This teaching is reinforced in Course 4 so students will be more able to show how their business can produce revenue in a cost effective way. Additionally, to address this issue in Course 4, identifying, validating and quantifying the size of a “beachhead” customer segment is emphasized. A beachhead customer segment, also called early adopters, is typically a narrow segment of potential customers that have a compelling reason to buy the product or service and that the entrepreneur targets first when launching the startup (Aulet, 2013). Focusing efforts on a “beachhead” market signals an efficient use of resources that reduces costs due to focused marketing and product development.

Concerning question 6, growth in revenue and employment is a key issue in Course 3 which focuses on new venture growth. The instructor will place a greater emphasis on how one recognizes and demonstrates to others the growth potential of a business. That teaching will be reinforced in Course 4.

The effectiveness of these changes will be assessed in the next new venture competition.

**DISCUSSION**

As discussed in the introduction, assessment is often completed mostly for the purpose of satisfying accreditation requirements. We know that most of our colleagues are required to assess the effectiveness of what they are doing in the classroom. However, in the quasi-experimental design that we document in this paper, we also show that assessment can be used as it is intended—to help us continuously improve our instruction of students (Allen 2006; Bers 2008; Brittingham et al. 2008; Ewell 2001, 2006).
It was our intention to demonstrate and document the process of assessment. However, as we have gone through the process of writing this paper, we have realized that we need to go back and do a better job up front of defining clear objectives, and then writing items that have stronger construct validity. In spite of the weaknesses inherent in our approach, we have contributed to the literature.

First, we have demonstrated a methodology that can be used to measure student outcomes. Ratings by external judges using agreed upon criteria have helped us to more clearly understand what our students are learning, and what they are not learning.

Second, we have shown that our in class training of entrepreneurship principles translates into scores that are significantly higher for students who have had the training than they are for students who have not had the training. We have also identified some areas of relative weakness.

Third, we have shown that changes in teaching focus and method can improve aggregate performance of new venture teams that include students who have received entrepreneurship training.

We have not shown that our students are more likely to become entrepreneurs, nor that they will be more successful as entrepreneurs. However, we have shown that students who have completed the entrepreneurship core courses are able to demonstrate skills and knowledge that they have acquired in such a way that their business model summaries are considered by external judges to be better than the summaries that are composed by teams that have not specifically received our training.

CONCLUSION

In this paper we have shown how a new venture competition can be used to successfully assess the quality and effectiveness of entrepreneurship training in a University setting. We hope
others can use our model as inspiration, and develop better and more rigorous assessment methods.

REFERENCES


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<td>Specific Measures that the Judges Respond To</td>
</tr>
<tr>
<td>Q1. The product or service is clearly explained. (Objective 1)</td>
</tr>
<tr>
<td>Q2. The specific benefits to customers are clearly defined and compelling. (Objective 2).</td>
</tr>
<tr>
<td>Q3. The specific customer benefits are not readily available from competitors. (Objective 2 and 3)</td>
</tr>
<tr>
<td>Q4. It is clear how the business will produce revenue in a cost effective way. (Objective 4)</td>
</tr>
<tr>
<td>Q5. The management team has the necessary background and abilities to create a business around the product or service. (Objective 5)</td>
</tr>
<tr>
<td>Q6. The idea has the potential for growth in revenue and employment. (Objective 3)</td>
</tr>
<tr>
<td>Q7. The business can attract investors, strategic partners, and other resources. (Objective 5)</td>
</tr>
<tr>
<td>Q8. I recommend this business to advance to the top 32 plans in the New Venture Competition. (Summary question)</td>
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<td>Item</td>
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<tr>
<td>Q1. The product or service described is clearly explained.</td>
</tr>
<tr>
<td>Q2. The specific benefits to customers are clearly defined and compelling.</td>
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<tr>
<td>Q3. The specific customer benefits are not readily available from competitors</td>
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<tr>
<td>Q4. It is clear how the business will produce revenue in a cost effective way.</td>
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<tr>
<td>Q5. The management team has the necessary background and abilities to create a business around the product or service.</td>
</tr>
<tr>
<td>Q6. The idea has the potential for growth in revenue and employment.</td>
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<tr>
<td>Q7. The business can attract investors, strategic partners, and other resources.</td>
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<tr>
<td>Q8. I recommend this business to advance to the top 32 plans in the New Venture Competition.</td>
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<tr>
<td>Total</td>
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*** significant .001, ** significant .01, *significant .05, † significant .10
<table>
<thead>
<tr>
<th>Item</th>
<th>E-student score (n=12)</th>
<th>Non-E student score (n=54)</th>
<th>F</th>
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<tr>
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<td>3.89</td>
<td>3.60</td>
<td>2.71*</td>
</tr>
<tr>
<td>Q2. The specific benefits to customers are clearly defined and compelling.</td>
<td>3.92</td>
<td>3.28</td>
<td>15.46***</td>
</tr>
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<td>Q3. The specific customer benefits are not readily available from competitors</td>
<td>3.46</td>
<td>3.06</td>
<td>5.62**</td>
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<td>Q4. It is clear how the business will produce revenue in a cost effective way.</td>
<td>3.02</td>
<td>2.68</td>
<td>3.88*</td>
</tr>
<tr>
<td>Q5. The management team has the necessary background and abilities to create a business around the product or service.</td>
<td>3.72</td>
<td>3.20</td>
<td>10.01**</td>
</tr>
<tr>
<td>Q6. The idea has the potential for growth in revenue and employment.</td>
<td>3.53</td>
<td>3.27</td>
<td>2.30†</td>
</tr>
<tr>
<td>Q7. The business can attract investors, strategic partners, and other resources.</td>
<td>3.49</td>
<td>3.00</td>
<td>7.70**</td>
</tr>
<tr>
<td>Q8. I recommend this business to advance to the top 32 plans in the Shocker New Venture Competition.</td>
<td>3.84</td>
<td>2.99</td>
<td>17.07***</td>
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<tr>
<td>Total</td>
<td>3.61</td>
<td>3.13</td>
<td>13.27***</td>
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*** significant .001, ** significant .01, *significant .05, † significant .10
THE INFLUENCE OF UNIVERSITY-BASED ENTREPRENEURSHIP EDUCATION ON THE FORMATION OF ENTREPRENEURIAL CAPABILITIES

Younggeun Lee, Patrick M. Kreiser, Alex H. Wrede and Sanvisna Kogelen

ACADEMIC ABSTRACT

In this study, we examine the influence of university-based education on students’ entrepreneurial capabilities. While the prevalence of entrepreneurship education is dramatically increasing, the education that business and engineering students receive throughout their academic experience wields a direct influence on several entrepreneurial capabilities. The purpose of this study is to measure these educational influences on three specific entrepreneurial capabilities—networking skill, proactiveness, and self-confidence. Moreover, we aim to raise awareness for faculty and students in these various programs as they form networks and optimize the knowledge obtained throughout their education. We test the hypotheses using data collected from 927 university students. Advice for these students and their respective educational departments is further discussed.

Keywords:
Entrepreneurship education, Entrepreneurial Capabilities, Networking, Proactiveness, Self-confidence

Introduction

Entrepreneurship has long been recognized as a primary driver of economic development and growth (e.g., Birch 1987; Kuratko 2006; Vanevenhoven 2013). As recognition of the value of entrepreneurship has flourished around the world, it has become an established academic field and entrepreneurial education has been developed globally in terms of quality and quantity (Jones, Penaluna, and Pittaway 2014; Kuratko and Morris 2017; Vanevenhoven 2013). Moreover, there
have been significant increases in the number of entrepreneurship-related courses offered by
diverse departments, colleges, and universities (Finkle, Kuratko, and Goldsby 2006; Winkel 2013).
In schools of business and engineering, among others, entrepreneurship education has received
significant attention as an emerging area of study (Kuratko 2005; Katz 2003; Morris, Kuratko, and
Cornwall 2013; Solomon, Duffy, and Tarabishy 2002).

Extending the assumption that entrepreneurship can be taught and learned (Drucker 1985;
Gorman, Hanlon and King 1997; Kuratko 2005, 2006; Winkel 2013), education embracing
entrepreneurship-focused topics has been theorized as a determinant of entrepreneurial behaviors,
skills, and mindsets among students (De Hoyos-Ruperto and Figueroa-Medina 2011; Kuratko and
Morris 2017). Moreover, scholars have emphasized the influence of education on entrepreneurial
skills among college students in complementing and reinforcing their knowledge related to
functional disciplines such as engineering and science (Winkler, Troudt, Schweikert, and
Schulman 2015). Education provides opportunities for students to nurture their entrepreneurial
capabilities (Winkel 2013).

An emerging trend “in most universities is to … design unique and challenging curricula
specifically designed for entrepreneurship” (Kuratko and Morris 2017, p. 3). In order to meet this
imperative, universities have started to offer entrepreneurship education using interdisciplinary
methods (Katz, Roberts, Strom, and Freilich 2013; Morris, Kuratko, and Pryor 2013; Winkler et
al. 2015) and diverse pedagogical methods have been proposed. For instance, Neck and Greene
(2011) suggest a portfolio of practice-based pedagogy when teaching entrepreneurship that may
help students to “understand, develop, and practice the skills and techniques need for productive
entrepreneurship” (p. 61). Also, Pittaway (2009) examined the role of inquiry-based pedagogy on
teaching entrepreneurship to science and engineering students. Moreover, a growing number of
non-business departments are providing entrepreneurship-related courses and topics to their students (Shinnar, Pruett, and Toney 2009). Recently, scholars have reinforced the ability of co-curricular programs in engineering in helping to cultivate entrepreneurship and innovation skills (De Hoyos-Ruperto, Pomales- García, Padovani, and Suárez 2017).

Previous studies have suggested that these various types of education can facilitate entrepreneurial outputs (e.g., Barba-Sánchez and Atienza-Sahuquillo 2017; Kuratko 2005; Neck and Greene 2011). Yet, while researchers have continuously asserted the advantages and importance of entrepreneurship pedagogy, there have been contradictory findings regarding the outcomes of teaching entrepreneurship (Martin, McNally, and Kay 2013; Walter and Block 2016). Most studies support a positive relationship between entrepreneurship education and entrepreneurial outcomes (e.g., Rauch and Hulsink 2015; Sánchez 2013; Souitaris, Zerbinati, and Al-Laham 2007; Walter, Parboteeah, and Walter 2013), but there are also scholars who suggest potentially negative aspects of entrepreneurship education such as decreases in entrepreneurial intentions (e.g., Oosterbeek, van Praag, and Ijsselstein 2010; von Graevenitz, Harhoff, and Weber 2010). Explaining those contradicting views, Vanevenhoven (2013) has called for further studies on entrepreneurship education outcomes in numerous contexts in order to create a more in-depth understanding. Pittaway and Cope (2007) highlighted gaps and suggested detailed research on the impact of education on entrepreneurial capabilities of students beyond their propensity or intentionality. In this study, we investigate the relationship between entrepreneurship education provided via diverse departments and entrepreneurial capabilities.

We define entrepreneurial capabilities as the set of behavioral tendencies that leverage an individual to develop the ability to find success in entrepreneurship. Also, we examine more stable entrepreneurial characteristics that represent cognitive attributes within individuals that lead to
entrepreneurial success. While we would expect entrepreneurial education to directly influence entrepreneurial capabilities, we suggest that educational efforts are much less likely to impact these more stable entrepreneurial characteristics. Cognitive psychologists have suggested that cognitions include perceptions of prior knowledge, beliefs, and expectations (e.g., Smith and Kosslyn 2008). Path dependency explains the connection between knowledge attained from education and capabilities on entrepreneurship as “prior experiences (e.g., education) shape new perceptions (toward entrepreneurship), which then become part of the experience base for subsequent perceptual activity” (Helfat and Peteraf 2015, p. 838). In this context, we assert that students who have been exposed to education about entrepreneurship could “perceive information within the domain of their expertise (entrepreneurship) more accurately and quickly (p.839)” than students who have not been exposed to such practices (Helfat and Peteraf 2015).

Venkatraman (1997) defined entrepreneurship as “the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited” (Shane and Venkatraman 2000, p. 218). For an entrepreneur to maximize their effectiveness in opportunity discovery, evaluation, and exploitation, they need to effectively develop numerous entrepreneurial capabilities. Even though business and engineering educational practices are focused on a variety of discipline-based content, they both encapsulate knowledge that is essential in the success of entrepreneurship. More specifically, we presume that business and engineering educational departments teach their students varying entrepreneurial capabilities throughout their curriculum. For instance, scholars have found that entrepreneurial skills are encouraged through specific educational practices in the context of engineering students (e.g., De Hoyos-Ruperto et al. 2017; Pittaway 2009; Winkler et al. 2015).
In order to promote a more thorough understanding of the outcomes of entrepreneurship education, scholars have called for further research on skills, knowledge, social networks, entrepreneurial values, and attitudes to understand specific mechanisms and results of university-based education (Rideout and Gray 2013). Moreover, Kuratko (2005) has suggested that “characteristics of seeking opportunities, taking risks beyond security, and having the tenacity to push an idea through to reality” are entrepreneurial perspectives that can be encouraged through education (p. 578). Implementing a systematic literature review, Pittaway and Cope (2009) examined factors influencing students’ entrepreneurial capabilities. Moreover, Morris, Kuratko, and Cornwall (2013) suggested core entrepreneurial competencies such as optimism, passion, guerrilla behavior, and resource leveraging. Considering these previous studies, we have selected several well-known entrepreneurial capabilities (i.e., networking skills, proactiveness, and self-confidence) to examine as part of this study.

We aim to answer the following research question: (1) How do educational departments related to both business and engineering influence entrepreneurial capabilities in their students, respectively? DiMaggio and Powell (1983) showed that over time, units within a population resemble other units that face the same set of environmental conditions, known as isomorphism. Based on this logic, students within the same educational department are likely to show signs of isomorphism in an academic setting. This leads to a corollary research question that we also aim to answer: (2) Do entrepreneurial capabilities in students from similar departments show signs of isomorphism over time? Even though students from different departments are taught different skills, students that have entrepreneurial intent might have more energy, passion, and incentive to fully grasp the pieces of their respective curriculum that enhances entrepreneurial capabilities. On the flip side, even though a student might possess entrepreneurial intent, they still might not be
aware of the mentality they need to possess in order to optimize their own entrepreneurial potential. Because of this knowledge gap in education, we also aim to answer the following research question: (3) Do students that have high levels of intent to start a future business also have high levels of entrepreneurial capabilities?

Taken together, these three research questions are important given that the impact of curriculum and program development in universities on pedagogical and practical effectiveness has not been thoroughly studied (Winkler 2014). Also, a specific pedagogical approach could influence engineering students’ entrepreneurial skills (Pittaway 2009). In this context, we develop hypotheses based on a specific investigation of business and engineering curriculums to understand in-depth mechanisms toward the development of entrepreneurial capabilities and characteristics. We test our hypotheses using data collected from 927 university students at a large Midwestern university in the USA. Moreover, this study offers implications to multiple stakeholders of university education (i.e., students, faculty, and administrators) by discussing the role of entrepreneurship education in the formation of entrepreneurial capabilities.

**Literature Review and Hypotheses Development**

There are diverse entrepreneurial capabilities that may be fostered via entrepreneurial education. For the purpose of this study, we aim to analyze three potentially teachable entrepreneurial capabilities (networking skills, proactiveness, and self-confidence) and three innate entrepreneurial characteristics (alertness, individualism, and internal locus of control) that have been emphasized in the existing literature. As an important point of clarification, we begin our study with the presumption that entrepreneurship education is likely to exhibit an influence on entrepreneurial capabilities, which tend to be more malleable in nature; but is much less likely to exhibit an influence on entrepreneurial characteristics, which tend to be more stable in nature.
Entrepreneurial Capabilities

**Networking Skills.** For the purposes of this study, we define networking skills as the ability to initiate and form a wide range of connections with other people. We extend this definition by suggesting that high levels of networking skills are positively associated with the amount of connections and the variety of connections that one makes (Kreiser 2011). Burt (1997) explains that networking skills are vital to an entrepreneur for reasons such as access and timing. Networks provide access to knowledge well beyond a single person’s capacity. Grant (1996) suggests that knowledge is a critical competitive asset. To maximize the amount of knowledge to which an entrepreneur has access, it is important for them to make connections with a wide range of people. Humans tend to make the majority of their connections with people who are most like themselves. Literature explains that having access to various channels of communication is highly valuable because this increases the likeliness of gaining information that is complementary and non-redundant (Granovetter 1973). Said differently, Granovetter (1973) argues that when two people who have a lot in common are in each other’s network they provide redundant information to each other but when a network reaches a variety of people then it will have access to complimentary benefits. Ozgen and Baron (2007) confirmed that the broader the entrepreneur's social network, and the greater amount of conferences and professional meetings that they attend, the more opportunities they will identify. Lastly, networking also provides early access to innovative capacity and necessary knowledge which are advantages to an entrepreneur who seeks to act on opportunities before their competitors (De Hoyos-Ruperto, Romaguera, Carlsson, and Lyytinen 2013; Pittaway, Robertson, Munir, Denyer and Neely 2004). We posit that networking skills are a
teachable entrepreneurial capability. Many academic curriculums offer courses, seminars, and training sessions to specifically advance the networking skills of their students.

**Proactiveness.** Proactiveness refers to a manner that initiates new trends instead of reacting to the current trends. The law of diminishing returns states that, over time, the level of profits from a product or service will be less than the level of invested resources unless it is somehow developed to address a greater customer demand. An entrepreneur must be proactive to in commercializing innovative products and services prior to the point where the costs exceed the profits. Schumpeter (1942) introduced the concept of creative destruction which extends on this idea. Schumpeter’s conception focuses on using new combinations of resources to create new innovations. When this is done effectively, old methods are destroyed because of the advancement that a new creative method provides. An example of this is the history of the automotive industry. Before 1908, people used horses and buggies to travel long distances. People would use incremental innovation to raise the fastest and healthiest horses, and design buggies that had minimal mass while maintaining high durability. In 1908, Henry Ford set out to radically change the industry by implementing creative destruction and designed what was known as the Ford Model T car (Argyres, Bigelow, and Nickerson 2015). Ford sold millions of cars and created a new industry. Over time, there have been steady incremental innovations to optimize this model and someday there will be an entrepreneur that creates a new industry and eliminates the automotive industry. We posit that proactiveness is a teachable entrepreneurial capability.

**Self-confidence.** Self-confidence, similar to self-efficacy, is a feeling of trust in one’s abilities, qualities, and judgement. Self-confidence is based on an individual’s belief in their skills and abilities for specific areas and expectations for success (Bandura 1989; Eccles 1994). Chen, Greene, and Crick (1998) examined that students who had entrepreneurship education have a high
self-efficacy and Lucas and Cooper (2007) suggested that those students were able to sustain high self-efficacy. Moreover, researchers have found the impact of self-confidence in the relationship between entrepreneurship education and entrepreneurial intention (Wilson, Kickul, and Marlino 2007). Recently, researchers have suggested that entrepreneurship education promotes confidence in students to achieve entrepreneurial tasks and triggers them to have positive capabilities in creating new companies (Kassean, Vanevenhoven, Liguori, and Winkel 2015).

Moreover, the term optimism is a corollary of this idea and is known to be abundant in entrepreneurs. The presence of optimism in an entrepreneur is the reason that we, along with previous studies, exclude risk taking as an entrepreneurial capability. Palich and Bagby (1995) found that entrepreneurs do not show any greater levels of risk-taking compared to the general public. They simply tend to associate business situations with cognitive categories that suggest more favorable attributes (greater strengths versus weaknesses, opportunities versus threats, and potential for future performance improvement versus deterioration). In other words, entrepreneurs do not picture themselves as risk-takers because their confidence and optimism allow them to see the potential in opportunities instead of risks. The presence of high self-confidence is vital for an entrepreneur because individuals who lack self-confidence in many situations will be reluctant to view almost any idea as an obtainable opportunity (Stewart and Roth 2001). We posit that self-confidence is a teachable entrepreneurial capability.

**Entrepreneurial Characteristics**

**Alertness.** Alertness has received a significant amount of attention in the entrepreneurship literature and Kirzner (1997) originally tied alertness to entrepreneurship. Kirzner defines alertness as an attitude of receptiveness to available opportunities. Additionally, Kirzner explains, “the entrepreneurial character of human action refers not simply to the circumstance that action is taken
in an open-ended, uncertain world, but also to the circumstance that the human agent is at all times spontaneously on the lookout for hitherto unnoticed features of the environment (present or future), which might inspire new activity on their part” (p. 72). For the purposes of our study, we define alertness as the ability to notice the significance of opportunities that have been overlooked or unnoticed by others.

We argue that alertness is necessary in opportunity discovery, opportunity evaluation, and opportunity exploitation; the three phases that Shane and Venkatraman (2000) outlined in defining entrepreneurship. One must be entrepreneurially alert to effectively draw upon their past experiences and cognitive properties toward the discovery of an opportunity. They must also be alert to things like risks and uncertainty, resource cost and availability, and economic trends to effectively evaluate an opportunity. Finally, they need to also be entrepreneurially alert of things like capital market imperfections, and customers in the respective market during the exploitation of an opportunity. This emphasizes the critical influence that alertness has on the success of an entrepreneur. We suggest that alertness is an innate entrepreneurial characteristic. Shane (2003) states that “alertness rests, at least in part, on cognitive capacities possessed by individuals” (Baron 2006, p. 105). Even though individuals have variable innate cognitive capacities, Shane and Venkatraman (2000) also assert that past experiences and life circumstances influence alertness, and more specifically, they influence the ability to recognize the existence and value of opportunities.

**Individualism.** In the context of this study, we define individualism as the principle of having one’s self as a higher priority than a group of people. Hofstede (1980) states that high-individualism is associated with an emphasis of individual initiative and achievement. McGrath, MacMillan, and Scheinberg (1992) found that entrepreneurs agreed far more than did the career
professionals that “success is owning your own company” as opposed to “belonging to an organization” (p. 128). Additionally, they found that entrepreneurs were more likely to disagree that work is more desirable in a large organization but they highly agreed that, “success is being promoted up through the ranks in a corporation” (McGrath et al. 1992, p. 128). This previous literature demonstrates the significance that individualism has in the context of the entrepreneur.

We suggest that individualism is an innate entrepreneurial characteristic. Looking at different cultures around the world, we argue that an individual’s upbringing can shape whether they tend to be more individualistic or collectivistic. We also postulate that an individual who moves from a collectivistic culture to an individualistic culture, and vice versa, must adapt their tendencies in order to compete against competitors from other demographics.

**Internal locus of control.** We define internal locus of control as the mindset that one possesses if they believe that their own actions shape outcomes in their everyday life, instead of the presuming that outcomes result from the actions of others or the environment. Gilad (1982) was able to use internal locus control as a distinguishing characteristic that separates successful from unsuccessful small business owners. Moreover, Brockhaus and Horwitz (1986) suggested internal locus of control as one of the major traits of entrepreneurs. Engle, Mah, and Sadri (1997) mentioned there are several characteristics of an entrepreneur that suggest they have an internal locus of control, including: a desire for control over ideas or projects, and acceptance of responsibility. Recently, Neck and Greene (2011) emphasized locus of control as an important characteristic of as entrepreneur. We suggest that internal locus of control is an innate entrepreneurial characteristic.
Specific Curriculum, Entrepreneurial Capabilities, and Entrepreneurial Characteristics

Students from different departments take different courses based on their respective department’s curriculum. More specifically, as university students take various major classes according to their department’s graduation requirements, they form different levels of capabilities depending on their curriculums. In this context, we assert that business and engineering majors are likely to display different levels of entrepreneurial capabilities.

We analyzed the specific curriculum of business and engineering departments to understand the different formation of entrepreneurial capabilities. The accreditation board for engineering and technology (ABET), a governing body that provides accreditation, lists the following two skills as educational outcomes of an engineering program: an ability to function in multidisciplinary teams and an ability to communicate effectively. Examining engineering curriculums that are ABET accredited, many engineering curriculums reflect these emphases.

Specifically, we examined the list of classes in a mechanical engineering department of a large Midwestern university in the USA. We found two courses related to the formation of networking skills and proactiveness: Sophomore design and senior design. In both of the aforementioned classes, students are given a project in the beginning of the semester and work in groups to deliver a solution. At the end of the semester, these results are displayed at an expo. The latter class also requires constant contact with an industrial sponsor and teaching students how to behave professionally. Additionally, engineering students are also required to take several lab classes, some of which carry heavy responsibilities and pressures on teamwork. This would imply that engineering students may develop higher levels of proactiveness to deal with the heavy workload. Due to experiences like this, we contend that engineering students develop related entrepreneurial capabilities.
On the other hand, an analysis of a business school’s flowchart revealed that there was a significant emphasis on communication. Two classes were listed as compulsory requirements: Business communication and fundamentals of public speaking. By analyzing the flowcharts for the mechanical, aerospace, electrical and construction engineering majors, it was found that all students were only required to take one higher level communications class. Aerospace and electrical are only given the option of technical communication, whereas mechanical and construction engineers are able to choose from business communication, proposal and report writing, and technical communication. This difference in the emphasis on communication proposes that students from different majors will have different skillsets that give rise to different entrepreneurial capabilities. An example of this would be business students having high levels of confidence from greater exposure to communication skills than engineering students.

The example provides support for a broader point: namely, that students’ educational department is likely to influence the development of their core entrepreneurial capabilities. As students are exposed to the curriculum, knowledge, and experiences provided via their academic program, they are exposed to opportunities to cultivate their specific entrepreneurial capabilities. However, it is much less likely that students’ academic department will exert a direct and identifiable influence on innate entrepreneurial characteristics, which tend to be more stable over time and are less likely to be influenced by educational factors. It is postulated that students of different majors will build different skills based on their respective curriculum teaching them different entrepreneurial skills. Therefore, we argue that:

**H1**: Business and engineering educational departments influence the entrepreneurial capabilities of their respective students differently.
H2: Business and engineering educational departments will not influence the entrepreneurial characteristics of their respective students differently.

**Years in the University, Entrepreneurial Capabilities, and Entrepreneurial Characteristics**

DiMaggio and Powell (1983) showed that units within a population start to resemble each other the longer the time period of observation. We extend these arguments to college students by suggesting that, as students advance through their educational career, they will show isomorphic trends and will begin to display high levels of proficiency in the same capabilities. Examples of this would be engineering students displaying higher levels of proactiveness as they work through a rigorous academic curriculum. Business students, on the other hand, might see increases in self-confidence and networking as they are heavily exposed to public presentations and social opportunities. This suggests that students will start showing more similarity in terms of capabilities with their classmates over time. Specifically, the skill sets that engineering students tend to learn will increase their similarity as they spend more time together inside and outside of the classroom. We would also expect business students to exhibit similar trends. As such, we propose that, generally speaking, students will show isomorphic trends in entrepreneurial capabilities as they spend more time within their specific academic program. Therefore, we suggest that:

**H3: As students spend more time in one department, they will show isomorphic trends in their entrepreneurial capabilities with their fellow classmates.**

**H4: As students spend more time in one department, they will not show isomorphic trends in their entrepreneurial characteristics with their fellow classmates.**
Entrepreneurial Intention and Entrepreneurial Capabilities

We posit that the entrepreneurial capabilities analyzed in the present study correlate positively to one’s intention of starting a business. Regardless of one’s major, the student is likely to strive toward taking action to increase entrepreneurial capabilities if they intend to start-up a business in the future. Examples of such actions might be taking entrepreneurship classes outside their core requirements and engaging in entrepreneurial programs to learn more about the field. Another example would be students with high start-up intentions participating in workshops and competitions offered via entrepreneurship centers in large universities, such as initiative programs that help young people to learn the basics of entrepreneurship and networking with local entrepreneurs. Additional examples of this phenomenon would be students interested in starting their own business becoming active in many clubs and society activities that would connect them professionally with professors and university administrators. Students interested in starting their own business would be actively searching for the kinds of classes and opportunities that would help them to build their entrepreneurial skills. Thus, we propose that:

H5: A student’s intent to start a business is positively associated with their entrepreneurial capabilities.

Methodology

Data Collection and Respondents

We collected data from 927 students at a large Midwestern university in the USA. The survey was implemented across multiple colleges but we focused on the responses of business and engineering students. Student samples are used frequently in entrepreneurship education research
(e.g., Vanevenhoven and Liguori 2013). Detailed demographic characteristics are discussed further in the results.

The survey instrument was developed by the authors and was pretested using two other entrepreneurship-major professors. Appropriate alternation was conducted based on the reviews from the pretest. We specifically designed the questionnaires aimed toward a university audience to measure six aspects of entrepreneurial capabilities and characteristics. We recognized that we could study additional entrepreneurial capabilities and characteristics, but we believed that focusing our study on these six would give us accurate results while still making the survey as succinct as possible. The survey provided situations that college students encounter throughout their educational career using a five-point Likert scale. Three questions were reverse coded to remove any biases and the full questionnaires will be provided upon requests to the authors.

Results

Table 1 represents the demographics of the study respondents. About 55 percent of the survey respondents were from a business department, 18 percent were from an engineering department, and 28 percent were from other departments. Moreover, 15 percent of the respondents were freshmen, 43 percent were sophomores, 21 percent were juniors, and 22 percent were seniors. In terms of gender, survey respondents were 60 percent male and 40 percent were female. As of GPA, 26 percent were between 3.60 and 4.0, 28 percent were in 3.20 to 3.59, 27 percent were in 2.80 to 3.19, 14 percent were in 2.50 to 2.79, and 5 percent were below 2.50. Lastly, about 52 percent of the respondents had an immediate family member who started a business. Analyzing the details of the demographics of our sample, business majors and sophomore students are the majority of the sample. Samples were fairly well split considering the GPA and family entrepreneurship background. Table 2 represents the correlations for the primary study variables.
As a result, correlations among examined variables tended to be small to medium in magnitude (Cohen 1992). Particularly, entrepreneurial capabilities have a significant correlation with entrepreneurial intentions, family background, and GPA. In addition, entrepreneurial characteristics has a significant correlation with gender.

To test hypotheses 1 and 2, t-tests were conducted. Table 3 shows the results of t-tests studying the relationship of majors and entrepreneurial capabilities and characteristics. For the purpose of these hypotheses, we intentionally sought out the responses of business and engineering students. Hence, the responses of the students from other departments (other than business and engineering) were dropped in this particular analysis. As described in table 3, the mean score of entrepreneurial capabilities from students in a business department was significantly lower than that of the students in an engineering department ($t(667) = -2.55, p = .01, d = 0.21$). However, there was no difference between the students from these two departments in terms of mean scores of entrepreneurial characteristics ($t(667) = 0.59, p = .59, d = 0.05$). Therefore, hypotheses 1 and 2 are supported.

To test hypotheses 3 and 4, we conducted homogeneity analysis of variances. In these hypotheses, we examined the relationship between years in the school and entrepreneurial capabilities and characteristics. First, we divided years into four categories (i.e., freshman, sophomore, junior, and senior). From the test of homogeneity of variances, entrepreneurial capabilities ($p = .18$) and characteristics ($p = .74$) were not significant which suggests that variances are not equal. Even the standard deviations for entrepreneurial capabilities were
increasing gradually from freshmen ($sd = 0.52$) to seniors ($sd = 0.61$) which meant that students had larger variances as they advance in their year in school. Moreover, we checked other possibilities of categorizations of students (i.e., lowerclass versus upperclass and freshman versus senior). However, the results were not significant. Therefore, we concluded that there is a little evidence that the variances are equal and the homogeneity of variance assumptions are not met. Therefore, hypothesis 3 is not supported and hypothesis 4 is supported.

We used regression analysis to test hypothesis 5. Table 4 tabulates the results of the regression analysis analyzing the relationship between entrepreneurial intention and entrepreneurial capabilities when controlling for majors, gender, GPA, and family entrepreneurship background. In model 1, we examined only control variables and found that engineering majors ($p = .04$), GPA ($p < 0.001$), and family entrepreneurship background ($p = .01$) were significant predictors. In model 2, the results show that having stronger entrepreneurial intentions is a significant predictor of entrepreneurial capabilities ($p < 0.001$). Therefore, hypothesis 5 is supported.

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**Post-hoc Analysis**

Through our study, we investigated the relationship between several other demographics and entrepreneurial capabilities, characteristics, and intentions. From Table 5, we can identify several interesting results of post-hoc analysis. First, we tested if there were mean differences between students in their lowerclass and students in upperclass using t-test analysis. For entrepreneurial capabilities, the mean score for students in their junior and senior year was higher than the mean score for students in their freshman and sophomore year ($t(925) = -2.22, p = .03$, 

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On the other hand, the mean score for the entrepreneurial characteristics did not differ between these two groups \((t(925) = 0.64, p = .52, d = 0.04)\).

Second, participants with a family entrepreneurship background scored significantly higher on entrepreneurial intentions, when compared to those without a family entrepreneurship background \((t(925) = 6.41, p < .001, d = 0.42)\). Lastly, gender showed very interesting results. Male participants scored higher on entrepreneurial characteristics \((t(925) = -3.95, p < .001, d = 0.27)\), individualism \((t(925) = -5.36, p < .001, d = 0.36)\), and alertness \((t(925) = -2.70, p = .006, d = 0.18)\). On the other hand, females scored higher on locus of control \((t(925) = 2.40, p = .02, d = 0.16)\). There was no gender difference in entrepreneurial capabilities \((t(925) = 0.23, p = .23, d = 0.08)\). While these results are not the focus of this paper, they may spur future work in why and how gender affects entrepreneurial characteristics.

**Discussion**

We sought to understand the relationship between university-based education and entrepreneurial capabilities and characteristics. First, our findings address the role that business and engineering education curriculums wield in influencing the development of entrepreneurial capabilities. More specifically, our results suggest that engineering and business students have different tendencies in attaining higher levels of several entrepreneurial capabilities. We proffer networking skills, proactiveness, and self-confidence as teachable entrepreneurial capabilities. Engineering students displayed higher levels of proactiveness compared to business students, but business students exhibited higher levels of individualism compared to engineering students. We suggest that individualism is not a capability but a characteristic. Students can take these findings
and enroll in additional classes, seminars, and training courses to enhance the potential shortcomings that we have identified. More specifically, based on our findings, business students should focus on enhancing their ability to be proactive. Moreover, engineering and business curriculums can also take these findings and add courses/materials that will improve the respective weaknesses that are found in their students. For example, educational departments can teach their students emotional IQ so they can become specifically aware of their own entrepreneurial capabilities (Goleman 1998).

We also analyzed whether entrepreneurial capabilities exhibited isomorphic trends as students progressed in seniority. While we found that students’ overall entrepreneurial capabilities tend to be further cultivated as they spend more time in school, we did not find isomorphism trends among these students. We posit several explanations for this phenomenon of increased entrepreneurial capabilities during university-based education. For the case of proactiveness, we see that the mean scores gradually increase. As freshmen come in, they are excited and have a rather manageable workload. By senior year, they start working harder to ensure that they graduate with a respectable GPA. As for the case of self-confidence, educational programs try and build this quality by providing opportunities through which students can increase self-confidence such as leadership roles in clubs and classes, avenues for public speaking and chances to interact with industry professionals through career fairs. The trend is clear in that freshmen and sophomores have the least self-confidence, this increase in their junior year, and finally by the time students are seniors they have the highest level of self-confidence. As they spend more time in their college careers and gain more exposure to activities like this, they gain familiarity and are not as uncomfortable performing everyday college tasks that may have been intimidating as freshmen.
They might show confidence by interrupting a lecture to ask a question, or giving a presentation in front of large crowds.

Regarding the influence of education on entrepreneurial characteristics over time, our results suggest that entrepreneurial characteristics tend to be more innate than teachable. It is true that characteristics are able to be developed through diverse circumstances. However, through this research, we suggest that it is not only the education but also family background, gender, and many other possible factors like cultural influences, friends, age, and more that affect the formation of characteristics. Therefore, we would suggest that educational departments focus more so on influencing their students’ entrepreneurial capabilities than their entrepreneurial characteristics. As a result of our study, entrepreneurship educators can start to think about and develop specific pedagogical methods focused more on the capabilities of the students rather than the characteristics.

As we mentioned, entrepreneurial characteristics do not appear to be influenced by the stage of students’ education. For instance, internal locus of control shows high scores in freshmen. A possible explanation for this interesting finding is that the excitement of beginning students’ college careers may lead to this perspective. However, as students progress in their academic careers, they may begin to become aware of other possible situations that are oftentimes out of their control. In regards to individualism, by the time students are juniors, they are likely to have spent a great deal of time doing group work. In this instance, this seems to suggest that the level of time students spend doing work in groups directly relates with their individualistic qualities. From this observation, it appears that as students place more time and effort into working together, they also become more individualistic in their mindset. Future research should examine this interesting finding.
Further, we suggest that students with strong entrepreneurial intentions develop stronger entrepreneurial capabilities. The overarching explanation underlying this logic is that students who are actively pursuing the entrepreneurial dream will become more heavily involved in diverse entrepreneurship-related opportunities provided by their universities, colleges, departments, entrepreneurship centers, and instructors. To promote and help develop their students’ overall entrepreneurial capabilities, faculty and administrators should understand the value of offering diverse opportunities to their students and the need to provide necessary educational programs that may help to hone their students’ capabilities.

The post-hoc analysis also provided several interesting findings. First, there was a significant difference in the entrepreneurial capabilities between upperclass students and lowerclass students. Once again, this could be interpreted as junior and senior students possessing more entrepreneurial capabilities than freshman and sophomore students because of exposure to entrepreneurship-related educational opportunities regardless of their department. Second, entrepreneurial intentions were significantly affected by whether or not students had a family member who had started a business. As Pittaway and Cope (2007) suggest, this confirms the positive influence of family experience on students’ future entrepreneurship intentions (Hatten and Ruhland 1995; Wang and Wong 2004). Third, we found that gender has a differential effect on entrepreneurial capabilities and characteristics. In terms of capabilities, males and females exhibited no significant differences. However, in terms of characteristics, there were significant differences between genders. For instance, females displayed stronger individualism and alertness while males possessed stronger internal locus of control. These additional findings could inspire future research on the gender-related influences on entrepreneurship pedagogy.
While conducting this study, we encountered several limitations. First, since this survey was administered in a specific university, it is possible that these results are not fully generalizable to all students and universities. Second, the measurement tool developed for this study assesses specific capabilities and characteristics, while there may be additional factors that are influenced by entrepreneurial education. Lastly, we assume that upperclassmen are representative of specific isomorphic trends. Future research could use longitudinal measurements and see whether specific students show isomorphic trends as they stay in one department over time.

Conclusion

Our study was primarily designed to measure educational trends related to entrepreneurial capabilities and characteristics displayed by business and engineering students. We focused our study on an analysis of networking skills, proactiveness, and self-confidence as teachable entrepreneurial capabilities; while we also examined more stable entrepreneurial characteristics such as alertness, individualism, and internal locus of control. We offered several possible explanations for differential results that business and engineering students demonstrate in their entrepreneurial capabilities. We also discussed possible strategies that business and engineering students, along with their respective educational departments, can implement to address possible shortcomings in the development of entrepreneurial capabilities. Lastly, we suggested future avenues that could inspire fruitful entrepreneurship education research.

References


Birch, D. G. (1987). Job creation in America: How our smallest companies put the most people to work.


Table 1
Demographics of Respondents

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Respondents</th>
<th>Description</th>
<th>Percentage</th>
</tr>
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<td>Major Department</td>
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<td>Business Majors</td>
<td>54.7</td>
</tr>
<tr>
<td></td>
<td>162</td>
<td>Engineering Majors</td>
<td>17.5</td>
</tr>
<tr>
<td></td>
<td>258</td>
<td>Other Majors</td>
<td>27.8</td>
</tr>
<tr>
<td>Academic Year</td>
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<td>Freshman</td>
<td>14.9</td>
</tr>
<tr>
<td></td>
<td>399</td>
<td>Sophomore</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>191</td>
<td>Junior</td>
<td>20.6</td>
</tr>
<tr>
<td></td>
<td>199</td>
<td>Senior</td>
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<td>39.4</td>
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<td>GPA</td>
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<td>Between 3.60–4.0</td>
<td>25.7</td>
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<td></td>
<td>263</td>
<td>Between 3.20–3.59</td>
<td>28.4</td>
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<td></td>
<td>250</td>
<td>Between 2.80–3.19</td>
<td>27</td>
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<td></td>
<td>129</td>
<td>Between 2.50–2.79</td>
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<td></td>
<td>46</td>
<td>Below 2.50</td>
<td>5</td>
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<td>487</td>
<td>Have an entrepreneur in family</td>
<td>52.5</td>
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<tr>
<td></td>
<td>440</td>
<td>Do not have an entrepreneur in family</td>
<td>47.5</td>
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* N = 927
<table>
<thead>
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<th>Variables</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<tbody>
<tr>
<td>1. Business Major</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
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<td>2. Engineering Major</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>3. Other Majors</td>
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<td>-.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4. Gender</td>
<td>0.39</td>
<td>0.49</td>
<td>-.12*</td>
<td>-.22</td>
<td>.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>5. Year</td>
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<td>0.99</td>
<td>-.32*</td>
<td>.38*</td>
<td>.03</td>
<td>-.10</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>6. Entrepreneurial Intention</td>
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<td>1.12</td>
<td>.01</td>
<td>.02</td>
<td>-.32</td>
<td>-.18</td>
<td>.06</td>
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</tr>
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<td>7. Family Background</td>
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<td>0.50</td>
<td>.04</td>
<td>-.04</td>
<td>-.01</td>
<td>-.05</td>
<td>.03</td>
<td>.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. GPA</td>
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<td>0.45</td>
<td>-.05</td>
<td>.01</td>
<td>.05</td>
<td>.16</td>
<td>-.10</td>
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<td></td>
<td></td>
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<tr>
<td>9. Entrepreneurial Capabilities</td>
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<td>-.04</td>
<td>.09*</td>
<td>-.04</td>
<td>.08</td>
<td>.17</td>
<td>.09</td>
<td>.23</td>
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<td></td>
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<td>10. Entrepreneurial Characteristics</td>
<td>3.66</td>
<td>0.47</td>
<td>-.10*</td>
<td>-.02</td>
<td>.12</td>
<td>.13</td>
<td>-.01</td>
<td>.10</td>
<td>.08</td>
<td>.19</td>
<td></td>
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</tbody>
</table>

a. * p < 0.05; ** p < 0.01
b. Business Major, Engineering Major, Other Majors coded as Yes = 1, No = 0
c. Gender coded as Male = 0, Female = 1
d. Year coded as Freshman = 1, Sophomore = 2, Junior = 3, Senior = 4
e. Family Background coded as Yes = 1, No = 0
Table 3
T-test Results for Hypotheses 1 and 2<sup>a</sup>

<table>
<thead>
<tr>
<th></th>
<th>Business&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Engineering</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Entrepreneurial Capabilities</td>
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<td>0.5</td>
<td>0.10</td>
</tr>
<tr>
<td>Entrepreneurial Characteristics</td>
<td>-0.01</td>
<td>0.4</td>
<td>0.02</td>
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</tbody>
</table>

<sup>a</sup> N = 669. * p < 0.05

<sup>b</sup> Major coded Business = 0, Engineering = 1
### Table 4
Model Results for Hypothesis 5a

<table>
<thead>
<tr>
<th>Dependent Variable = Entrepreneurial Capabilities</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control Variables</strong></td>
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<td></td>
</tr>
<tr>
<td>Business Major</td>
<td>0.00 (0.05)</td>
<td>0.01 (0.05)</td>
</tr>
<tr>
<td>Engineering Major</td>
<td>0.13* (0.06)</td>
<td>0.13* (0.06)</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.07 (0.04)</td>
<td>-0.03 (0.04)</td>
</tr>
<tr>
<td>GPA</td>
<td>0.30*** (0.04)</td>
<td>0.30*** (0.04)</td>
</tr>
<tr>
<td>Family Background</td>
<td>0.10* (0.04)</td>
<td>0.06 (0.04)</td>
</tr>
<tr>
<td><strong>Independent Variable</strong></td>
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<td></td>
</tr>
<tr>
<td>Entrepreneurial Intention</td>
<td></td>
<td>0.08*** (0.02)</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>-1.08*** (0.15)</td>
<td>-1.05*** (0.15)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.07***</td>
<td>0.09***</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.07</td>
<td>0.09</td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td></td>
<td>0.02</td>
</tr>
</tbody>
</table>

a. N = 927. * p < 0.05; ** p < 0.01; *** p < 0.001

Non-standardized coefficients reported. Standard errors in parentheses
Table 5
T-test Results for Post-hoc Analysis

Year and Entrepreneurial Capabilities and Characteristics<sup>a</sup>

<table>
<thead>
<tr>
<th></th>
<th>Lowerclass&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Upperclass</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Entrepreneurial</td>
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<td>0.56</td>
<td>0.05</td>
</tr>
<tr>
<td>Capabilities</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial</td>
<td>0.01</td>
<td>0.46</td>
<td>-0.01</td>
</tr>
<tr>
<td>Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> N = 927. * p < 0.05

b. Year coded Lowerclass = 1, Upperclass = 2

Family Entrepreneurship Background and Entrepreneurial Capabilities and Characteristics<sup>a</sup>

<table>
<thead>
<tr>
<th></th>
<th>Yes&lt;sup&gt;b&lt;/sup&gt;</th>
<th>No</th>
<th>95% CI</th>
</tr>
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<tbody>
<tr>
<td></td>
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<td>Mean</td>
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<tr>
<td>Entrepreneurial</td>
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<td>1.10</td>
<td>-0.24</td>
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<tr>
<td>Intention</td>
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<td></td>
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<sup>a</sup> N = 927. *** p < 0.001

b. Family Background coded as Yes = 1, No = 0
Gender and Entrepreneurial Capabilities and Characteristics

<table>
<thead>
<tr>
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<th>Female</th>
<th>95% CI</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Entrepreneurial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capabilities</td>
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<td>0.61</td>
<td>-0.03</td>
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<tr>
<td>Entrepreneurial</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Characteristics</td>
<td>-0.05</td>
<td>0.47</td>
<td>0.08</td>
</tr>
<tr>
<td>Individualism</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>-0.12</td>
<td>0.90</td>
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<tr>
<td>Locus of Control</td>
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</tr>
<tr>
<td>Alertness</td>
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<td>0.86</td>
<td>0.09</td>
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a. N = 927. * p < 0.05, ** p < 0.01, *** p < 0.001
b. Gender coded as Male = 0, Female = 1
LEADERSHIP AND ENTREPRENEURIAL OUTCOME: IS THERE A CONNECTION?

Theresa Harris

INTRODUCTION

As the economic engine behind the United States, small businesses make up over 99% of employer firms accounting for over 60% of net new private-sector jobs (SBA, 2014). As important as these small businesses are to the economy they continue to fail in large numbers. To date, no theories have been proposed to help explain such high failure rates (Headd, 2010). Identifying what supports the development of successful business outcome may increase the chances of business survival (Phillip, 2011). This research examined small business failure by investigating the impact of leadership on the outcome of the business. The experiences of 10 successful small-business leaders were compared to those of 10 unsuccessful small-business leaders to understand their involvement with leadership during the early stages of the business, particularly during the first five years of development, and any impact of this on business outcome. The intent was to understand how leadership differed between the groups and to identify themes and constructs that could help to explain the high failure rate.

To achieve the goals of the study, it was first necessary to do a comprehensive review of the literature to understand prior research on leadership’s impact on small business outcome. Understanding this impact may lead to better decision-making and may increase the chances of
business success. (Philip, 2011). This knowledge is also necessary because organizations rely heavily on the leadership within the firm to be successful (Enalls-Fenner, 2015; Frazier, 2013; Germano, 2010; Kalshoven, Den Hartog, & De Hoogh, 2013; Ruggieri & Abbate, 2013; Shin, Park, & Lim, 2013). To provide clarity, the study examined the central research question of:
What are the experiences of small business leaders?

**LITERATURE REVIEW**

Being relatively very small in nature, small-business organizations have fewer employees which puts the small-business owner in more direct contact with their employees (Beaver & Jennings, 2005). This also means that these leaders are in a unique position of leadership and influence given their proximity to the activities being performed and the employee(s) performing them (Beaver & Jennings, 1996). Leadership then plays an increasingly important role in the outcome of the organization (McCrimmon, 2010). Accordingly, small business leaders must engage and empower their employees to achieve organizational objectives which drives the organization to become successful (Kalshoven et al., 2013; Kammeyer-Mueller, Wanberg, Rubenstein, & Song, 2013; McKinney, 2009; Shin, Park & Lim, 2013). As new challenges and opportunities arise, the organization’s leadership must be able to address these challenges while grasping the opportunities. Failing to do this may put the organization at risk of failing (Lester, 2011). Small businesses aiming to achieve success in the 21st century must then make leadership a priority while also adapting to meet the changing needs of the global economy (Inandi, Tunc, & Gilic, 2013).

Beaver and Jennings (1996) argued that to have a successful firm, the leader must plan and lead the organization against various internal and external challenges. Other researchers noted that the primary ingredient to ensure success and a key defense against failure is the
leadership abilities of the owner (Beaver & Jennings, 1996; Gray, 1998; Thompson & Gray, 1999).

Notwithstanding, small businesses often have limited internal capabilities and often fail to implement leadership practices such as formal policies and procedures, that may help them succeed (Kotey, 2005). Operational decisions are usually based on how leaders react to change issues as they arise as leadership requires continuous improvement to effectively deal with the changing business environment (Lester, Parnell, & Carraher, 2003). It also requires good understanding of the factors that are critical for effective leadership and essential for business success (Theng & Boon, 1996). Organizational growth and stability may therefore be achieved if small-business leaders develop specific skills needed for effective leadership (Graetz, 2000). Additionally, leadership can be instrumental in controlling other internal factors cited in the literature as causes of small-business failure. Among them, financial control, strategic planning, and organizational control (Bruno & Leidecker, 1998; Theng & Boon, 1996). Effective leadership then is essential to survival and sustainable operations and is the main reason a business succeeds or fails (Gaskill, Van Auken, & Manning, 1993). Leadership includes the development and implementation of business strategies and therefore, has control over whether strategies are effective or ineffective and whether the business succeeds or fails (O’Regan, Ghobadian, & Sims, 2005).

Collins (2005) agreed that leadership affects the survival of small-business organizations as effective leadership impacts all aspects of the business operations and leads to more successful organizations (Keasey & Watson, 1993). The importance of good leadership is underscored by how financial institutions approach lending often taking into consideration the business’s track record to understand the leadership capabilities of the small-business owner before rendering any
kind of financial assistance. This implies that effective leadership impacts all aspects of the business operations and leads to more successful organizations (Ekanem, 2010; Fuller-Love, 2006; Gaskill, et al., 1993; Keasey & Watson, 1993; O’Regan, Ghobadian & Sims, 2005; Svensson & Wood, 2006; Valdiserri & Wilson, 2010). While resources may indeed be limited in the small business, competent small-business leaders with good leadership practices are much more likely to exercise effective leadership including sound financial controls and practices that are aligned with the firm’s reality.

Notwithstanding, leading a small business means navigating many challenges and overcoming many obstacles. Small-business leaders who engage their teams and accomplish results through others will be more successful (Siemens, 2010; Pless & Maak, 2009). Despite the many challenges these leaders face, successful leaders will use their experiences with both business success and failure as future opportunities arise (Elenurm & Oper, 2008; Madsen & Desai, 2010). On the other hand, and despite research studies suggesting the contrary, many small-business leaders continue to be characterized as lacking leadership skills and are known for autocratic leadership, abuse of power, and limited objectives (Beaver, 2003; Beaver & Jennings, 2005; Keasey & Watson, 1993). These and other such tendencies may be putting small organizations at greater risk of failure.

The literature review affirmed that leadership plays a significant role in the development of the small firm and demonstrates that it is important to further examine the role of leadership within the small-business context as a possible option for underperformance and ultimately enterprise failure (Beaver & Jennings, 1996; Collins, 2005; Fuller-Love, 2006; Rasheed, 2005). A leader’s job is to create conditions necessary for the organization to be successful (Hughes, Ginnett, & Curphy, 1999) in the first place. Leadership also entails setting the organization’s
directions and finding the resources to get things accomplished (Kotter 2012) and is perhaps the most important role of the small-business owner to guarantee the future of the organization. As the head of the organization, the small-business leader is positioned in a critical role to combat any decline in organizational performance. However, the literature also shows that the leader is more likely to abuse the “consequences of absolute power” (Beaver & Jennings, 1996, p. 157) emanating from majority or sole ownership and ignore the importance of leadership. This abuse of power may lead to organizational decline (Beaver, 2003; Beaver & Jennings, 2005; Keasey & Watson, 1993; Storey, 1994) as evidenced by a growing number of researchers who have attributed small-business failure to leadership shortcomings by concluding that leadership is a core ingredient to business success (Beaver & Jennings, 1996; Chavan, 2005; Fuller-Love, 2006; Harris & Gibson, 2006; Harris, Grubb and Herbert, 2005; McCartan-Quinn & Carson, 2003; Valdiserri & Wilson, 2010; Whittington & Evans, 2005), and a key ingredient necessary for development of the small organization (Burstein, Sohal, Zyngier, & Sohal, 2010; Lu, 2004). Notwithstanding, small-business leaders usually have their own perception of what constitutes small-business success (Weinzimmer & Manmadhan, 2009), such perception must not be ignored, hence the need for more in-depth qualitative analysis such as the present study.

Notwithstanding, this review of the literature affirmed that effective leadership is needed to get the organization through the initial years, where some researchers have argued, nine out of 10 small businesses are expected to fail before their third anniversary. (Headd, 2003; Valdiserri & Wilson, 2010). This implies that the chances to avoid failure are greater as the small business matures; specifically, after it has passed the 2-year milestone. The chances of failure are therefore greatest within the first 2 years (Cressy, 2006; Headd, 2003). As the small organization changes during these early years the leadership required to successfully guide the organization
must also change (Beaver, 2003; Gaskill, et al, 1993). However, not much is known about the leadership in these small organizations hence the focus of this study.

**METHODOLOGY**

The research design is important to data collection and analysis because it strengthens the study (Wright & Craig, 2011). The design connects the research by exploring the research questions and then drawing appropriate conclusions (Leedy & Ormrod, 2013). This study used a phenomenological design to understand the experiences of the small business owners who participated in the study. Phenomenology helps to understand common experiences shared by several individuals (Moustakas, 1994) and provides an understanding of the phenomenon by describing how a better understanding may assist individuals, organizations, or the society with the challenges being experienced (Leedy & Ormrod, 2013). Using a phenomenological design encouraged participants to conceptualize ideas while pulling from their lived experiences (Moustakas, 1994). The issue under consideration was the high failure rate of small-business organizations within the first five years of development and the impact of leadership on this outcome. According to Creswell (2013), a phenomenological study “describes the common meaning for several individuals of their lived experiences of a concept or a phenomenon” (p. 76). Phenomenology “describes what participants have in common as they experience a phenomenon” (p. 76). A qualitative phenomenological design provided the breadth and depth needed to fully understand the essence of the experience of the small-business leaders to develop a composite description of what they experienced and how they experienced it (Creswell, 2013; Moustakas, 1994).

The research study population consisted of a defined group of individuals all possessing similar characteristics relevant to the research (Sokolowski, 2008). This consisted of 20 small-
business leaders within the State of California who experienced the phenomenon of small business failure. A small business leader is the founding member or current or past owner of a business enterprise with at least one but no more than 500 employees. Dworkin (2012) suggested that participant numbers in qualitative studies should range between five and 30 to get to a point where data redundancy may be achieved. Using a total of 20 participants achieved this objective. Denzin and Lincoln (2011) noted that the lived experiences of five to 20 participants suffice to provide new knowledge on the subject studied. Each participant in the study provided a variety of concepts and large samples were not necessary in generating significant data (Sokolowski, 2008). Mason (2010) argued that qualitative research uses a much smaller sample size than quantitative research, and other researchers such as Cronin-Gilmore (2012) agreed that 20 participants for qualitative research is an appropriate sample size along with semi-structured interview questions (Bahtsevani, Willman, Stoltz, & Ostman, 2010; Philip, 2011). The sample size of 20 participants was appropriate for this study. The 20 small-business leaders had direct information on the leadership within small-business organizations during early entrepreneurial development, as they started and or led the business during the early formative years.

Data Collection

Interviews were the primary source of data collection. Interviews lasted approximately 45 to 60 minutes in duration and were conducted in person, by Skype or by phone depending on availability and location of the participant. An interview template, containing 12 group specific interview questions was used to ensure consistency in the interview process. Purposive sampling and snowball sampling techniques were used to identify the 20 participants. Purposive sampling allowed the researcher to select participants with the rich data necessary to inform the study.
Snowball sampling, in which participants in the study provide recommendations on additional participants to further enrich the study (Richards & Morse, 2013) was also attempted but proved ineffective. Snowball sampling can be effective when the study population is hidden or difficult to access such as in the case of homelessness, alcoholism, sex workers, or in this case, unsuccessful small-business leaders who may be unwilling to discuss their experiences. However, this approach did not yield any participants for this study.

**Coding the Data for Analysis**

Data analysis involved first collecting the data from the interviews then coding, analyzing, and reporting the data obtained from the study participants. Coding included Saldana’s (2011) coding methods which involves: (a) initial coding, (b) axial coding, and (c) theoretical coding. The initial coding consisted of making large quantities of data smaller by breaking down large quantities of data into smaller more manageable sections and coding all expressions from the participants relevant to the research questions. This initial coding was the starting point and provided guidance for the rest of the study. The data were placed into two groups and then each group was coded. Data were arranged into these groups based on themes and relationships. Themes and patterns that emerge were coded (Lasch et al., 2010; Sokolowski, 2008) and the data coding adjusted as needed. Central themes were identified, and these themes were used to place fragmented data (Tan, 2010).

Axial coding extended the analysis completed under the initial coding through which patterns and themes were identified and were used to link data and to identify additional patterns and reassemble any fragmented data (Kikooma, 2010). Categories and subcategories of data were also linked together to form themes (Saldana, 2011). The final step was theoretical coding,
which involved placing the existing categories into one central category. Theoretical coding was done by identifying relationships among the categories so that the categories could be integrated into one central category. Emerging themes were compared to themes in peer-reviewed literature and then incorporated into the research findings (Cope, 2010). The researcher then analyzed and interpreted the data to draw conclusions and answer the research question.

**Data Analysis**

Data analysis was conducted utilizing a modified van Kaam approach, which consists of the following seven steps: listing and preliminary grouping, reduction and elimination, clustering and thematizing the invariant constituents, final identification of the invariant constituents, individual textural description of the experience, individual structural description of the experience, textural-structural description of the meanings and essences of the experiences.

**Reliability and Validity**

Reliability and validity are important in research studies (Sokolowski, 2008) and are further enhanced by consistency and stability in the process (Leedy & Ormrod, 2013). Threats must be minimized so that accurate conclusions can be made about the data, and researchers need to ensure that the measures they use are reliable. Reliability of the study affects the validity (Creswell, 2013). One threat to internal validity is the selection of study participants. Selection of participants can pose a threat affecting the study’s outcome. Random selection of study participants can help to minimize this risk however for this study, purposeful sampling was used to identify information-rich participants, reduce the threat to internal validity, and ensure that the study findings remained accurate.
Validity of the data refers to the credibility and trustworthiness of the data (Lasch et al., 2010). It ensures that conclusions and interpretations are accurate and representative of the phenomenon (Frost et al., 2011). Validity is when a researcher can make trustworthy interpretations about the sample data (Cooper and Schindler, 2003; Lasch et al., 2010). To ensure validity, multiple sources of data were used in the form of triangulation. Triangulation helps to strengthen and ensure reliability of qualitative data (Ali & Yusof, 2011; Moustakas, 1994) and further supported reliability and validity of the study findings.

**FINDINGS**

The study aimed to provide answer to the central research question of: What are the experiences of small business leaders? There were two sample groups comprising of unsuccessful businesses in Group 1, or businesses that closed prior to year 5 of operation; and successful businesses in Group 2, or businesses with ongoing operations for 10 years or more. Participants in both groups had direct experience with leadership and the phenomenon of failure. Twelve interview questions provided the basis for insights into the overarching research question. The groups shared six interview questions in common, which helped to understand their collective experiences with business failure as well as where they differed. The remaining six questions were unique to the specific group to provide a more detailed analysis of leadership within the group.

**Clustering Major Themes and Identification of Invariant Constituents**

From the review of invariant constituents, common patterns about leadership in small-business organizations emerged that could help to explain the success or failure of the organization. Those with common themes were grouped or clustered, which allowed for the
development and identification of core themes that describe the participants’ experiences (Moustakas, 1994) with the phenomenon of failure. The completed analysis generated several core themes. Final identification of invariant constituents and corresponding themes were selected if a minimum of 20% of participants’ responses aligned, and based on these additional factors: (a) were they expressly stated in the interview transcript, (b) if not expressly stated, are they compatible? Invariant constituents that were not expressly stated or compatible were deleted (Moustakas, 1994). The following section presents the emergent themes associated with the research question and responses from participants that aligned with the theme. Textural descriptions of the experience were added along with the participant’s number.

**Emergent Themes**

The study addressed the high failure rate of small-business organizations during the first five years of development. One central research question guided the study from which 12 core themes were developed. The themes are presented in Table 1, in random order, along with participant alignment with the theme and textural description from the interview transcripts.

<table>
<thead>
<tr>
<th>Emergent Themes</th>
<th>Participant Alignment with Themes (%)</th>
<th>Textural Description from Interview Transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small-business failure can be caused from the inability to execute</td>
<td>25</td>
<td>Failure to execute will kill you; So much of what works and doesn’t work has to do with ability to execute; Everyone can have an idea, but it is what you do with the idea is the key to success.</td>
</tr>
<tr>
<td>Small Business Failure Can Be Caused by Lack of Direction, Focus, and the Inability to Change</td>
<td>25</td>
<td>Leaders need to have a strong stomach, a lot of resolve, clear vision of what they want to do, but also the flexibility to change that vision to.</td>
</tr>
</tbody>
</table>

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| Small Business Failure Can Be Caused by Lack of Perseverance, Persistence, and Patience | 20 | Failure in small companies is always the biggest challenge; many companies fail because they don’t have the ability or capability or endurance to bring a product to the right target group. |
| Small Business Failure Can Be Caused by Lack of Trust | 25 | As the leader, you are the ambassador of your business. Trust is gained over time and lost in no time and it is one thing you cannot afford to mess up. This makes going the extra mile the norm. |
| Small Business Failure Can Be Caused by Poor Listening and Communication Skills | 40 | You need to reach out to other people who have done it and listen to them; I’ve talked to a lot of first-time entrepreneurs who won’t take advice, think they know it all and that’s a bad thing; You need to hear everybody out and listen to people who have been through it before. |
| Small Business Failure Can Be Caused by Selfishness, Greed, and Ego | 30 | Put ego aside and get the best people for the job and empower them, that’s why you hired them and that’s why you want to keep them; Don’t try to be something you’re not; Your number one goal as a small-business leader is to make yourself irrelevant. |
| Small Business Failure Can Be Caused by Lack of Relationship Building Skills and Poor Leader-Follower Interaction | 60 | You are acting as the captain of the ship and as such have to make sure people are motivated and engaged. Do not prescribe solutions, build relations and give employees ownership, give them a sense of what it takes to build the product or company together. |
| Small Business Failure Can Be Caused by Other Factors Besides Leadership | 25 | I’ve done start-ups where culture was fantastic and leadership and everything, but we couldn’t raise money so the company couldn’t go forward; Leadership is one element but leadership alone would not result in a successful business. |
| Small Business Failure Can Be Caused by the Inability to Motivate Employees | 70 | As the leaders, you are the ambassador of your business; Hiring is the most important role; Hire for people that can do the job, want to do the job, and would enjoy being part of the business then motivate them |
| Small Business Failure Can Be Caused by Lack of Vision and Strategy | 30 | Have a clear vision of what you want but the flexibility to change that vision to match what is happening in the marketplace; Vision and strategy are very important |
| Small Business Failure Can Be Caused by Failure to Ensure Customer Satisfaction | 20 | The success of a business lies in how fast you get feedback from your customers and bring it basically back into a product; If you don’t have a process in place flexible enough to get what the customer want; if the leader is not customer centric it can have an impact on the business |
| Small Business Failure Can Be Caused by Poor Understanding of and Lack of Attention to Leadership | 65 | Leadership is extremely important in thinking about anything that you as a teammate is not thinking about; We trust the leader to be responsible for the welfare of the company |

**Table 1: Emergent Themes**

**Predominant Causes of Small Business Failure**

The predominant causes of small business failure were inability to motivate employees, poor understanding and lack of attention to leadership, and lack of relationship building skills which are all in themselves leadership challenges. A majority of failures could directly be
attributed to leadership shortfall which is in direct conflict with the finding that small business leaders perceived leadership to be of no value and something to think about only in times of crisis. However, 65% of study participants perceived a direct link between leadership and their small-business failure.

**Essence of the Experience**

Perceptions of small-business leaders and the description of their experiences were centered on the leaders’ ability to motivate employees to achieve common goals, to execute, to listen, and communicate, as well as their ability to remain focused and adaptable to changing circumstances. Inability to motivate received the highest score in terms of alignment with 70% of participants describing their experiences as being impacted by the inability to motivate their employees to reach common goals. Participants described their experiences using phrases that emphasized the need to get teammates involved in company activities. As the founder, small business leaders are credited with creating the business but they cannot do it all themselves. They also need to make sure that everyone is moving in the right direction.

Overall, small-business leaders described their experiences as a very difficult and painful learning experience and suggested that the causes of failure are varied and diverse, however leadership plays an important role in the process. Participants encountered common difficulties, including a lack of focus and the inability to keep the team engaged and productive. An interesting dynamic regarding leadership was noted in that while leadership is considered important and necessary for the success of the small firm, it is often perceived to be of little value by small business owners.
CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS

The recommendations contained in this section are guided by the analysis of the lived experiences of the 20 small-business leaders who participated in this study. All 20 participants experienced the phenomenon of failure, and as such, were able to guide the study. The perceived experiences of the business leaders and the emergent themes guided the recommendations. The data suggest that for many small-business leaders, leadership is more task specific and short term and centered around building products or mastering a service, rather than on building a more sustainable organization of the future. Teams are usually made up of friends or associates who were around at the time of start-up and usually not planned. This is because at the time of start-up, the founder may have been working with a few friends and the people on hand often form the initial team. These individuals may or may not be prepared for the roles they are thrust into and this may be detrimental to the firm. People are also expected to wear multiple hats and expected to turn fast and adapt quickly as a result of the level of change and uncertainty present in small businesses. This makes communication and relationship building skills extremely important and the need to address communication challenges appropriately even more critical.

It is very important that small business leaders improve their understanding of the role and importance of leadership in developing successful firms. This can be accomplished through training and development with emphasis placed on the early entrepreneurial process so founders or business owners are better prepared to face the demands and uncertainties of the early formative years as the business changes, and when concerns such as relationship building skills, trust, listening and communication skills, patience and perseverance are of critical importance. To face this challenge, it is necessary to create awareness before business startup and early during the entrepreneurial process to help leaders develop the attitudes and mindsets needed to
embrace leadership as a skillset, which is required to propel the organization forward successfully. The goal is to make leadership part of the early discussions when envisioning, starting, and operating an entrepreneurial or small-business organization. This could be done as part of a startup accelerator program, as part of the requirements to participate in certain small business government programs, to secure certain small-business loans, or as part of the outreach services offered by small business development centers and similar organizations. Educational institutions, recognized for their capacity to train and develop the workforce, are in a unique position to effect change by helping small business leaders to transform their thinking to one that accepts and embraces leadership and its role in small business development.

In addition, government agencies often provide training resources to help small-business owners succeed and there is an opportunity for these agencies to refocus their effort to emphasize leadership as a major contributing factor in small-business development. However, the training should be specific to the small-business community and developed for the small-business community. Small-business organizations are unique in the way they operate, therefore models used to develop leaders in large businesses will not be effective in the small-business environment. Beaver and Jennings (1996) emphasized this point by stating that leadership within small business organizations is unique and has no bearing on leadership within larger organizations that have been studied overwhelmingly and have produced various models, prescriptions, and constructs that are widely used today when examining large and small organizations.

It is this researcher’s belief that the current approach to developing small-business leaders is flawed and continues to narrowly focus on the concept of management with regards to planning, organizing, coordinating, and controlling, however, with our current service-based
economy this approach is inadequate and ineffective in helping to foster the leadership skills and mindset necessary to successfully navigate the challenges associated with early development. Kotter (2012) argued that management is emphasized because it is easier than leadership to explain and teach and because it is so institutionalized in organizational cultures that it “discourages employees from learning how to lead” (p. 30). While management skills and functions may be needed in organizations of any size, a new approach to small business development is needed to help small businesses increase their chances of survival in a changing global environment.

As the economy becomes more service based, leadership and relationship building skills are becoming more important for business success. This shifting landscape reinforces the need for a new approach to the training and development of the small-business leader. One that not only distinguishes leadership from management but also places emphasis on the problem areas identified in this study: (a) leading people and processes; (b) executing, in accordance with the organization’s mission, vision, and values; (c) developing positive leader-follower relationships and cultures; and (d) achieving results by motivating and inspiring employees toward organizational objectives. Lester, Parnell & Carraher. (2003) acknowledged that leadership requires continuous improvement, both personal improvements as well as skills development, to deal with the changing and challenging business environment.

Training must be an ongoing effort but must start very early in the entrepreneurial process and focused on improving the mindset of small business leaders to help them understand the connections between effective leadership and business outcome. By improving the mindset and capacity of small-business owners to lead, execute, develop others, and achieve results in line with organizational objectives, small-business organizations may be in a better position to
improve performance and achieve business continuity for more than five years. Similar empirical findings include Simmons (2007) who found that small business failure can be caused by lack of perseverance, by lack of attention to customers, and by leadership shortfall as “leadership and leading people have a unique role in small businesses” (p. 85). Sikahala (2011) found lack of leadership and other business skills among the reasons small microbusinesses fail and Holloway (2013) in seeking to understand leadership in small-business organizations found that among the skills and practices required to ensure success, collaboration and communication, people skills and motivation, vision alignment, education, training and leading by example, are practices required for business continuity.

**Limitations and Future Research**

The scope of the study was narrowed to focus exclusively on small businesses within the State of California and interpretation is limited to the experiences and perceptions of small-business leaders who participated in the study. The scope was also narrowed to look at the leadership and the phenomenon of failure rather than success. Narrowing the scope allowed for the completion of the study in the time allotted but limited the ability to acquire a much broader understanding of the phenomenon investigated. The study is also limited by researcher biases, values, and assumptions. However, bracketing allowed the researcher to focus on the experiences of the study participants and not engage prior knowledge (Creswell, 2013).

Future studies may continue to conduct qualitative research to gain more understanding of leadership in the small business context. These studies should not only examine what small business owners are experiencing but should also look at how and why they are experiencing the phenomenon. Findings from this study may be compared to results obtained in other areas to
understand similarities or differences that may lead to further improvements. In addition, there is an opportunity for future studies to explore theories that may help to explain the high failure rate within the small business community. Studies using a grounded theory design may help to provide insights and understanding. Opportunities also exist to examine how small business records are being collected and maintained and any public/private partnership that may help to provide improvements. Finally, future studies may examine SBA’s role in developing small business owners for leadership in the 21st century and beyond.

**Summary**

The inability to maintain lower failure rates of small-business organizations within the first five years of development warranted evidence-based research, thus this investigation. The results of the study indicate the need for a shift in the attitudes and thought processes of small business leaders regarding leadership and its role in developing successful firms. The current qualitative phenomenological investigation involved exploring the phenomenon of small-business failure to understand leadership during the early formative years of the business and the impact on business outcome. This understanding is necessary because small-business organizations play an important role in the U.S. economy (Morrison, Breen, & Ali, 2003). The literature review helped to provide insights into the role of leadership in developing successful firms and highlighted the critical role leadership plays in this process (Enalls-Fenner, 2015; Kalshoven et al., 2013; McCrimmon, 2010).

From the data analysis emerged 12 themes resulting from participants’ experiences with small-business failure suggesting that failure can be caused by a variety of concerns involving leadership. The data also suggest that failure can be caused by other factors besides leadership.
The results indicate the need for small-business leaders to develop the mindset to help them understand the critical role of leadership before, during, and after start-up and in particular, to guide them during the first five years of development. Strong leadership is necessary to execute the vision, motivate and inspire employees, build relationships, and provide a platform for employees to succeed. Small business owners must develop a leadership mindset to help them address the leadership challenges identified in this study and to afford them a fighting chance at business continuity beyond five years.

Making that transition, the paradigm shift required to develop such a mindset, may help to open up new areas for growth and development within the small organization. Small-business leaders who are unwilling to develop that mindset are unlikely to change the course of their business or improve the outcome of their organizations. Progress in this area is also unlikely without the tools and frameworks needed to be successful. Therefore, as educators, researchers, and practitioners, we all have a very important role to play in helping small-business leaders improve their understanding of leadership and its role in developing successful young firms. Until that shift in paradigm is achieved, and until small-business leaders can reflect on their thinking and make the needed adjustments, it is unlikely that they will be influencing or changing their outcomes.

**IMPLICATIONS FOR ENTREPRENEURSHIP EDUCATION**

The economic and social development of many nations depend on a strong and robust small business community therefore understanding the factors that impact their performance and survival is critical. The present study revealed that the predominant causes of small business failure were inability to motivate employees, poor understanding and lack of attention to leadership, and lack of relationship building skills which are all in themselves leadership
challenges. The great majority of failures could directly be attributed to leadership shortfall which is in direct conflict with the finding that leadership was not considered a priority for small business leaders participating in the study. Study participants noted that they did not think about leadership during the startup phase; priority for them instead was figuring out what was important to move their companies forward and leadership was simply not part of this process. One participant noted that he did not consider himself a business leader but instead considered himself a founder and as such, founders were not really setting their goals on becoming good leaders but rather on bringing their product or service to market. Actions towards achieving those objectives mattered, not leadership, which they considered to be of no value, putting this in direct contrast with the predominant causes of failure gleaned from this study. This discovery is also in conflict with another finding where 65% of study participants perceived a direct link to leadership and their small-business failure.

These results represent a unique opportunity for educators, researchers and practitioners interested in small business development. Since colleges and universities are increasingly being recognized by policymakers as vital to providing essential business training and access to education, these institutions can play a key role in helping small business owners develop and grow their leadership mindset. While essential, access to education alone may not be sufficient (Wilson, Kickul & Marlino, 2007), it must also be the right education. Researchers such as Morris, Webb, Fu and Singhal (2013) noted the failure of scholars and researchers in distinguishing between business and entrepreneurial skills while citing research by Barringer and Ireland (2011) contending that academic and educational programs in entrepreneurship often emphasize competence in general business areas that focus on the functional areas of the business such as selling, producing and bookkeeping. As important as the skills are to the daily
operation of the business, they may not meet the unique skill requirements that are essential during the early developmental phase of the business. Specifically, the skills being emphasized may not meet those required to effectively lead people to achieve organizational objectives.

Leadership is an important skillset required to effectively deal with challenges the small business encounters during the early entrepreneurial stages. The first few years are crucial to business survival given that only approximately 50% of small ventures starting today will survive for five or more years, according to data from the Small Business Administration (SBA, 2012). This emphasizes the importance of focused leadership training geared towards motivating and empowering employees, and relationship building skills. This is also in line with researchers such as Valdiserri and Wilson (2010) who found a connection between leadership, profitability and small business success; McKinney (2009) who found positive leader-follower relationships and the need for leadership training as a requirement during the first four years of operation, and Simmons (2007) who found leadership shortfall among the key reasons for small business failure.

Despite the growing body of research connecting leadership and small business outcome, institutions responsible for small business development continue to focus almost exclusively on functional operations and fail to recognize the transition to a more service-based economy where leadership and relationship building skills are of critical importance. Educators are in a unique position to change this dynamic and prepare current and future entrepreneurs and small business owners to better traverse the difficulties associated with early development. Designing a complete program that takes into consideration the changing entrepreneurial landscape and one that emphasizes the skillset required for navigating the challenges of early development should be a top priority for educators. In this regard, entrepreneurs may benefit from programs which
help to develop and grow their leadership mindset. Such a mindset may help the heroic lone entrepreneur transition effectively to forming and working with entrepreneurial teams, which may positively impact business outcome.

REFERENCES


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ECOSYSTEM INTERRUPTED: HOW WASTE, CULTURE, AND CORRUPTION ARE STIFLING ECONOMIC DEVELOPMENT AND ENTREPRENEURSHIP IN EASTERN KENTUCKY

David Snow and Justin Prater

Abstract

Entrepreneurship Ecosystem studies abound, as this is currently a popular topic. It is important to understand the elements necessary to facilitate entrepreneurship and enhance the standard of living in communities. However, this research examines the phenomenon from the perspective of why it is so difficult for Eastern Kentucky to develop an effective entrepreneurship ecosystem, despite all of the efforts and resources brought to bear over the past fifty years. Statistics and peer-reviewed research were used to establish the results. The findings indicate corruption and a non-entrepreneurial culture are major factors, with deficiencies in all the domains of an entrepreneurship ecosystem.

Implications for Entrepreneurship Education

Development of an entrepreneurship ecosystem is seen as a cost-effective strategy for economic development (Isenberg, 2011a). Policies aimed at increasing entrepreneurship, specifically opportunity entrepreneurship are encouraged (Stephens et al., 2013). Attempts are underway throughout Eastern Kentucky. A multitude of organizations believing in entrepreneurship and small business ownership are available to offer assistance, some are proactive, some are rather passive. Nonetheless, there is not a critical mass of residents wanting to start their own ventures. And, many of those who do are engaged in small and medium enterprise (SME) entrepreneurship, not innovation-driven entrepreneurship (IDE) (Aulet, 2013; Chrisman, et al., 2002). Both are needed.
According to Huggins and Williams (2011), regions with entrepreneurially supportive institutions and cultures may attract investment, skills and talent. Culture shapes what individuals see as opportunities. However, changing a culture to one more supportive of entrepreneurship is difficult (Isenberg, 2010). This is where education must play a more prominent role in the region, from K-12 education through graduate school. Many of the high schools teach business and economics, but none teach entrepreneurship (Snow & Prater, 2017). One local high school, Pikeville Independent, has even eliminated its business program. It also must be understood that business education and entrepreneurship education are not synonymous (Morris & Kaplan, 2014; Morris et al., 2013). Entrepreneurial experience contributes to the development of human capital and enhances skills and abilities which positively impact future career opportunities (Burton, Sorensen, & Dobrev, 2016; Parker, 2013). Entrepreneurship education affects students’ entrepreneurial attitudes, entrepreneurial competencies, and desire to become entrepreneurs (Abu Talib et al., 2012; Morris et al., 2013). It has also been proven entrepreneurship positively impacts economic development, even in rural areas (Ghio et al., 2015; Mojica, Gebremedhim, T., & Schaeffer, 2010) and is a powerful driver of job growth (Decker et al., 2014).

At the college level, Morehead State University and more importantly, the University of Pikeville (UPIKE) must make an earnest commitment and investment into creating entrepreneurship programs, providing support to the region for entrepreneurial efforts, and becoming a vocal champion at the forefront of leading a cultural change to build an entrepreneurial ecosystem. UPIKE has developed professional schools of optometry and rural medicine, but the majority of those students are from outside the region and will leave the region after graduation. They will return to their hometowns or to more populated areas to build practices or work in hospitals. Therefore, consideration for the future prosperity of the Central
Appalachian region should also take priority. At the K-12 level, these schools need to incorporate entrepreneurship education into the daily curriculum. State government may need to intercede to make this mandatory. Forty two states claim entrepreneurship is required (JA, 2015). But, if you examine actual documents for the state standards, many states are requiring business or economics education which is not the same as entrepreneurship curriculum. For example, the Kentucky Department of Education requires economics in the category of social studies, but makes no mention of entrepreneurship in the standards (KDE, 2015).

Instead of a shotgun approach spending millions of dollars on disparate activities throughout Appalachia without a significant impact, government funding and private investment must focus on industry diversification and developing “clusters of innovation” within the region (Engel, 2015; Gebremariam et al., 2011; Stephens et al., 2013). Instead of the traditional territorialism pitting county against county and a city against the county within it resides, a regional perspective and attitude must emerge. The understanding of “a rising tide lifts all boats” is a phrase befitting of the stance needed in this situation. Entrepreneurial communities must arise by geographically concentrating public resources. According to Isenberg (2011a), to disperse resources equitably is self-defeating. Therefore, areas in Eastern Kentucky must develop ecosystems facilitated by the resources in the community and by growing their own, to create a unique entrepreneurship network. They should not attempt to duplicate Silicon Valley. One area cannot duplicate another’s ecosystem (Isenberg, 2011a). The emphasis of the local, state, and federal governments should be the encouragement, through policy and funding, of the development of these clusters by incentivizing innovative businesses to locate into the region while simultaneously changing the culture through entrepreneurship education to one conducive to entrepreneurship and enhancing the skills of the inhabitants. Changing the culture will take
time, but a comprehensive, collaborative effort for entrepreneurship education at all levels and across communities is prescribed to improve the attitudes and skills of inhabitants. The impact of the education will be a transformed economy for a poverty-stricken region. This will reduce the brain drain in the region by inculcating the attitude that instead of leaving the area to seek opportunity, people can create their own opportunities in their hometowns. Programs targeting poverty and educating low-income individuals are already underway in other areas and making an impact (Morris, 2017).

**Introduction**

Much has been written about entrepreneurial ecosystem development and the components comprising them (Acs et al., 2017; Auerswald & Lokesh, 2017; Regele & Neck, 2012). Whether on the local, regional, or national level, frameworks have been structured to study vibrant ecosystems and guidelines created for how to foster these entrepreneurship networks (Acs et al., 2014; Isenberg, 2011b; Neumeyer, 2016; Spigel, 2017). It is important to understand how best to support and facilitate entrepreneurship because it is integral in the efforts of innovation and economic development (Acs & Audretsch, 2003; Morris, Neumeyer, & Kuratko, 2015). However, it is difficult to find a body of research concerning the difficulties in developing an entrepreneurial ecosystem. More specifically, what actions and attitudes are actually detrimental to efforts to support entrepreneurship and its contribution to economic development.

This exploratory research examined an area of the United States where vast sums of financial aid have been spent over several decades in attempts to reduce the high levels of poverty and revitalize the region. Since 1965 when the Appalachian Regional Commission was founded, Eastern Kentucky has received 9 billion dollars in financial aid. However, this region remains behind in economic development, educational attainment, wages, employment levels, and standard of living (Baumann, 2006; Franklin, 1981; Gebremariam et al., 2011; Hansen &
Yukhin, 1970; Jung et al., 2015). In analyzing the current economic and entrepreneurial landscape of Eastern Kentucky, Lambsdorff’s (2006) model for the causes of corruption was used to establish conditions negatively affecting the advancement of an ecosystem and Isenberg’s (2011a) Domains of the Entrepreneurship Ecosystem was used to establish the issues within each major category and how these issues are inhibiting ecosystem progress. Statistics and peer-reviewed research were used to establish the results

**Corruption**

Research has shown corruption is more prevalent in poor countries than in rich countries (Bai et al., 2013). With the use of vertical theory borrowing, it seems prudent to posit poor regions may be more corrupt than rich regions (Fawcett et al., 2014; Whetten et al., 2009). There is research to support distinguishing one region from another in regards to the level of corruption. It has been established southern states in the US are more corrupt than the other states (Goel & Nelson, 2011). Depending upon the measures taken to determine the corruption levels, Kentucky has been ranked as high as first to tenth as “most corrupt state” in studies (Dincer & Johnston, 2014; Liu & Mikesell, 2014). Actual cases are provided in the Policy section.

Because of their small structure and lack of resources, smaller cities are susceptible to corruption (CAPI, 2016). Other than Boyd and Greenup Counties who are classified as Medium-size Metro counties because of the city of Ashland and their close proximity to Huntington, West Virginia, all of the Eastern Kentucky counties are labeled as Noncore or Micropolitan by the Centers for Disease Control and Prevention in its report for the classification of US counties. The status of Noncore means a county does not have an urban cluster (city) of at least 10,000 people. The designation of or Micropolitan means a county has an urban cluster between 10,000 and 50,000 within it. Out of the twenty easternmost Kentucky counties (not including Boyd and
Greenup, as already mentioned) only one is designated as Micropolitan, the other nineteen are Noncore (CDC, 2013; OMB, 2013). According to Lambsdorff (2006), factors such as culture, values, and geography are all causes of corruption. The conditions in Eastern Kentucky correspond exceptionally well with these factors. Culture is also one of the domains of the entrepreneurship ecosystem and will be discussed in that section.

**Values**

According to Lambsdorff (2006), societies developing impersonal values as opposed to particularistic or family values are less corrupt. In settings where traditional religious values dominate, corruption is more prevalent. Eastern Kentucky is known for its deeply religious underpinnings and that churches play a central role in community life for its residents (Guth, 1989; Leonard, 1999; Schoenberg et al., 2015). Data gathered from the Association of Religion Data Archives (2017) was used to assemble a table displaying the number of churches per capita (table 1). The thirty easternmost counties were selected and their average calculated. The counties containing cities in Kentucky were also analyzed, along with counties containing other US cities. The statistics clearly indicate the number of churches per capita in Eastern Kentucky is three to four times higher than in other areas.

<table>
<thead>
<tr>
<th>County</th>
<th>Churches</th>
<th>Population</th>
<th>Per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern KY Counties</td>
<td>1,572</td>
<td>457,154</td>
<td>297.17</td>
</tr>
<tr>
<td>Jefferson (Louisville)</td>
<td>704</td>
<td>411,096</td>
<td>1,052.68</td>
</tr>
<tr>
<td>Fayette (Lexington)</td>
<td>266</td>
<td>295,803</td>
<td>1,132.04</td>
</tr>
<tr>
<td>Kenton (Covington)</td>
<td>148</td>
<td>159,720</td>
<td>1,079.19</td>
</tr>
<tr>
<td>Warren (Bowling Green)</td>
<td>163</td>
<td>113,792</td>
<td>986.11</td>
</tr>
<tr>
<td>Fulton (Atlanta)</td>
<td>395</td>
<td>920,581</td>
<td>1,219.31</td>
</tr>
<tr>
<td>St. Louis (St. Louis)</td>
<td>411</td>
<td>319,294</td>
<td>776.87</td>
</tr>
<tr>
<td>Cook (Chicago)</td>
<td>3,354</td>
<td>5,134,675</td>
<td>1,548.80</td>
</tr>
<tr>
<td>Hamilton (Cincinnati)</td>
<td>666</td>
<td>802,374</td>
<td>1,204.77</td>
</tr>
<tr>
<td>Davidson (Nashville)</td>
<td>782</td>
<td>626,681</td>
<td>801.98</td>
</tr>
<tr>
<td>Allegheny (Pittsburgh)</td>
<td>1,148</td>
<td>1,223,346</td>
<td>1,065.63</td>
</tr>
</tbody>
</table>

Table 1

Lipset and Lenz (2000), studied familism (a high loyalty to one’s kin) and determined it is positively related to corruption. Central Appalachia is known for the value of familism (Drake, 2001; Milstead, 2012). Billings and Blee (2000) also support a strong presence of familism.
However, in their investigation of Eastern Kentucky Appalachia they found it exists so strongly in this region because of the economic hardships of the majority caused by the corruption of the local elites.

**Geography**

One way in which geography contributes to corruption is when there is an abundance of natural resources. Studies explain, when the situation exists of abundance of natural resources and the exporting of these resources, such as fuels as minerals, it is found to significantly increase the levels of corruption (Kunicova, 2002; Lambsdorff, 2006; Weidemann, 1999). The situation in Eastern Kentucky is historically one of dependence on the harvesting of timber and more importantly coal (O’Dell, 1999; Santopietro, 2002). A lack of industry diversification ensued with this single-minded focus in the region to exploit the coal industry as the main method of economic development (Maher & McGinty, 2013; Marley, 2016; Sherafat et al., 1978).

**Waste**

It is evident public funding is needed to address the poverty, low educational attainment, health problems, and the high unemployment issues plaguing this region. However, more scrutiny over which projects are funded and how the money is spent needs addressing. Without substantial, measurable improvements, eventually funding will be cut and efforts to change the region will be abandoned. Writers, researchers, citizens, and politicians already express this sentiment, and President Trump has proposed eliminating the Appalachian Regional Commission. The agency started to address all of these problems (Franklin, 1981; Lowrey, 2014; Volcovici, 2017).
Waste, the inefficient use of public funds, is pervasive. With multi-million-dollar grants frequently entering the region, it is common to see fruitless projects start and then fail. It was thought a passenger airline should operate in Eastern Kentucky, since it takes two hours to reach even the smallest airport capable of connecting passengers to a larger airport, in order to reach any destination. Agreements between Pike County, Pikeville, the Pike County Airport Board, and the Southeast Kentucky Chamber of Commerce were formed to execute this plan. Two grants totaling $1,420,588 were awarded for the project (SEK Chamber, 2013). However, this project was destined for failure. The airline only flew to and from Nashville, with limited scheduling. It was not TSA approved, meaning upon arrival to Nashville passengers would have to go through security there. Tickets cost $400 to Nashville and passengers would have to purchase separate tickets to fly to another destination. It was not classified as a connecting flight. Therefore, total airfare was double the expense for a typical US destination. Often, flights to Nashville occurred with only one or two passengers. Money from the grants was used to subsidize the expense of the flight because passenger revenue was insufficient. So, it was not surprising just seven and a half months after its first flight, the airline announced it was ending its service (WSAZ, 2015).

Many other examples can be highlighted. The construction of industrial parks to lure businesses to a community is a common practice, even in Eastern Kentucky. Millions of dollars have been spent for industrial parks in remote areas without access to interstates, waterways, airports, or a workforce. The map below is of the industrial parks, most of which sit vacant and have for several years (red and blue squares). The red square represents an industrial park in Bell County which never attracted a single company to locate within it. The site was purchased for $850,000 in 2001. Several million dollars was spent for infrastructure and a bridge to the site. In
2015, it was sold for $750,000 to the Appalachian Wildlife Foundation (Estep, 2015). Now, plans are to build a wildlife center for elk viewing. It is estimated as much as $29 million is needed to develop the center. Thus far, $12.5 million in grants have been approved for the project (Estep, 2017a).

Even after these examples, a new industrial park has been proposed for Magoffin County (represented by the green square). So far, $2.11 million has been awarded for the project. Magoffin County is one of the poorest performing counties by every metric. The population is only 12,684, only 6.5% hold a bachelor’s degree, only 69% have finished high school, 37.8% are chronically absent from school, the poverty rate is 32.6%, the labor participation rate is only 40.2%, 21.9% under the age of 65 claim disability, and the life expectancy is only 72.6.

A final example focuses on the efforts to develop a skilled work force by training people in computer coding. Phrases coined such as “Silicon Holler”, “coalminers to code”, and “code country” are bandied about. The publicity and marketing for these projects have been tremendous. The most notable national news programs and business magazines have praised the efforts of these organizations to provide Eastern Kentuckians with a new skillset (Beam, 2017; Field, 2017; Peters, 2016). Although, if one lives in the region or delves beyond the fluff journalism, it becomes apparent these efforts are not sustainable as structured. Ongoing government funding is the only mechanism keeping these entities alive. Interapt is a company
who located in Paintsville to train people in computer coding and secure them employment afterwards. They received $2 million of an approved $4.5 million in government grants which were supposed to fund them through 2019, to successfully train and employ 200 people. Due to underperformance (only 17 jobs created), the operation was cancelled in less than one year and Interapt has moved on (Harkness, 2017).

Other organizations operate in a similar fashion, with grant money subsidizing the hiring, training, and ongoing wages of the employees (Smiley, 2015). This can be expected to assist companies in the startup phase, but not as a permanent solution. And afterwards, small business are wheedled to apply for government grants used to overpay for basic websites, as much as $25,000, which is given to the coding company to fulfill the purposes of the grant (ARC, 2017). Therefore, an entity classified as a for-profit business is actually a government funded operation. This has been perpetuated to give the appearance of a “win” for the region. It is not a sustainable business model. And, website building has become ubiquitous, not innovative to enter into at this late stage of the industry, in this manner. Companies such as Wix, Weebly, and Squarespace offer inexpensive, effective websites for small businesses. More complex website and application building with artificial intelligence will soon become the norm (Coren, 2016; Muchmore, 2017).

**Entrepreneurship Ecosystem**

Spigel (2017) defines entrepreneurship ecosystems as “combinations of social, political, economic, and cultural elements within a region that support the development and growth of innovative startups and encourage nascent entrepreneurs and other actors to take the risks of starting, funding, and otherwise assisting high-risk ventures.” Babson College is well-respected as a leader in entrepreneurship education. A current program of Babson is the Babson Entrepreneurship Ecosystem Project (BEEP). The model of an ecosystem used by BEEP was
created by Isenberg (2011a), the Domains of the Entrepreneurship Ecosystem. This is the model used in this research to expound upon the characteristics of the entrepreneurial environment in Eastern Kentucky and highlight the deficiencies.

Culture

The meaning of culture has been debated and defined by researchers with over one-hundred and fifty definitions of the word. A well-respected definition by Matsumoto (1996) is the set of attitudes, values, beliefs, and behaviors shared by a group of people. According to Leondard (1999), “the Appalachian areas in particular have proven to be a virtual fortress protecting faith and culture.” This region is known to have a distinctive “mountain culture” (Cooke-Jackson & Hanson, 2008; Milstead, 2012). Territorialism is a long-standing behavior here where clan versus clan became city against city and county against county. Academic studies have stated prominent features of this culture to be individualism, self-reliance, familism, distrust of government, and a “collective narrow-mindedness” (Brashear, 2014; Drake, 2001; Gottlieb, 2001; Milstead, 2012; Smith and Tessaro, 2005). The residents of Eastern Kentucky maintain a strong attachment to their coal heritage and many still believe a resurgence of this industry is the best path forward to improve the economy of the region. This is illustrated by the
photographs below. The picture on the left of the roadside billboard was taken in Pike County on September 23, 2017. The picture on the right with the bumper stickers and coal miner decal is a common sight.

In the context of entrepreneurship ecosystems, culture is the underlying beliefs and outlooks about entrepreneurship (Spigel, 2017). The two prominent attributes in this domain are success stories and societal norms (Isenberg, 2011a). The majority of successful entrepreneurs are those whose companies were in the coal industry. Prominent examples of entrepreneurs from a variety of industries simply do not exist. In entrepreneurship, the concept of failure has utility in that founders learn from their mistakes contributing to future endeavors (Hsu, Wiklund, & Cotton, 2015). Areas with strong ecosystems consider failing part of the journey of entrepreneurship and although not an ideal outcome, it is accepted (Maney, 2015; Markowitz, 2012). However, in Eastern Kentucky failure is seen as an end, not part of learning. Therefore, the culture is resistant to change and more risk averse with fewer people starting opportunity-based businesses and less likely for entrepreneurs to make multiple business attempts (Elam, 2002; Ezzell, Lambert, & Ogle, 2012). Another contributing factor is the entrepreneurs in Eastern Kentucky are overwhelmingly “necessity entrepreneurs” as opposed to “opportunity entrepreneurs” and therefore, the types of businesses they operate are mundane in nature, do not make headlines, and are not scalable (Acs, 2006; Stephens et al., 2013).

Supports
The University of Pikeville is truly the only university in far Eastern Kentucky. Eastern Kentucky University is actually located in central Kentucky. Morehead State University is located in the northeast portion of the state. Morehead teaches entrepreneurship courses at the undergraduate level. Several community colleges are scattered across the region. Entrepreneurship has not been taught for several years in the Kentucky community college system. Big Sandy Community and Technical College has three campuses in southeast Kentucky. Their Workforce Development program is addressing issues of workers’ skills and has opened an incubator space at their Paintsville campus. A faculty member from Morehead State and one from the University of Pikeville have taken it upon themselves to lead entrepreneurship education programs for K-12 students. Each teaches a separate program in the region. Since Junior Achievement and other K-12 programs do not exist in this region, the efforts of these two are noble. However, these programs need to scale significantly to impact the entire region.

According to Neumeyer (2016), two of the most commonly found components a university contributes to an ecosystem are the entrepreneurship center and the technology transfer office. The University of Pikeville does not possess either. Numerous efforts have been made since 2013 by this researcher/faculty to persuade university leadership to make entrepreneurship a priority and dedicate resources to establishing a center and programs. However, it simply is not seen as important by the administrators. A minor in entrepreneurship was created by this faculty member and entrepreneurship is now also taught in the MBA program. However, attracting students to enroll in the minor courses is proving a challenge because other faculty and staff are not assisting in the marketing of the program or encouraging
students to take the courses. If the executive administration voiced support for entrepreneurship, others would follow.

The University of Pikeville does host the only business plan competition in the region. It is the third largest collegiate competition in the state. However, the University does not invest in the event. This faculty member secured a grant to establish an innovation office and sponsors the event from the office budget. This event is open to all residents of Eastern Kentucky, not only college students. Extensive marketing is conducted for the event through the various forms of media and the people of the region simply do not seem interested. Although $10,000 in cash is awarded to the winners at this annual event, it often proves difficult to garner enough applications to hold the competition. More support from the university and surrounding agencies could prove helpful.

Several organizations exist in Eastern Kentucky attempting to serve the needs of small businesses and entrepreneurs. The most prominent agencies include: Small Business Development Centers (SBDCs), the Mountain Association for Economic Development (MACED), Southeast Kentucky Economic Development Corporation (SKED), Shaping Our Appalachian Region (SOAR), the Kentucky Innovation Network (KIN), and others. Services offered include business model consulting, business plan construction, loan and investment assistance, growth planning, employment assistance, skills workshops, and networking. Various levels of commitment and expertise can be found across these entities. Research asserts the economic development organizations lack in effectiveness, especially in the areas of collaboration (Compton et al., 2015).

The quality and extensiveness of the infrastructure is an important consideration for startups. Below is a map of Eastern Kentucky and the interstate system. The red lines are major
US highways. Much of Eastern Kentucky is at least two hours of driving time from an interstate. The yellow lines represent the roadways leading to the major thoroughfares. These roads are not built for transit of goods. Many are mostly two lane roads or have stop lights as the roads bisect towns along the way. For any manufacturing company, the added time and expense of distribution is prohibitive. So much so, any company with national or global customers is not likely to locate in the region. Much of Eastern Kentucky is also two hours of driving time away from an airport with passenger and freight airlines. Three of the four are small regional airports with limited flight selections and connections are necessary. The closest international airports are over three hours away in Louisville and Cincinnati.

Broadband connectivity is integral to succeed in today’s economy. Much has been publicized about ‘Silicon Holler’, the $324M to build the 3,000 mile network, how it can create a technology corridor in the mountains of Eastern Kentucky, and now how delays and additional costs may increase the amount to more than $3B and delay it by three years (Lee, 2017). However, in some communities of Eastern Kentucky the price of internet access for both residential and business purposes is extremely expensive, relative to other areas. This is largely because of monopolistic practices by the incumbent companies. Some counties only have one internet service provider. Therefore, the cost is much higher than areas with multiple service providers.
For example, Intermountain Cable (IMC) offers internet service in Pike, Floyd, and Knott Counties in Kentucky. Often, IMC is the only provider of internet in the areas they serve. Therefore, without competition they charge substantially more than urban areas and rural areas with multiple providers (see table 2). For a 50 megabyte download speed and a 5 megabyte upload speed, IMC charges businesses $229.00 per month. Elsewhere, internet fees average 68% less, and with greater speeds. So, even if all of Eastern Kentucky acquires high-speed internet access, which companies will find it appealing to pay these exorbitant fees? Their residential offerings for cable and internet follow this same pricing scheme (IMC, 2017). Not only are the prices high, but customers also frequently experience reductions in speed and interruptions in service.

![Table 2: Broadband Pricing](image)

**Human Capital**

The domain of human capital includes the skills of the available workforce, the existence of entrepreneurs, the contributions of educational institutions for professional and academic degrees, and specific entrepreneurship training (Isenberg, 2011a). According to Spigel (2017), high levels of human capital are a mandatory prerequisite for success in today’s economy and skilled employees are essential elements for the competitiveness of new ventures (Audretsch et al., 2011; Qian et al., 2012). It has been highly publicized in announcements and press releases in recent years the high levels of motivation and skills of Eastern Kentucky workers (Johnson, 2017; Peterson, 2017; Sexton, 2017; Volcovici, 2017).
However, the facts simply prove otherwise. Residents of Eastern Kentucky have a lower educational attainment than people of other areas of the state and nation, and it has always been this way (Baumann, 2006; Sanders, 1969). A nine-county area of far Eastern Kentucky was chosen because it is the service area for the Innovation Office in the region. As displayed in table 3, the average for earning at least a high school diploma among the nine-county area is 72.51%, whereas nationally the completion rate is 85.1% and the cities in Kentucky are: Louisville 88.9%, Lexington 89.8%, Bowling Green 87.3%, and Covington 89.2%. The average for attaining at least a bachelor’s degree in this nine-county area is 11.24%. Nationally, the average is 29.8% and the cities in Kentucky: Louisville 31.5%, Lexington 41.2%, Bowling Green 28.1%, and Covington 28.9% (US Census Bureau, 2017). These statistics are significant and emphasize the problem of Eastern Kentuckians possessing lower levels of skills which translates into a lack of competitiveness for the people seeking jobs and for the region seeking companies to locate in Eastern Kentucky. As explained by Bollinger et al. (2011), the use of modern technological resources in today’s economy favors college-educated workers. Goetz and Freshwater (2001) found human capital is positively related with entrepreneurial activity.

<table>
<thead>
<tr>
<th>County</th>
<th>High School</th>
<th>Bachelor's Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pike</td>
<td>73.5</td>
<td>13.3</td>
</tr>
<tr>
<td>Floyd</td>
<td>79.1</td>
<td>12.8</td>
</tr>
<tr>
<td>Letcher</td>
<td>73.5</td>
<td>11.8</td>
</tr>
<tr>
<td>Perry</td>
<td>73.1</td>
<td>14</td>
</tr>
<tr>
<td>Martin</td>
<td>71.9</td>
<td>Martín</td>
</tr>
<tr>
<td>Magoffin</td>
<td>69</td>
<td>6.5</td>
</tr>
<tr>
<td>Johnson</td>
<td>77.1</td>
<td>Johnson</td>
</tr>
<tr>
<td>Breathitt</td>
<td>68.9</td>
<td>10.8</td>
</tr>
<tr>
<td>Knott</td>
<td>76.5</td>
<td>Knott</td>
</tr>
<tr>
<td>Fayette (Lexington)</td>
<td>89.8</td>
<td>Fayette (Lexington)</td>
</tr>
<tr>
<td>Jefferson (Louisville)</td>
<td>88.9</td>
<td>Jefferson (Louisville)</td>
</tr>
<tr>
<td>Kenton (Covington)</td>
<td>89.2</td>
<td>Kenton (Covington)</td>
</tr>
<tr>
<td>Warren (Bowling Green)</td>
<td>87.3</td>
<td>Warren (Bowling Green)</td>
</tr>
<tr>
<td>State</td>
<td>84.2</td>
<td>State</td>
</tr>
<tr>
<td>Nation</td>
<td>85.1</td>
<td>Nation</td>
</tr>
</tbody>
</table>

Table 3
In addition to level of education, another important component of human capital is health. This plays a role in the availability and motivation of the workforce. A recent study by
researchers for the Journal of the American Medical Association examined the inequalities of life expectancy across US counties and found eight counties in Eastern Kentucky experienced the largest declines in life expectancy from 1980 to 2014 (Dwyer-Lindgren et al., 2017). Risk factors contributing to this decline are obesity, physical inactivity, hypertension, smoking, and diabetes. High levels of poverty and unemployment, and low levels of education also play a role (Khazan, 2017). Central Appalachian Eastern Kentucky is known for its high rate of drug abuse and high levels of smoking which are twice the national average (Moody et al., 2017; Schoenberg, 2010). The term “pillbillies” has become popular to describe drug addiction in Central Appalachia (Burris, 2014). Data was gathered to examine the mortality rate (per 100,000) and the life expectancy of nine Eastern Kentucky counties and the counties in Kentucky with cities (table 4). Both rates are noticeably worse for the Appalachian counties.

<table>
<thead>
<tr>
<th>County</th>
<th>Mortality*</th>
<th>Life Expectancy**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pike</td>
<td>1,124</td>
<td>72.41</td>
</tr>
<tr>
<td>Floyd</td>
<td>1,166</td>
<td>71.97</td>
</tr>
<tr>
<td>Letcher</td>
<td>1,150</td>
<td>72.35</td>
</tr>
<tr>
<td>Perry</td>
<td>1,303</td>
<td>70.60</td>
</tr>
<tr>
<td>Martin</td>
<td>1,084</td>
<td>72.56</td>
</tr>
<tr>
<td>Magoffin</td>
<td>1,114</td>
<td>72.60</td>
</tr>
<tr>
<td>Johnson</td>
<td>1,082</td>
<td>73.54</td>
</tr>
<tr>
<td>Breathitt</td>
<td>1,281</td>
<td>70.22</td>
</tr>
<tr>
<td>Knott</td>
<td>1,123</td>
<td>72.98</td>
</tr>
<tr>
<td>Fayette (Lexington)</td>
<td>759</td>
<td>78.40</td>
</tr>
<tr>
<td>Jefferson (Louisville)</td>
<td>853</td>
<td>77.01</td>
</tr>
<tr>
<td>Kenton (Covington)</td>
<td>890</td>
<td>77.06</td>
</tr>
<tr>
<td>Warren (Bowling Green)</td>
<td>853</td>
<td>77.26</td>
</tr>
<tr>
<td>State</td>
<td>909</td>
<td>76.26</td>
</tr>
<tr>
<td>Nation</td>
<td>823</td>
<td>79.08</td>
</tr>
</tbody>
</table>

*Kentucky State Data Center - Vital Statistics  
**Institute for Health Metrics and Evaluation

Table 4

The last set of metrics to examine related to human capital are labor participation rate and the percentage of the population less than 65 years of age claiming to be disabled (table 5). These numbers address the availability of healthy, motivated people to start businesses, work for companies, or otherwise make some contribution to the ecosystem. The labor participation rate is substantially lower for the Eastern Kentucky counties compared to the cities and nation, and the percentage with disabilities is two to three times higher than the cities and the nation.
Specifically concerning entrepreneurship, Snow and Prater (2017) conducted a study of the entrepreneurial attitudes of high school seniors in Eastern Kentucky and the results show only 2.15% of the respondents scored in the high range of entrepreneurial attitude. Scores for need for achievement, creative tendency, and calculated risk-taking also were low. Meaning, a significantly low percentage of students scored in the high range: 9.44%, 11.16%, and 9.44%, respectively. Demographic information was also gathered from the 233 respondents. Up to 54% plan to leave Eastern Kentucky after high school to pursue college and career. This supports the phenomenon of “brain drain” representing the outward migration of educated workers from Central Appalachia to urban areas, thus negatively affecting attempts to attract businesses because of the lack of a skilled workforce (Stephens, Partridge, & Faggian, 2013). Also interesting, of the group desiring to stay in Appalachia, 14 do not plan to go to work or go to college after high school (Snow and Prater, 2017).

**Markets**

The existence of local markets, entrepreneur networks, early customers and multinational corporations are critical elements of the market domain (Isenberg, 2010; Spigel, 2017). Eastern Kentucky is a difficult region to grow these necessary components. The mountainous terrain and the absence of flat land simply make infrastructure development timely and expensive. Therefore, the counties are sparsely populated and lack the numbers of people and companies to
establish large entrepreneurial networks, a sufficient group of early adopters, and multinational corporations to act as suppliers, customers, or strategic alliances for new ventures (Reid, 1987). An analysis of the population density (table 6) in the Eastern Kentucky counties highlights the lack of a critical mass of people to represent, for many companies, an opportunity for locating a business in the region for the purposes of hiring skilled employees or having an adequate base of customers to purchase products or services. Innovation is often measured by the number of patents an area generates. Table 7 displays the cities in Kentucky, some well-known entrepreneurial cities (Austin, San Francisco) and some emerging entrepreneurial cities, at least relative to size (Boulder, Chattanooga, Cincinnati, and St. Louis).

<table>
<thead>
<tr>
<th>Population Density Per Square Mile</th>
<th>Patents in 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pike</td>
<td>77.0</td>
</tr>
<tr>
<td>Floyd</td>
<td>94.3</td>
</tr>
<tr>
<td>Letcher</td>
<td>67.4</td>
</tr>
<tr>
<td>Perry</td>
<td>80.5</td>
</tr>
<tr>
<td>Martin</td>
<td>52.9</td>
</tr>
<tr>
<td>Magoffin</td>
<td>41.1</td>
</tr>
<tr>
<td>Johnson</td>
<td>87.7</td>
</tr>
<tr>
<td>Breathitt</td>
<td>27.0</td>
</tr>
<tr>
<td>Knott</td>
<td>44.2</td>
</tr>
<tr>
<td>Lexington</td>
<td>1,115.4</td>
</tr>
<tr>
<td>Louisville</td>
<td>2,333.1</td>
</tr>
<tr>
<td>Cincinnati</td>
<td>3,833.7</td>
</tr>
<tr>
<td>Chattanooga</td>
<td>1,291.7</td>
</tr>
<tr>
<td>Boulder</td>
<td>4,381.2</td>
</tr>
<tr>
<td>Austin</td>
<td>3,181.9</td>
</tr>
<tr>
<td>San Francisco</td>
<td>18,580.9</td>
</tr>
<tr>
<td>St. Louis</td>
<td>5,029.9</td>
</tr>
</tbody>
</table>

Table 6 Table 7

Policy

The two primary categories in the Policy domain are Government and Leadership. Government’s role is to enact policies supportive of entrepreneurship and fund programs to facilitate business starts and growth (Feldman & Francis, 2004; Roundy, 2016). On the state level, the last two administrations, one Democratic and one Republican, both have made economic development and entrepreneurship priorities in Kentucky. The Kentucky Cabinet for Economic Development has created numerous incentive and finance programs (KCED, 2017). This agency also manages the Kentucky Innovation Network. This is an organization of twelve offices throughout the state whose purpose is to support business starts and growth through free
consulting, workshops, training, networking, and capitalization assistance. Offices are present in Eastern Kentucky (KIN, 2017).

At the national level, US Congressman Hal Rogers has been a staunch advocate for Eastern Kentucky. He is a member and former Chairman of the Appropriations Committee and is responsible for securing millions upon millions of dollars for a variety of purposes, for Eastern Kentucky and Appalachia (Estep, 2017a). President Trump has stated he will bring back the lost coal jobs to the region, while simultaneously proposing to cut the budget for the Appalachian Regional Commission (ARC) and eliminate it. This agency funded 650 projects from 2011-2015 in the thirteen Appalachian states. It spent hundreds of millions of dollars, educated 49,000 people and is expected to create or retain 23,670 jobs (Estep, 2017c; Volcovici, 2017).

However, at the local level, there are many examples of government leaders misusing and embezzling funds. The mayor of Prestonsburg was charged with misusing funds (Estep, 2017b). The mayor of Paintsville was sentenced to 48-month in prison for misuse of city funds (Department of Justice, 2017). The mayor of Martin was sentenced to 90 months in prison for several offenses including fraud and identity theft (Department of Justice, 2014). The Harlan County Sheriff was indicted for misuse of public funds and property (Department of Justice, 2016). Eastern Kentucky is fraught with and has a long history of corruption. In an atmosphere such as this, it is difficult to receive consistent support from local government in the creation of a stable, thriving ecosystem. One of the most publicized incidents of corruption involved a local attorney, Eric C. Conn. He was convicted of defrauding the government of $550 million in Social Security disability payments (Wolfson, 2017). This is the largest crime of its kind in US history and underscores the exceptionally high levels of people under 65 claiming disability and the exceptionally low levels of people participating in the workforce within the region.
Finance

The presence of available capital, in the form of loans, private and public investment is critical for entrepreneurial endeavors and the development of an ecosystem (Malecki, 2011). Local banks, the SBA, and MACED are available to provide debt financing. Kentucky Highlands Investment Corporation (KHIC) is an organization offering investment for businesses in southern and eastern Kentucky. Angel groups are present in Louisville, Lexington, Northern Kentucky and even Ashland Kentucky. Directors from the Kentucky Innovation Network are intimately involved with the operation of these angel groups. If startup companies from Eastern Kentucky are ready for investment, presentations with the angel groups can be arranged. Presently, there is a lack of scalable startup companies fit for angel investment or venture capital. Not enough deal flow exists to warrant the formation of an angel group. According to Isenberg (2011a), attracting or providing venture capital without deal flow or exit possibilities, actually retards the development of private equity by driving it away.

Conclusion

Cronyism, corruption, and waste must be eliminated. Who gets the money and what it is used for must yield results. If quantifiable improvements are not realized, the millions in aid entering Eastern Kentucky will dwindle. With the publicity and press releases, the outside world is led to be overly optimistic. However, those of us here see what happens after the headlines and who actually benefits. There are young people here with determination and skills. Students here are accepted into Harvard, Yale, and Princeton. It simply is not the norm. And, those people are not likely to return. A cultural shift away from fatalism, drug addiction, and dependence upon the government to save the region must transpire. A strong, concerted effort for education and entrepreneurship must become the focus. Universities, government, and local leaders must genuinely strive to create this atmosphere. It is possible. Improvements are occurring, led by
progressive, hard-working individuals genuinely wanting to make a difference. There just is not enough of this at the present time and there are too many people seeking “free money” to line their own pockets at the expense of progress and everyone who could benefit from the legitimate use of the time, effort, and money.

References


HOW DO FOUNDERS CONSTRUCT BIOTECH COMPANIES?

Biagio Ciao

ACADEMIC ABSTRACT

This paper tracks the entrepreneurial process underpinning biotech firms’ construction. The process model shows that information collection, industry analysis, and resources analysis generate a research and development target. Transactions and networking are employed to collect resources. Resources are deployed by capabilities to obtain the research and development target generating a social impact and financial performance. This process model could help aspiring founders to know which steps they have to take. Moreover, the findings show two important features that biotech founders hold before starting the business: a network made by other biotech organizations and past scientific experiences.

Keywords:

Business founding, Biotech Industry, Founders
EXECUTIVE SUMMARY

Synopsis

The literature construed many process models to show how a phenomenon is generated and evolves over time. We do not have a process model of business founding even though it would be useful to know which steps to take for founding a business. This would especially help aspiring founders in the biotech industry. Many times they are scientists and they do not have a business background, then they do not know what to do if they want to start a company.

Methodology

The paper used an inductive method and analyzed five case studies.

Findings

The findings show that information collection, resources analysis and industry analysis help to formulate a research and development target. Networks and transactions acquire the resources which are employed by capabilities to, finally, generate financial results and social benefits. In addition, the findings show that the company’s access to networks is driven by the founder bringing networks developed through previous work experiences. Moreover, the founder’s past experiences develop the ability to judge the distinctiveness of various competences, based on knowledge about those already present in the industry. This knowledge helps to develop distinctive patents because, even though their features cannot be foreseen, the founder can foresee their distinctiveness by evaluating the distinctiveness of the competences which will produce the patents themselves.
Conclusion and Implications for Theory, Research, and Practice

The paper stems from a gap in the literature, there are not papers which developed a process model to understand the steps taken by founders to develop businesses. This work tries to fill this gap and helps aspiring biotech founders to understand what to do when they are about to start a business.

Implications for Entrepreneurship Education

The paper shows the relevance of past scientific experiences to start a business. This should encourage the business school to develop business programs for senior scientists of the biotech industry. Actually, senior scientists have more chances to create a successful business in the biotech industry.

In addition, the paper shows the relevance of the network to start a business. Business schools could create associations developing networks among biotech scientists and managers of the biotech companies. Those associations could feed successful entrepreneurship in the biotech industry.

Finally, the process model could be used in the classes as a general framework to frame the founding process in the biotech industry.
1. Introduction

Some papers generate process models (Burgelman, 1996, 1994, 1983; Gioia, Chittipeddi, 1991; Corley, Gioia, 2004; Ansari, Garud, 2016) which show how a phenomenon is built and evolves over time. None of those papers show how a company is constructed even though it seems an important issue. Actually, a process model of business founding would help aspiring entrepreneurs, especially students, to visualize which steps they have to take if they want to start a business. Such a model would be useful for many contexts, we selected one of them because process models are designed with qualitative analyses which are context specific. We selected the biotech industry which is an important industry for the amount of wealth that the industry creates (Ernst & Young, 2011) and for the society’s benefits in terms of health care. In addition, the construction of a business is an important theme in the biotech industry because many scientists start a business to develop their scientific ideas. They hope to push the ideas toward the market. Because of their scientific background they do not have any idea on what they need to initiate a business. This paper aims to construct a formula for them. Then, the question is: how are biotech companies constructed?

2. Theoretical Background

Process models try to show how an organizational phenomenon evolves over time to better understand the phenomenon itself. The application of process models has excellent examples in strategy field. Adopting the classical Bower-Burgelman process model, the internal corporate venturing (Burgelman, 1983) and the business exit strategy (Burgelman, 1996, 1994) were analyzed.
In addition, process models were designed to explain strategic changes and changes in corporate identity.

Strategic changes stem from a four stages process during which the process alternates cognitive phases with actions. Evisioning allows CEO to visualize what is going on and formulate a strategy. Signaling helps to transfer the strategy to the organization by transmitting its meaning. In the Re-Visioning stage stakeholders try to catch that meaning and elaborate it. Energizing marks the involvement of the organization in the strategy through stakeholder’s reactions oriented to be engaged in both the strategy execution and the strategy modification (Gioia, Chittipeddi, 1991).

In the context of spin-offs, company identity changes. First, some triggers of identity ambiguity emerge. The new company loses the social referents which are the other firms considered to be comparable before the spin-off. The firm used to be, actually, associated with the social referents and this association made the employees able to visualize the profile of their own company. Another trigger of the identity ambiguity is the temporal identity discrepancies which are significant differences between the identity of the old company still felt as their own identity by the employees and the ambitions to create something new with new goals and values. The last trigger is the constructed external image discrepancies which correspond to significant differences between what members think about the firm and the firm representations that members find outside the firm, for instance the ones coming from the media. Those triggers generate identify ambiguity which consists of two important elements. The first one is a huge confusion about the labels and the second one is the meaning void. Actually, when they try to represent the company profile, different labels are adopted. They have different meanings even though the issue is exactly the same. In addition, members give a different meaning to the same
label supposed to capture something important for the company identity. Instead, the meaning void is due to the fact that the members do not feel comfortable with many labels in the sense that the members cannot associate those labels with a concrete visualization of the firm’s profile. The identity ambiguity creates a sensegiving imperative that is the need to create ideas with precise borderlines. The sensegiving imperative is made by two components: the change overload and the emergence identity tensions. Actually, dealing with the identity ambiguity, employees feel that the change is too much and its goals remain difficult to evaluate. The identity tensions are the coexistence of heterogeneous visions on the same issue. They coexist but they conflict with each other because they push the organization toward different directions. The top team reacts to the desire of generating new meanings through three levers. First, the top team tries to purify the company’s future image by sending messages whose aim is to elevate the goals of the company and its role for the employees and society. The new image is supposed to create a sense of community and make the employees more affectionate to the company. Second, the company starts to advertise the brand. The advertisements generate a company perception more coherent with the future image. The advertisements produce effects outside the company but the new external perception is reflected inside with positive effects on the internal perception. Finally, the top team changes its behavior and let organizational members understand what the top team appreciates more. Watching top team’s actions, employees realize what really matters because the actions become focused on goals reflecting the company’s image. The three levers allow to define a new and more clear identity (Corley, Gioia, 2004).

More recently, a process model was constructed to understand the disruptive innovation. In this case the authors do not try to understand what happens inside the company but they enlarge the unit of analysis. Actually, the paper shows how the disruptive innovation initiates a
dynamic system of interactive relations among company’s actions, other players’ reactions, and technology transformation (Ansari, Garud, 2016).

The literature does not develop a process model of business founding.

3. Method

a. Procedures

Five case studies explore the biotech industry because this industry is still populated by young entrepreneurial companies controlled by the owners (Mintzber, 1973). Those owners can help to better understand how founders struggle to create companies in a science-based environment where many start-ups are founded. Actually, a founder from each company was interviewed. This paper is one of the outputs stemming from the analysis of a qualitative dataset that the author constructed to inductively capture the biotech industry’s dynamic in a context populated by entrepreneurial companies (Ciao, 2017b, 2017a, 2014, 2012b, 2012a, and the earlier versions of the 2014 paper – those versions were diffused from 2011 and they are cited in the 2014 version). Data collection tried to reconstruct the path followed by the entrepreneurs to create the business without overlooking important factors which could be forgotten by adopting just one framework rather than a multi-framework analysis with several perspectives such as entrepreneurship, resource-based view, transaction cost economics, value chain, and networks (Amit, Zott, 2001).

In addition, the author interviewed another key informant for each company. The informant knows the history of the company very deeply. Those interviews were conducted in an
attempt to triangulate the data. If the informant was not available, information was pulled from the company’s website.

**b. Data Analysis**

Attempting to build a theory, the author codified the data from the interview transcripts (Corbin, Strauss, 2008), identifying the first-order codes and second-order codes which were merged in theoretical dimensions (Gioia, Corley, Hamilton, 2013). The coding process is represented in Figure 1.

**Figure 1.** The structure of the codes.

![Figure 1](image-url)

Table 1 contains sentences representing the second-order codes. Based on the connections among the second-order codes and the dimensions, on the one hand, and among the terms composing the dimensions, on the other hand, (Gioia, Corley, Hamilton, 2012; Corley,
Gioia, 2004), the author constructed the process model (Clark, Gioia, Ketchen, Thomas, 2010; Burgelman, 1996, 1994, 1983) represented in Figure 2 (see section 5).

Table 1. Quotes for each theme (second-order code)

<table>
<thead>
<tr>
<th>Theme</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data collection</td>
<td>Search because we go to others’ homes to look for molecules</td>
</tr>
<tr>
<td>Industry analysis</td>
<td>No one does research on antibiotics</td>
</tr>
<tr>
<td>Resources analysis</td>
<td>It has one of the biggest libraries of natural products</td>
</tr>
<tr>
<td>Transactions</td>
<td>A group...of executives ...negotiated with Firm Z the possibility of acquiring those products</td>
</tr>
<tr>
<td>Networking</td>
<td>Much more on the university side than on the company side...which is a very cost effective way of being able to...have access to experts in the field</td>
</tr>
<tr>
<td>Resources</td>
<td>Firm H which, a few years ago, decided to offer spaces to the small biotech firms: spaces, offices, laboratories to continue their business</td>
</tr>
<tr>
<td>Practices</td>
<td>From that top umbrella of the board of directors we have these sub-directional groups that help to...make sure that proper decisions have been made</td>
</tr>
<tr>
<td>Social Impact</td>
<td>Since it was born in 1999, Firm E has been a firm which has been characterised in a quite precise way in terms of the therapeutic sector where it invests, where it develops its own drugs</td>
</tr>
<tr>
<td>Financial performance</td>
<td>Using license agreements, that is [agreements of] transfer of the development rights or commercialisation rights of those products in exchange for, of course, financial benefits</td>
</tr>
</tbody>
</table>

4. Results / Findings

    a. Information collection

    The personnel of Firm A attend conferences to monitor their competitors, because it is often very important to be the first to the market, and the management needs to know if
competitors are catching up or have developed even more significant results. Firm C has a group of vendors which handle marketing and sales, thereby supporting the management. In fact, before each year begins, Firm C’s personnel analyses the potential demands and the company’s competitors. Firm E participates at three different kinds of conferences: scientific, business, and those attended by investors. Conferences allow the company to collect information on the results obtained by the scientific world and by other companies which directly share information or are observed by business analysts. Other information is collected from databases and through patent analyses, demonstrating the extent of efforts invested in the therapeutic field.

b. **Industry analysis**

Firm A analyzed the industry before entering the anti-infective drug market. Anti-infective drugs have a 50- or 60-year tradition in Italy, but the industry barely exists now because it is not a profitable business for the big companies. In fact, those companies prefer to treat people with long-term or life-long illnesses, such as diabetes, rather than to treat infections through anti-infective drugs which cure patients in a short time. In addition, during the 1990s, the pharmaceutical companies changed their strategy by adopting the chemical diversity approach; however, after 10–15 years, this approach did not generate successful outputs. Moreover, the infections started to become a public concern again, as infections evolved and the medicines were no longer effective in fighting them. In fact, infections developed resistances against the anti-infective drugs in the meanwhile because the big companies focused elsewhere.

The founder of Firm B considers that the researchers of the partner university have a valuable background because they are experts in the immune system, now considered to be the cause of illnesses such as asthma or diabetes. Although these illnesses are localized in specific
parts of the body, they are actually rooted in the immune system, the study of which can, therefore, produce useful results to treat illnesses known for a long time in the industry but previously treated as local illnesses.

At the stage of the founding the top management of Firm C considered four factors. First, there are only a few product entries in the market, as companies discover very few molecules. Second, half of the drugs would be biological by 2010. Third, diagnostic discoveries find new illnesses every day, and many patients do not react positively to the current drugs due to specificities of their illnesses. Therefore, it is useful to look to develop medicines which can treat small niches of patients or improve existing drugs to make them more efficient against specificities. Forth, the market analysis showed that, at the time of the interview, there was just one Italian company in Firm C’s segment. In fact, just one other firm in Italy had the authorization to run the same processes that Firm C runs.

Firm D buys intellectual property and biotech companies, and runs both business reviews and scientific reviews. The management has both scientific competences and knowledge about the industry through which to evaluate the effectiveness of the intellectual property they are buying. Often, scientists do not care whether an effective product can actually be sold; the scientists from whom Firm D buys intellectual property often do not face the issue of the market. Firm D fixes this problem through market analysis. The converse is that many investors do not have the scientific competences to evaluate the potentiality of a scientific discovery path.

The information gleaned from conferences allows Firm E to identify the progress being made by its competitors to meet the same medical needs the company is targeting, enabling the firm to evaluate its prospects of beating the competition. Before investing in a project, the
company evaluates the scientific features and the market potentialities of a medical need which is not yet effectively satisfied.

c. **Resources analysis**

Reflecting on her experience, the founder of Firm A realized that she should found a business, failing which her competences would have been wasted; she then discovered that she could start a business within her area of expertise: the anti-infective sector. People were realizing that investing in synthetic chemical diversity had been a mistake, and the founder realized that she was able to produce antibiotics with an alternative method (chemical diversity from natural origin) for situations in which people need to fight infections.

Firm B was founded when a group of immunologists asked the founder to consider a few projects, and he realized that they could be good business opportunities. Firm B’s founder considers the integration between his background and the research of University H to be very effective. Together, they share more than 200 years’ experience. He is an expert in pharmaceutical development and he can interact with the healthcare authorities. The researchers study the mechanisms of the immune system. ‘This experience cumulated over decades and frequently transferred from a professor to another really represents the wealth’ (Firm B’s founder). The founder considers this experience of Italian universities to be a source of opportunities. In addition, the founder really values the immunologists’ opportunities to work both in hospitals and laboratories, through which they can identify the specific features of illnesses by bringing biological materials from the patients in hospitals to the laboratories.

Firm C’s management decides on which projects to collaborate; the firm actually receives many requests to collaborate in applications seeking funds from institutions such as the European Union.
Firm D emerged from the founder’s idea to develop a license transferred from the Centre for Nuclear Research to the nascent company; after a while the founder realized that the laboratory he built could be used to develop a liquid for positron emission tomography (PET) analysis. The revenues generated by producing this liquid are used to fund research and development activities. In addition, Firm D buys patents and biotech companies when the management realizes that they have good potentialities.

Firm E’s management realized that the molecule they obtained from a spin-off could be used for another therapeutic aim in the field of nervous system therapy. This is the field within which the company focuses its activity; it does not accept investments outside this field because Firm E does not have enough competences to manage projects in other therapeutic areas, such as oncology.

d. Transactions

Firm A built its technological platform by acquiring microorganisms from a big American company which acquired the small biotech company for which the founder had worked for a while. This collection of microorganisms had been held by the small company until the M&A, but the American company’s management did not consider the organic material to be useful for the company’s purposes and decided to leave it in Italy. The transfer from the American company was based on an agreement pursuant to which Firm A should be a non-profit firm investing the profits in the company itself.

Firm B took projects from University H, one of which was already embedded in a patent which Firm B acquired in exchange for royalties. Firm B can access an important scientific tool for its research thanks to University H. In fact, the company rents this tool, which differentiates more than 100 populations of lymphocytes. The financial resources, instead, come from the
financial company of Bio-Park G, which owns 62 per cent of Firm B for that reason. In addition, Firm B pays rent to the Bio-Park G to use the laboratories and instruments.

Firm C recently employed vendors who work to develop the business: they promote the company’s products through door-to-door advertising. In ten years, Firm C was able to construct a plant which can develop any kind of biological element, such as cellules, proteins, or antibodies. This plant was built thanks to the investments of the family that owns the company. The management decided to externalize the logistics to the Bio-Park G and the finance function to a company owned by a family member. Firm C built a company with three professors of University Y. Firm C holds 50 per cent of that company, whose foundation allowed Firm C to acquire resources from the other partners and produce a diagnostic kit in the field of the growth hormone.

After acquiring the first patent from the Centre for Nuclear Research, Firm D repeated a similar procedure in the sense that it continued to acquire intellectual property from universities and biotech companies.

Firm E was created as a spin-off from a company for which the founder used to work. On the basis of a patent agreement, the founder acquired a molecule during a turnaround. The molecule was still at the beginning of the discovery process. The company performs many transactions because it adopted a flexible model within which the clinical studies are designed by a research leader coordinating the external activities. The majority of the costs displayed in the balance sheet are costs for activities which Firm E contracts out to other companies. When Firm E’s management realizes that a project needs more financial resources than are available, the company looks for a partner, as it did for the first molecule, which was transferred to a company in exchange for royalties.
e. **Networks**

Firm A is involved in a network of organizations which includes, in particular, academic institutions. The network spans both Europe and the US. One connection is very successful: that with a scientific research center of the University of W. The partnership with the University of W became a spin-off holding technological platforms, some platforms are chemical. The chemical platforms are complementary and applicable to Firm’s A platform. The two organizations combined their platforms to generate an integrated platform which can be applied to every kind of therapeutic area. Firm A participates at conferences where competitors present their work, aiming to understand the outputs of their direct competitors. The company creates partnerships with competitors if the management realizes that the competition could harm the company because the competitors are too strong. They develop agreements defining how the intellectual property will be divided among the collaborating companies.

Firm B began operating thanks to the financial support of the financial company of Bio-Park G: this support was necessary to develop the projects launched by a group of researchers who asked the founder to collaborate. After acquiring projects from University H, the relationship continued. Thanks to this relationship with University H, Firm B can access relevant competences on immune system research. For clinical experimentation on its prostate vaccine, the ethical committee of University H gave some advice and the process was modified. Firm B’s relations go beyond Bio-Park G and University H. For instance, the day before the interview, the founder visited Basilea to meet some friends. Those friends have good relations with banks and the founder wished to attract the bankers’ interest in Firm B’s business. The company is seeking funds to advance the projects which have been paused for a while due to financial constraints.
Firm C has huge appeal as a partner for applying for grants because small companies attract funds more easily and this makes attracting funds easier for partners too. Firm C developed a vaccine with a research center focused on cancer treatments and, at the time of the founder’s interview for this study, the management was looking for new partners because it did not want to develop the vaccine further, to avoid clashing with the interests of its service division. The management wants to guarantee to clients of the service division that Firm C will not develop products competing with the clients’ own products and use clients’ knowledge to generate new products. Then, Firm C runs networking to allow assets to be further developed outside the company.

To develop the first patent acquired from the Centre for Nuclear Research, Firm D’s founder looked for business angels and found a group of ten people who collectively invested more than 1,000,000 euros. Whenever the company required money to invest, the management approached institutional investors such as banks. After dealing with the institutional investors, information on the company’s need for money spread throughout the investment community and Firm D collected sufficient finance to continue operating. Firm D is contacted during conferences or by phone by universities or hospitals seeking investment: Firm’s D managers do not know what the universities and hospitals are working on as the relations are started by the owners of the intellectual property.

For Firm E, conference participation allows it to construct relations with the scientific and business worlds. For those relations, Firm E collects information on the advancements of the specific fields to which Firm E is dedicated and then evaluate whether Firm E’s discovery processes have the features to secure a good position on the market.
f. Resources

Firm A’s founder worked for several years in a big pharmaceutical company, where she developed technical skills. She subsequently moved to a small company where she developed a managerial background. She then aimed to leverage those different experiences. In 2005, she founded Firm A, which uses a technological platform made by microorganisms: it creates an advantage because it is composed of numerous entities, many of which have not been explored or used in experiments at all.

The founder of Firm B worked for ten years in a big pharmaceutical company, before moving to another company to work as director of clinical research. Even though the headquarters were not in Italy, they had enough power in directing the research. When this power was significantly restricted, the founder decided to leave the company where he had spent most of his career, and he was then engaged to build a team for a company supplying services commissioned from other companies. He found building the team and growing it to be interesting, but, even in this case, the commissioned services followed rules imposed by the client, leaving no opportunity for him to use his creativity and career background to create scientific advancements. This opportunity would be available in an autonomous and entrepreneurial company such as Firm B. To start Firm B’s activities, the founder acquired two projects from University H, one of which already had a patent. University H still contributes to the developing processes through its immunologists: by directly treating the patients, they can use the patients’ biological analyses to determine the specificities of their illnesses. They can then formulate specific tactics for developing drugs able to treat the specific illnesses of the observed patients. The Bio-Park G allows Firm B to access the needed resources. The Bio-Park G is a sort of incubator with a square form; outside, it has laboratories and inside there are the
instruments, such as refrigerators and centrifuges, which can be used by all the companies gravitating around the park.

Firm C was created as a spin-off from the cellular biology laboratories belonging to a research center at which the founder was an associate. The spin-off integrated the competences embedded in the founder and the research team. The family member of Firm C highlights the importance of innovation in the production: Firm C does not use traditional production plants with fermenters but rather uses plastic bioreactors. They have a huge surface-to-volume ratio and they are very compact; they guarantee safety and avoid trans-contamination, making them ideal for the drugs tested by Firm C.

In Firm D, the financial results from the liquid for PET and the investments from the business angels allowed the creation of 20 laboratories in which 32 people are employed, and many others gravitate around the laboratories.

Firm E started with a molecule transferred from a big company at which the founder was employed. Competences such as business development skills were brought to the company. This helped to collect financial resources and, then, to build the research laboratories which, in turn, allowed the creation of and access to new projects through agreements with other companies.

g. Practices

In Firm A, the ideas come from the top because the top management makes the decisions on the areas in which the firm will operate. Those activities are a segment which Firm A is able to perform itself; the other segments are run by partners holding the technologies necessary for a specific segment. Those activities are in the first stages of pharmaceutical developments, and the company does not engage in the stages of experiments on people. Firm A has 20 people who
hold at least a college degree, and the company requires them to use their brains, rather than only their hands. They need to collaborate, and if they have any ideas based on their background and experience, they can present them in the weekly meeting. Those ideas are evaluated and they need to have a solid rationale, which cannot be only scientific. In addition, during the weekly meeting, the scientists report their activities’ results, which should correspond to the objectives defined by the research director, who assigns them to the heads of the three laboratories which deal with different fields: the first one operates in the molecular biology field; the second one is chemistry-based, and the third specializes in microbiology. The research heads, in turn, coordinate the activities of the other employees, communicating to them the tasks they need to perform.

In Firm B, there is an advisory board comprising four of the most famous oncologists in Italy. They encouraged the company to progress to the next stage of the discovery process, but the founder disagreed: because the company treated only four or five patients, no ethical committee would have given the firm permission to move to the next stage. Firm B integrates the university researchers who investigate the immune system and the leadership qualities of the founder, who knows how to develop pharmaceutical discoveries and is able to dialogue with health care authorities. Firm B ran experiments on rats and the first experiments on patients.

In Firm C, a project manager, their assistant, and a work team are assigned to a project. In a weekly meeting, the project manager updates on progress. In addition, the company must meet some requirements to be authorized to supply biotech services: among those requirements, the company must define some responsibilities. This is the reason why, even though the company is an entrepreneurial entity, it has project managers. Firm C has a production manager, a political operations manager, a quality operations manager, and a research and development manager.
The founder pointed out that all the people in Firm C are scientists. In fact, 90 per cent of the employees have a college degree and 50 per cent hold a PhD. The ISO certification requires that the company runs continuous training, and the company trains its personnel by supplying scientific education. In addition, the CEO and the president learned the principles of teamwork and project management during their experience in big companies. They apply those principles in Firm C: for instance, they run job performance reviews to evaluate the features and results of the personnel and try to improve them over time. The firm produces materials used for experiments in the clinical stages and develops the first stages of the discovery process.

Firm D has a scientific committee formed of a marketing director, a research director, a medical director, a clinical director, and three physicians with different expertise. The members of the scientific committee have complementary competences. The committee has an advisory role, but the board of directors make decisions on the projects proposed by the management and validated by the scientific committee. R&D was originally controlled by the founder but the firm became too large; now, the research director reports to the management about new proposals and the results which have been obtained. Firm D works on the final steps of drug discovery.

Firm E ‘has a core’ (Firm E’s founder) which designs the clinical studies and controls its externalized execution to, predominantly, contract research organizations. The research director has a central role because he decides on which projects the company should invest and how to design these projects. He defines the endpoints and talks with the authorities whose permission is required to advance the project itself. In this business, it is not enough to have a director with huge experience of molecule development without specific discovery experience on therapy of the nervous system. Ninety per cent of the company’s personnel work in research and development; the rest is formed of the management and a small group of people dedicated to
administrative activity: because the company is listed, it needs to meet the reporting
requirements demanded by the Swiss stock exchange. Firm E developed the competences
required to coordinate all the activities externalized to contract research organizations.

h. Social Impact

Firm A is funded by public resources because it aims to develop the first stages of drug
discovery with quite low costs, in order to meet a recent public medical need which arose when
infections became stronger. Firm B is working on two vaccines: the first is against lupus, which
is an illness without a specific therapy, and the second is against prostate carcinoma. The first
results of tests of the second vaccine on people show that it increases life expectancy and reduces
bone pains. In 2014, Firm C received authorization to produce many cellules for drugs to be used
for specific patients. Those drugs are based on use of the patients’ cellules, which are separated
into two groups: the healthy ones and the sick ones. After the separation, the cellules are raised
and they return to hospital.

The idea of producing a liquid for the PET from the first laboratory was successful for
Firm D. The PET is used to analyze patients and identify illnesses.

Firm E started with a molecule acquired from the company at which the founder was
employed: when the company was formed the project was at the pre-clinical stage. After
working on the project for a while, the company changed the therapeutic purpose of the
molecule. Firm E works on projects dealing with the nervous system; the founder pointed out
that the company would refuse to work on drugs curing cancer because the company does not
have the competence to develop them.
i. Financial performance

Firm A is exclusively oriented to the discovery process: it actually generates intellectual property that is transferred to a company funded by private money. This allows Firm A’s intellectual propriety to be developed because it needs a huge amount of resources for the next stages of drug development. For those stages, the public funds financing Firm A are not enough.

The founder explained that the Firm B was working on two projects: the first was at the stage of experiments on rats, while the second was closer to market-release of the developed drug. The second project had reached the stage of clinical experiments. A small group of patients were treated and the results were successful; therefore, the company was seeking new investments to run experiments on a larger sample. A sample of 100 patients was needed and if the experiments were successful they could appeal to large companies that might be willing to invest in the final part of the discovery process with an even larger sample.

Firm C has two divisions: the first is a service supplier and the second is a research division. The service unit develops specific materials used by big companies in their discovery process, assisting clients through the creation of proper elements for both their pre-clinical stage and clinical stage. The second division could clash with the business of the service division, as clients could disapprove of Firm C producing products which compete with their own, due to the potential for Firm C to use knowledge spillover from its clients. The research division aims to generate intellectual property which is transferred out through spin-offs developing the projects.

Firm D acquires intellectual property from hospitals and universities, which may be at different stages of the discovery process. Firm D can push the intellectual property forward, starting from any stage of the pharmaceutical value chain. Indeed, at the time of the first interview for this study, the liquid for PET already generated 28,000,000 euros per year. At the
time of his interview, Firm E’s founder believed that the development of the first molecule was very close to the final stage of the discovery process and that, within one year, it would be possible to commercialize the drug.

5. Conclusion and Implications for Theory, Research, and Practice

The findings enable a process model to be drawn to delineate how biotech companies are constructed by founders. The paper uses a multi-framework perspective to build the process model, it avoids to forget important aspects of the business founding (Amit, Zott, 2001).

The information collection, the industry analysis (Porter, 1985) and the resources analysis (Barney, 1991; Wernerfelt, 1984; Collis, Montgomery, 1995) are conducted to formulate a research and development target. Transactions and networks are activated to collect resources. The resources are deployed to obtain the R&D target creating a social impact and financial performance. The process model is represented in Figure 2.

**Figure 2.** Process model of the biotech companies’ construction.
Access to networks is largely based on the founder, who frequently has worked in the field for many years and brings their network to the company.

Past scientific experiences construct the knowledge required to judge assets potentialities, which is the basis for the start of entrepreneurial ventures (Ciao, 2017a, 2017b). Indeed, founders try to evaluate those potentialities based on their knowledge of the industry. For instance, Firm A’s founder knows that the big companies abandoned organic diversity in favor of chemical diversity, which did not produce good results. The founder, thus, realized that her expertise in organic diversity and the material for the organic diversity could be distinctive resources for her firm. The founder of Firm C worked for decades in the pharmaceutical industry, through which he learned that, in Italian universities, immunologist competences are transferred from one professor to another professor and could constitute a valuable resource. In addition, during his work activity, he was able to learn that the immune system is identified as the origin of many illnesses which were previously considered to be localized in specific organs. Finally, he recognizes the immunologists’ routine in universities as important, because they have both laboratory and clinical experience: the latter could help them to realize what solution to look for in the laboratory to target patients’ specificities found during the clinical work. This is not possible in the labs of companies, such as those in which the founder previously worked, because the scientists do not also operate in the clinics. Ultimately, the founder’s experience allows them to know the industry in terms of the scientific procedures diffused within the industry itself. This enables them to identify whether some procedures include distinctive competences compared with the procedures of other players in the market. The findings show that it is easier for Firm E
to make good investments by buying patents and other companies than it would be for a simple investor which does not also engage in scientific experiments.

While past scientific experiences do not help firms to foresee the specific features of patents, they do inform the idea that the company should proceed with projects where their distinctiveness in competences will later be reflected in patents. Undoubtedly, scientists cannot recognize the distinctiveness in future patents, but they can foresee it based on the distinctiveness they can recognize in the competences they manage.

The findings suggest some managerial implications. Turnaround processes and M&As can leave valuable resources available to start a business. Therefore, aspirant entrepreneurs and scientists should monitor those operations closely. It is important to leverage the founder’s or other scientists’ reputation in the biotech field to access the networks potentially able to feed the company’s assets. Past scientific experiences might also be a great asset to leverage for the industry analysis: they supply the knowledge on the competences available in the industry. This knowledge can be used to judge if a project has good potentialities, in the sense it embeds competences which are distinctive because they are not diffused in the industry itself.
6. Implications for Entrepreneurship Education

This paper shows that past scientific experiences are very important to evaluate new projects. It is very challenging to evaluate a project without having specific experiences as biotech scientists. This should encourage business schools to develop business programs for scientists with a significant experience in the biotech industry. Those scientists have more chances to be good entrepreneurs.

We saw that the founder’s network is very important to start a business, then business school should develop networking through associations of scientists and managers employed in the biotech industry. Those associations could help and feed entrepreneurship for the biotech industry.

Finally, the process model could be used in the classes. It would be a general framework to show how the founding process works in the biotech industry. Students could get a general mental map about the path followed by biotech founders to create a company.
7. References


Endnotes

1 For this paper, the author reanalyzed the texts of his interviews and recoded them using a different method. Particularly, moving from the paper published in the 2017 IFKAD proceedings and the 2017 EURAM annual conference proceedings to this work, the author shifted from the Miles’s and Huberman’s approach (1994) to the Gioia’s method.
(Gioia, Corley, and Hamilton, 2012) to codify the data. Actually, the latter allows to merge the first-order codes into the second-order codes and the second order codes into the dimensions. In addition, the Gioia’s method makes it possible to identify links among the words of the dimensions. Then, the method is especially useful to build a process model (Gioia, Corley, Hamilton, 2012; Corley, Gioia, 2004). Nevertheless, the first order-codes from the Gioia’s method (Gioia, Corley, Hamilton, 2012) and the results of the meta-matrix based on the Miles’s and Huberman’s approach (2001) almost concede. In addition, some dimensions and second order-codes from Gioa’s method were already identified by interacting the data with the literature in works I previously developed. Particularly, those works highlighted the relevance of transactions and networking for the resources collection along with the importance of the practices. Actually, those elements are components of the model constructed in the previous works (Ciao, 2017a, 2017b, 2014, and the earlier versions of the 2014 paper – those versions were diffused from 2011 and they are cited in the 2014 version).