Enhancing Agricultural Leadership Education through the Inclusion of Entrepreneurial Principles and Practices

Matthew M. Mars and Robert M. Torres[1]
The University of Arizona
Tucson, AZ

NACTA
north american colleges and teachers of agriculture
connect | develop | achieve

Abstract

The potential value of formally integrating entrepreneurial principles and practices into agricultural leadership programs at the collegiate level is conceptually explored. The compatibility of agricultural leadership and entrepreneurship education is demonstrated through the identification of shared learning objectives and a common reliance on experiential learning models. Furthermore, the observations and arguments made throughout the paper are consistently aligned with the agricultural leadership and general leadership education literatures. An interdisciplinary collegiate entrepreneurship education program that is designed to provide students with an enhanced capacity to act as change agents illustrates the relevancy and applicability of entrepreneurship to agricultural leadership. This experiential-based program is fully outlined to provide agricultural leadership instructors with a model for integrating entrepreneurial principles and practices into existing curricula.

Introduction

The merits of integrating entrepreneurial principles and practices into collegiate agricultural leadership curricula warrant exploration. Collegiate leadership education is an area of growing interest to agriculture faculty and instructors (Acker, 2005). This focus on leadership is not new to agricultural education. In 1998, for example, Fritz and Brown indicated that almost 70% of agricultural education departments offered leadership-oriented courses. More recently, departments are increasingly being renamed to include leadership in formal titles (McCormick et al., 2007). The infusion of leadership into agricultural education curricula has focused mostly on conventional principles and practices that are understood to be essential factors in the career preparation of students (e.g., communications, conflict management, team building, etc.). The inclusion of entrepreneurship and innovation in agricultural leadership curricula and training programs is an opportunity to further develop the capacities of students and emergent professionals to be effective agents of change.

Innovation and entrepreneurship have long shaped and influenced the economic and social contributions of the agricultural sector to the nation (Alsos et al., 2011; Macke and Markely, 2006; Morgan et al., 2010; Wortman, Jr., 1990). The capacity of agricultural professionals to pursue innovative opportunities and engage in entrepreneurial strategies remains vital to the ability of the nation to both remain economically competitive and effectively confront escalating concerns over food security. Accordingly, the integration of entrepreneurial principles and practices into collegiate agricultural leadership training programs is timely.

Experiential learning has been shown to be particularly effective in preparing students to be entrepreneurial agents of change (Mars et al., 2008; Mars and Rhoades, 2012). To date, agricultural educators have mostly overlooked the promise of entrepreneurship as a strategic mechanism useful in enhancing individual and group capacities to create and lead innovation and change within and across agricultural settings and environments. Accordingly, the positioning of entrepreneurship as a mechanism useful in enhancing student capacity to create and lead change within established firms, organizations, and other agricultural-based settings within agricultural leadership curricula warrants attention.

The Intersection of Entrepreneurship and Agricultural Leadership Education and Training Entrepreneurship as a field of study has over the past decade expanded beyond business schools to now have an established presence across the disciplinary landscape of the academy (Kuratko, 2005, Shinnar et al., 2009). This expansion has in some cases included colleges of agriculture (Knudson et al., 2004). Overall, however, the inclusion of entrepreneurship in agricultural education curricula remains an under-exploited opportunity to provide agriculture and extension students with greater exposure to entrepreneurial knowledge and skill sets.

Leadership scholars have identified a conceptual convergence of leadership and entrepreneurship (Cogliser and Brigham, 2004; Eyal and Kark, 2004). In particular, entrepreneurial leadership has been framed

[1]Agricultural Education, Email: rtorres1@email.arizona.edu

as a visionary process that involves the development and implementation of innovative strategies that are capable of influencing change and advancing innovation. Furthermore, the integration of entrepreneurship into leadership curricula is understood to provide emergent leaders with advanced skills and strategies that enable the mobilization of the teams and resources that distinctly support the development and implementation of innovation and change regardless of setting or environment. This observation is particularly powerful given the diverse potential for agricultural innovation and change, which includes the formation of new agricultural ventures, the development of innovative units within existing agricultural organizations, the creation of novel agriculturally-oriented advocacy groups, and so on.

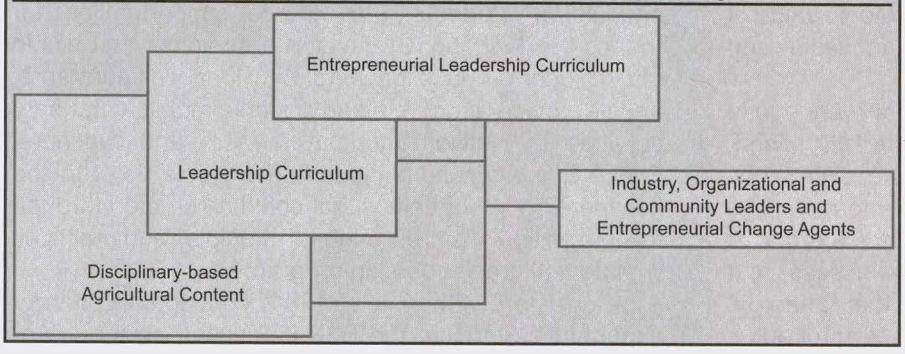
Problem Statement

The fundamental principles, skills, and practices of entrepreneurship have not been thoroughly explored in the specific context of agricultural leadership education. However, commonalities between entrepreneurial skills and practices and the learning objectives that generally frame agricultural leadership programs can be readily observed. Specifically, Morgan et al. (2013) identified a set of 24 learning objectives that guide agricultural leadership training models. Entrepreneurship educators have identified 18 of these 24 learning objectives as also being essential to the entrepreneurial development of students (Heinonen and Poikkijoki, 2006; Kirby, 2004; Ray, 1997; Smith et al., 2007) (Table 1). The experiential learning model described further in the current paper illustrates the potential value of developing innovative curricula that capitalizes on the commonalities between and distinct strengths of entrepreneurship and agricultural leadership education.

Table 1. Common Learning Objectives between Undergraduate Agricultural Leadership Programs as identified by Morgan, King, Rudd, & Kaufman (2013) and Entrepreneurship Education Programs (Heinonen & Poikkijoki, 2006; Kirby, 2004; Ray, 1997; Smith, Schallenkamp, & Eichholz, 2007)

1. Apply leadership theories & practice in structured, supportive learning environment
2. Communicate effectively through presentations
3. Critical thinking skills
4. Decision making skills
5. Delegate effectively
6. Develop a personal leadership philosophy
7. Effective communication via public speaking & written communication
8. Effective time management
9. Empower others
10. Enable others
11. Identification and application of contemporary key leadership theories & leadership models (including the integration of leadership theory with critical issues in agriculture)
12. Lead change in organizations
13. Problem solving skills
14. Professional human relation skills
15. Set achievable goals
16. Team building skills
17. Understanding of personal leadership strengths/weaknesses; accentuation of strengths
18. Vision

Figure 1. Entrepreneurial Leadership Training Overlay



The integration of entrepreneurial principles and practices into agricultural leadership training and collegiate agriculture education in general would involve a layered structure. Specifically, entrepreneurial knowledge and skills would be integrated into conventional leadership education training models, which in turn are layered on top of the disciplinary-based content (e.g., agronomy, animal sciences, plant sciences) that makes up the bulk of degree programs. This layered model would train and produce agricultural leaders who are equipped with both a deep technical knowledge and skill base and the capacity to act as entrepreneurial change agents (Figure 1).

Experiential learning is a pedagogical approach that is commonly observed in both agricultural leadership education (Downey, 2012; Ekiri et al., 2013; Morgan and King, 2013; Roberts, 2006, 2013) and entrepreneurship education (Corbett, 2005; Pittaway and Cope, 2007). Experiential learning provides students with opportunities to apply the lessons learned through traditional classroom settings to professional and community environments (Kolb, 1984). Equally important, students are required to process their experiences through structured reflection to reveal new concepts and encourage a deepened awareness and understanding of existing knowledge. According to Kolb, experiential learning occurs through a recursive learning cycle that involves four stages: concrete experience, critical observation, abstract conceptualization and active experimentation. The entrepreneurial leadership program that is described in the current paper is grounded in an experiential learning approach, which extends the longstanding inclusion of experiential learning methods across the field of collegiate agricultural education (e.g., internships, student teaching programs).

Model and Project

A novel experiential learning model offered to first-generation college students through a large public research university located in the Southwestern United States, which is referred to as Southwestern University (SU), illustrates the potential merits of integrating entrepreneurship into agricultural leadership curricula. This rigorous academic program, which heretofore is referred to as the "Entrepreneurial Leadership Program" (ELP), has since 2007 trained nearly 200 undergradu-

ate students across a diverse set of disciplinary fields that include science and engineering, education and the liberal arts, as well as the agricultural areas of veterinary sciences, career and technical education and the life sciences.

The ELP occurs over an intense four-week summer term that consists of eight to ten hours of class time each day, as well as weekend field trips. In addition to deeply exploring the fundamental principles and strategies of entrepreneurship, the students participate in discussions with panels comprised of business and community leaders who together present a diverse set of entrepreneurial experiences and perspectives. The field trips also expose students to a number of entrepreneurial settings and innovative organizations. The agricultural settings included among the field trips have included a family-owned orchard, an organic cattle ranch, a locally operated vineyard, a large corporate-like pecan farm, and a sprawling ranch that was being re-purposed into an eco-friendly residential community.

The ELP is designed to enhance student leadership capacities through the development of a comprehensive understanding of innovative processes and the acquisition of a robust entrepreneurial skill set. In particular, entrepreneurship is introduced as a strategy for advancing innovation and leading change within any professional field, organizational environment, or community setting. Upon completion of the program, students will have developed the skills and capacities to:

1. Formulate, implement, and validate entrepreneurial strategies for change,
2. Understand and engage processes for innovation diffusion,
3. Mobilize diverse forms of capital (financial, human, social), and
4. Formulate and communicate an "entrepreneurial story" to diverse audiences.

Together these four objectives comprise a leadership base that supports the overarching goal of training entrepreneurial leaders who are capable of creating and leading change regardless of professional environment and community setting. To support the development of such a base, the ELP students complete a team-based project that involves designing an entrepreneurial strategy to address an economic, social, or technological issue that is of interest and concern to the students. This project provides students with the opportunity to engage, experience, and reflect on the strategic value of entrepreneurship to efforts to introduce innovation and lead change.

The ELP project requires students to fully engage in all four stages of experiential learning (Kolb, 1984). First, the project immerses students in concrete experience by allowing them the opportunity to fully engage in the entrepreneurial process. Second, students are required to critically observe, and consequently assess and challenge the ideas and assumptions that underpin their innovative solutions and guide their entrepreneurial strategies. Third, the new insights and perspectives gained through critical observation lead students to engage in a revisionary process that is consistent with Kolb's notion of abstract conceptualization. Fourth, and consistent with the premises of active experimentation, students test the applicability and feasibility of their solutions and strategies by engaging target populations and relevant stakeholder groups.

Entrepreneurial Skills

There is a range of skills common to both leadership and entrepreneurship that are woven throughout the experience and project that warrant specific mention. First, communication is a competency essential to all aspects of the project (and entrepreneurial leadership in general). For example, students are required to interact with members of target populations, relevant experts, and representatives of other various stakeholder groups when researching the conditions underpinning the issue or problem of focus and assessing the efficacy of the proposed solution. Students are also required to present their entrepreneurial strategy through formal "pitches" to audiences of up to 200 people, as well as participate in a less formal poster session and interactive feedback session with experts from academia, government, private industry and the public sector. Thus, the project provides students with opportunities to build and enhance their interpersonal and persuasive communication skills, as well as their abilities to effectively engage a public audience. Other entrepreneurial leadership skills that are emphasized throughout the experience and project include thinking critically, making strategic decisions based on empirical evidence, and building and facilitating teams. In general, students encounter the challenges and rewards associated with creating and leading change, as well as the opportunity to evaluate and reflect on their own entrepreneurial leadership capacities.

The projects pursued by ELP students have primarily focused on entrepreneurial models that promote positive social change. However, some student teams have pursued projects aimed at capitalizing on private market opportunities. To date, four student projects have been agriculturally focused. These four projects have involved the development of entrepreneurial strategies designed to 1) promote local produce production and distribution to low income communities with high rates of obesity; 2) build a model to support the development of working farms and ranches designed to provide agricultural students with greater opportunities for "hands-on" learning; 3) develop a business that would match local produce growers with local restaurateurs; and 4) provide affordable and scalable mobile veterinary services to Native American farmers and ranchers. These four agriculturally-oriented projects point to the rich learning opportunities that could be created through the integration of entrepreneurial principles and practices with agricultural leadership programs.

Consistent with Kolb's (1984) conceptualization of experiential learning, the ELP is focused on the learn-

ing process the students engage in throughout their work rather than on the feasibility of the entrepreneurial strategies developed through the projects. The expectation is not that students produce actual entrepreneurial ventures. Instead, the goal is to provide students with a knowledge base and a tangible set of action-oriented skills that enhance their capacities to act as entrepreneurial change agents. In short, the integration of entrepreneurial principles and practices with agricultural leadership training models is an opportunity to better equip students with the skills and knowledge needed to effectively lead change within 21st century agricultural communities, organizational settings, and industrial environments.

Implementation Framework

The applicability of entrepreneurial leadership is not confined to particular disciplinary fields (i.e., business education) or professional environments (i.e., private industry). Accordingly, the curricular underpinnings of the ELP framework and structural components of the project were by necessity developed to be more practical than technical and thus accessible to all students regardless of disciplinary backgrounds. The current section provides agricultural educators with a general outline of the five stages that structure the ELP project (see Table 2).

During the problem identification and assessment stage, students first identify the problem they seek to solve or issue they aim to address. Next, the students locate existing information and relevant resources that together provide a thorough overview of the conditions that create and sustain the problem or issue and clarify how relevant populations are impacted. This assessment, which involves both secondary data analysis (e.g., census data) and primary research (e.g., interviews), focuses both on the groups that are adversely affected by a problem or issue and on stakeholder groups who benefit from the current conditions and thus represent potential opposition to the intended change.

The solution formulation and validation requires that students formulate and validate an innovative solution that has the promise of effectively addressing the problem or issue of focus. Solutions can come in the form of new or refined products or processes so long as both a degree of novelty and a meaningful value proposition are observable. The proposed solution must align with the underlying conditions of the problem or issue in order to demonstrate a clear value proposition. The value proposition of the solution is begin to be revealed through a comparative analysis of existing solutions and other competitive innovations. Next, the value proposition is further validated through basic market research that demonstrates that the solution is both acceptable and accessible to those who are most affected by the problem or issue. On the one hand, for example, the acceptability of a solution is likely to be at least partially shaped by its cultural relevancy. On the other hand, its accessibility is determined by factors such as the amount of financial costs to be borne by end-users.

The feasibility analysis and implementation stage involves researching and evaluating the resource needs associated with launching, scaling and sustaining the proposed solution. The students must determine how much financial support will be needed to implement, grow, and sustain the solution and identify from where such support may be gained. Equally important, the students must also account for the essential skill sets needed on their team (i.e., human capital) and develop strategies for accessing and connecting to influential networks (i.e., social capital).

During the implementation planning stage, students call on the information and perspective gained through the previous stages to create a comprehensive plan for launching and scaling the solution to a sustainable and impactful level. Examples of the variables and factors that must be accounted for in the plan include initial marketing to target populations, strategic allocation of resources to support optimal efficiency, and internal dynamics to promote a productive organizational culture. It is vitally important that the plan also outline in detail the strategy for introducing the solution in a way that supports its diffusion across relevant settings and promotes sustainable growth.

The final stage centers on entrepreneurial storytelling. The students will by this point in the project have developed a comprehensive entrepreneurial strategy to advance their solution and create the desired change. The communication of the strategy must account for the various perspectives and positions held by multiple audiences. In particular, students must anticipate the distinct incentives for individuals and specific groups to support the implementation of the solution and ultimately the change it seeks to create. Presentations that frame these incentives must be developed and delivered with the goal of compelling individuals and stakeholder groups to embrace, in the case of end-users, and support, in the case of investors and other stakeholder groups, the solution and its implementation. Accordingly, students must be provided the opportunity to tell their entrepreneurial stories to multiple audiences and through various formats (e.g., written implementation plans and

Table 2: Project Components and Relevant Entrepreneurial Tasks

Project component	Relevant Entrepreneurial Tasks
1. Problem identification and assessment	• Interviews, focus groups with experts, stakeholder groups, and affected populations • Environmental analysis to deconstruct competitive and collaborative landscapes
2. Solution formulation and validation	• Develop, test, and refine innovative solution to address the conditions that underpin problem or issue
3. Feasibility analysis	• Identify and propose sources of capital needed to launch, scale, and sustain the innovative solution
4.Implementation planning	• Develop operational model to maximize the value proposition of the solution • Design business model to generate resources to grow and sustain the impact of the solution
5. Entrepreneurial storytelling	• Create and deliver entrepreneurial story to compel others to invest their resources (e.g., expertise, money, reputation, time)

executive summaries, poster sessions, small group discussions, large public presentations). The students must also receive both written and oral feedback on their various presentations in order to allow for personal and team assessment and reflection, which is consistent with the premises of experiential learning as laid out by Kolb (1984).

Conclusion

Leadership educators have called for a greater emphasis on the skills leaders need to confront the challenges and maximize the opportunities that emerge from rapid-paced innovation (Crawford et al., 2003). Considering the relevancy and importance of entrepreneurship to contemporary agricultural enterprise, the integration of entrepreneurial strategy into collegiate agricultural leadership programs holds great promise. Accordingly, the current paper has conceptually framed the relevancy of entrepreneurial strategy to agricultural leadership education at the post-secondary level, as well as provided faculty and instructors with the components of a well-established entrepreneurial leadership model and project that are grounded in the principles of experiential learning. A conceptual platform for future studies that empirically examine the implications and outcomes of collegiate agricultural leadership education and training models that are embedded with entrepreneurial principles and practices has also been provided.

The current paper has specifically focused on the integration of entrepreneurial principles and practices into collegiate agricultural leadership education curricula. However, the proposed benefits of such integration are also likely to influence the instructional approaches of secondary-level agriculture teachers who would receive entrepreneurial leadership training through their undergraduate and/or graduate programs of study. This anticipated spillover would be responsive to the calls of career and technical education scholars for increased attention to new curricular models that will better prepare high school students for competitive careers within the innovation-based 21st century economy (Harkins, 2002; Viviano, 2012). Lastly, innovative agricultural leadership training models must transcend formal educational settings to better reach agricultural extension agents, farmers and ranchers, government agents, and a host of other agriculturally oriented groups and professionals (Kaufman et al., 2010). In short, the inclusion of entrepreneurial leadership within agricultural curricula across all educational levels and environments is both warranted and encouraged.

Literature Cited

Acker, D.G. 2005. Leadership through service: All the easy jobs have been taken. Jour. of International Agricultural and Extension Education 12(2): 5-14.

Alsos, G.A., S. Carter, E. Ljunggren and F. Welter. 2011. Introduction: Researching entrepreneurship in agriculture and rural development. In Alsos G.A, S. Carter, E. Ljunggren and F. Welter (eds.). The Handbook of Research on Entrepreneurship in Agriculture and Rural Development. Cheltenham, U.K.: Edward Elgar Publishing Limited.

Cogliser, C.C. and K.H. Brigham. 2004. The intersection of leadership and entrepreneurship: Mutual lessons to be learned. The Leadership Quarterly 15: 771-799.

Corbett, A.C. 2005. Experiential learning within the process of opportunity identification and exploitation. Entrepreneurship Theory and Practice 29(4): 473-491.

Crawford, C.B., L.V. Gould and R.F. Scott. 2003. Transformational leader as champion and techie: Implications for leadership educators. Jour. of Leadership Education 2(1): 57-73.

Downey, W.S. 2012. Experiential learning through industry interaction in a large lecture agribusiness course. NACTA Jour. 56(4): 7-12.

Ekiri, A.B., L.F. Aceng, M.L. Khaitsa, F. Ejobi and D. Kabasa. 2013. An international experiential learning program: A study abroad experience in Uganda. NACTA Jour. 57(3a).

Eyal, O. and R. Kark. 2004. How do transformational leaders transform organizations? A study of the relationship between leadership and entrepreneurship. Leadership and Policy in Schools 3(3): 211-235.

Fritz, S.M. and F.W. Brown.1998. Leadership education courses and programs in departments of agricultural education. Jour. of Agricultural Education 43(1): 24 35.

Harkins, A.M. 2002. The futures of career and technical education in a continuous innovation society. Journal of Vocational Education Research 27(1): 37-68.

Heinonen, J. and S.A. Poikkijoki. 2006. An entrepreneurial–directed approach to entrepreneurship education: Mission impossible? Jour. of Management Development 25(1): 80-94.

Kaufman, E.K., R.J. Rateau, K.C. Ellis, H.J. Kasperbauer and L.R. Stacklin. 2010. Leadership program planning: Assessing the needs and interests of the agricultural community. Jour. of Leadership Education 9(1): 122-143.

Kirby, D.A. 2004. Entrepreneurship education: Can business schools meet the challenge? Emerald 46: 510-519.

Knudson, W., A. Wysocki, J. Champagne and H.C. Peterson. 2004. Entrepreneurship and innovation in the agri-food system. American Jour. of Agricultural Economics 86(5): 1330-1336.

Kolb, D.A. 1984. Experiential learning: Experience as the source of learning and development. Englewood Cliffs, NJ: Prentice-Hall.

Kuratko, D.F. 2005. The emergence of entrepreneurship education: Development, trends, and challenges. Entrepreneurship Theory & Practice 29(5): 577-598.

Macke, D. and D. Markley. 2006. Entrepreneurship and rural America. Illinois Institute for Rural Affairs Report 17(4): 1-6.

Mars, M.M. and G. Rhoades. 2012. Socially-oriented student entrepreneurship: A study of student change agency in the academic capitalism context. The Jour. of Higher Education 83 (3): 435-459.

Mars, M.M., S. Slaughter and G. Rhoades. 2008. The state-sponsored student entrepreneur. The Jour. of Higher Education 79 (6): 638-670.

McCormick, M.J., K.E. Dooley, J.R. Lindner and R.L. Cummins. 2007. Perceived growth versus actual growth in executive leadership competencies: An application of the stair-up behaviorally anchored evaluation project. Jour. of Agricultural Education 48(2): 23-35.

Morgan, A.C. and D.L. King. 2013. Improving undergraduates' exposure to international agriculture through experiential learning. NACTA Jour. 57(3a).

Morgan, C., D.L. King, R.D. Rudd and E.K Kaufman. 2013. Elements of an undergraduate agricultural leadership program: A Delphi study. Journal of Leadership Education 12(1): 140-155.

Morgan, S.L., T. Marsden, M. Miele and A. Morley. 2010. Agricultural multifunctionality and farmers' entrepreneurial skills: A study of Tuscan and Welsh farmers. Jour. of Rural Studies 26: 116-129.

Pittaway, L. and J. Cope. 2007. Entrepreneurship education: A systematic review of the evidence. International Small Business Jour. 25(5): 479-510.

Ray, D.M. 1997. Teaching entrepreneurship in Asia: Impact of pedagogical innovation. Entrepreneurship, Innovation and Change 6(3): 193-227.

Roberts, T.G. 2006. A philosophical examination of experiential learning theory for agricultural educators. Jour. of Agricultural Education 47(1): 17-29.

Roberts, T.G. 2013. An experiential learning framework for engaging learners during study abroad experiences. NACTA Jour.

Shinnar, R., M. Pruett and B. Toney. 2009. Entrepreneurship education: Attitudes across campus. Journal of Education for Business 84(3): 151-159.

Smith, W.L., K. Schallenkamp and D.E. Eichholz. 2007. Entrepreneurial skills assessment: An exploratory study. Int. Jour. of Management and Enterprise Development 4(2): 179-201.

Viviano, T. 2012. What 21st century leadership in career and technical education should look like. Journal of Career and Technical Education 27(2): 51-57.

Wortman, Jr., M.S. 1990. Rural entrepreneurship research: An integration into the entrepreneurship field. Agribusiness 6(4): 329-344.