

The role of the university in accelerated learning and innovation as a regional ecosystem integrator

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Abstract

Purpose – The purpose of this paper is to present an adaptation of a program that is at the intersection of two dynamic force fields. The first relates to imperatives impinging upon and inherent in higher education. The second ties to the concept of ecosystems as spaces for aligning actors and resources to create value.

Design/methodology/approach – Tables I-III present pre-test and post-test means and *p*-values for the paired sample *t*-tests for the measures.

Findings – As expected, post-test means are consistently significantly higher (or lower depending on item wording) for a shift in beliefs away from self-censoring and prejudging ideas during ideation and more toward greater openness in the ideation process.

Originality/value – The paper examines the outcome of an educational program.

Keywords Social entrepreneurship, Innovation, Accelerated learning

Paper type Research paper

Introduction

This paper presents an adaptation of a program that is at the intersection of two dynamic force fields. The first relates to imperatives impinging upon and inherent in higher education. The second ties to the concept of ecosystems as spaces for aligning actors and resources to create value. As noted by educational thought leaders, the confluence of such forces may be an indication of an inflection point that signals disruption to long-standing constraints as to how we think about education as well as offering extraordinary strategic opportunities (Brandenburger, 2013).

This work contributes to the higher education innovation literature by prototyping a program which points to a broader conception of the role of the university as an ecosystem integrator much like the role of the coral reef in sustaining biodiversity. As such the university can create nontraditional contexts for resources and actors to be more consistently, systematically, yet flexibly aligned as a means of addressing regional problems/needs. For example, the prototype regional development program includes individuals participating in a variety of activities as part of a degree or certificate program, with those participating for purely professional and personal development blurring the degree-non-degree boundary. Creating sustainable, intensive learning platforms which allow for the rapid development of new iterations can reduce future



program development costs and can mitigate risks of future disruption by more flexibly reconfiguring as needed.

The higher education landscape

As noted in a 2014 white paper from the American Council on Education, the landscape for higher education is in turmoil. Changing demographics, disruptive competition, eroding trust, reduced public financial support, and questions surrounding costs and productivity are a sampling of issues that complicate the context of higher education. Further, the one area where higher education institutions have traditionally grounded their value propositions – academic credentialing – is being challenged (American Council on Education, 2014).

For example, in 2013 the US Education Department sent a message to colleges: financial aid may be awarded based on students' mastery of "competencies" rather than their accumulation of credits. This has major ramifications for institutions hoping to create new education models that do not revolve around the amount of time that students spend in class (Perry, 2013). As another example, flash forward, the year is 2025, and unlike her parents, Laura had not walked across a stage to mark the end of her formal education. Instead, she earned a series of credentials by mastering skills that qualified her for her chosen career. In two years, Laura developed foundational skills in critical thinking, communications, and ethics, among other areas, and sharpened her quantitative skills, earning her a competency-based degree. She then studied independently through massive open online courses, participated in a 12-week immersive boot camp, completed a university architectural certificate, and worked as an intern for a design firm. She did all this while attending frequent networking meet-ups to explore and pursue full-time job opportunities and spending most of her free time in a design studio where she interacted with peers and mentors (Sledge and Fishman, 2014).

The business of universities in an era of exponential change must shift from simply transferring knowledge to students to providing them with access to the latest knowledge via unique platforms, developing their skill sets through mentorship, and then immersing them in situations that encourage them to probe and push the boundaries of current knowledge and practice (Thomas and Brown, 2011).

As our nation enters a new era that will depend upon effective community building, colleges and universities can play new and meaningful roles in creating the capacity for active and engaged collaboration and collective action to address complex challenges that will shape the world we live in now and in the future. Our challenge is to develop a mindset in which a diversity of backgrounds and experiences and ways of thinking about the world and responding to challenges can be seen as a necessary condition for achieving excellence. This belief, accompanied by new working relationships, values, and skills that draw upon diverse perspectives will be essential if we are to educate a nation and participate in community building through collective impact models (Ramaley, 2015).

The ecosystems metaphor

Coined by a botanist in the first half of the twentieth century, the term ecosystem referred to a localized community of living organisms interacting with each other and their environment. Noticing relevant parallels between the worlds of biology and commerce, Moore (1993) reported the concept to the increasingly interconnected and rapidly changing context of business. Moore noted the trend of successful business evolution involving attracting resources, creating cooperative networks, and co-evolving capabilities around innovation.

Initially embraced by the technology sector, the concept has now moved beyond buzzword status and represents a metaphor that impacts the mental models of leaders as they make

decisions in a wide variety of business domains. For example, companies such as Apple, Facebook, Alibaba (China), Softbank (Japan), Nokia (Finland), and SABMiller (South Africa) all make explicit their intent of developing and strengthening aspects of their ecosystems (Kelly, 2015). According to Kelly (2015), “ecosystems are dynamic and co-evolving communities of diverse actors who create and capture new value through increasingly sophisticated models of both collaboration and competition” (p. 5). While this definition allows for different ways of thinking about the concept, several aspects have been identified that contribute to the development and understanding of successful ecosystems. Ecosystems:

- (1) exist on strong platforms;
- (2) engage diverse actors;
- (3) drive new collaborations;
- (4) accelerate engaged learning and innovation; and
- (5) create unique value (Kelly, 2015; Hagel, 2015; Bruun-Jensen and Hagel, 2015).

Ecosystems are positively altering how organizations think about and behave with respect to the business fundamentals of leadership, strategy, business models, core capabilities, and value creation. So too, higher education may benefit from the application of this powerful metaphor to better understand its role in creating new ways to successfully address needs and problems in their regional ecosystem which ultimately contributes to universities’ sustainable, competitive advantage.

We now provide background for a pilot regional development program developed from a strong pedagogical platform and then address unique aspects of the program through the lens of the defining aspects of ecosystems.

The context for the program

The context for the program is a relatively young university founded in 1965 to address the educational needs of an underserved region of the Midwest. The university’s rapid growth attests to its value to the region in that it is now a comprehensive public university enrolling approximately 10,000 undergraduate students in 70 majors. Recognized by the Carnegie Commission as an “Engaged University” its vision is simple but powerful – “Shaping the future through learning and innovation.” Further evidence that innovation is in the DNA of the university is the vision for its college of business which emphasizes an entrepreneurial mindset including innovative thinking and openness to new ideas. The college has a defined initiative to foster entrepreneurial education, engagement, and outcomes in the region.

The regional development program

Originally funded by a grant from the Lilly Endowment, the program’s purpose is nurturing citizenship to enhance the quality of life and to boost the retention of intellectual capital in the region. Through the program, participants expand their opportunities for creating new connections with other residents, with local and regional organizations, between communities, and between the university and the region.

The program originally began as a more “traditional” leadership development program with outside speakers and business experts leading sessions on a variety of topics such as visioning, developing critical thinking skills, and conducting a SWOT analysis and stakeholder analysis. Overall, this model was favorably received by participants and produced some tangible projects of benefit to the community and region. In 2013, the program was reviewed and it was decided that it was time to reposition the program in response to internal and external environmental imperatives. As such, the content of the program evolved into a focus on social entrepreneurship in which participants seek more

innovative solutions to a variety of regional problems or needs. The content portion is provided by two faculty members who created the entrepreneurship program in the college of business at the university.

The program includes a total of ten sessions over a five-month period beginning in January and ending in May. Most are full-day sessions and are typically held on Friday. There is one overnight retreat. Participants are required to develop a collaborative project which is presented at the conclusion of the program. The content portion is covered in the morning and the afternoon consists of visiting local businesses and sites of interest in the host county. Community leaders are invited to address the group over lunch. This allows participants to learn about the region and its quality of life, as well as to gain an appreciation for a sense of place.

The university covers all program expenses, including overnight accommodations, facilitation, meals, location rental fees, and materials. Participants provide their transportation to and from sessions and volunteer time to attend sessions and work on projects. Because the program is free and openings are limited, applicants must indicate their willingness and ability to participate in all sessions and complete out-of-class project work, which often requires several team meetings.

The impact of strong platforms – the interdisciplinary entrepreneurship minor as a platform for the program

Ecosystems typically exist on platforms. Platforms are organizational contexts often created and owned by a single entity designed for the participation of a number of actors to interact and achieve some purpose (Benkler, 2007; Kelly, 2015). Effective platforms can scale learning across an ecosystem which contributes to the creation and capture of new value (Hagel, 2015). The platform for the program is a nationally recognized entrepreneurship minor.

To maximize the impact, the minor is open to all undergraduate majors. It includes three required classes: Innovation and Ideation – for the development and initial testing of ideas; Feasibility Analysis – for market analysis and prototyping; and Entrepreneurial Strategy – a capstone which incorporates aspects of the first two courses in addition to business model development and financial analysis.

Reflective of current entrepreneurial thinking, the minor is designed to be lean and expedited yet produce a high impact on learning. The program uniquely integrates thinking from the entrepreneurial cognition, critical thinking, multi-sensory learning, technology transfer, experiential learning, self-identity, and learning transfer literature to comprehensively develop student entrepreneurial capabilities. The impetus for the proposed approach is driven by recognition of the need within industry and academe for curricula that develop and promote understanding of innovation processes, particularly with respect to an entrepreneurial mindset.

The entrepreneurship minor is helping drive the development of process and human capital development relevant to the region. Through the action-learning minor, we impact students and businesses through exposure to our processes and student preliminary thinking and final projects. Students complete an expansive ideation process which produces hundreds of ideas, eventually converging to a few unique ideas. The process then shifts to expedited market research and feasibility analysis, business modeling, and three-year financial pro formas. The program produces not only novel ideas but also individuals with the capabilities that can contribute to regional absorptive capacity to identify, assimilate, and exploit knowledge from its environment.

Driving diverse actor collaborations

A distinguishing feature of ecosystems is that they are oriented toward the achievement of something beyond the scope and capabilities of any one actor with innovation, often the product of integration across different areas of knowledge and expertise (Kelly, 2015).

In such an integrated system, every participant contributes and extracts value (resources, relationships, and learning) from their collective investment in the shared “commons” (Kelly, 2015; Hagel, 2015).

Since initiating the regional development program, hundreds of people have gone through the program. Participants are selected annually from a pool of applicants residing in nine counties. Participants expand their opportunities for creating new connections with other residents, with local and regional organizations, between communities, and between the university and the region. These connections are intended to transcend traditional boundaries of towns and counties.

A second aspect of diversity relates to occupation. Program teams are composed of individuals with different professional experience. For example, one recent team consisted of Julie – an Assistant Director of career services, Rebecca – a Grant Administrator, John – a Vice President of a large manufacturing facility, and Josh – a Supervisor for a large public utility. Another team was composed of Valerie – a Cooperative Extension Educator, Paula – a Resource Development Specialist, and Kerseclia – an Academic Outreach Coordinator. A third team consisted of Bethany – a Division Director for a large nonprofit, Nancy – an Entrepreneur, and Jason – a Technology Commercialization Manager.

Another way the team diversity is managed is through the intentional use of creative problem-solving differences. It has long been understood that if team members are too similar in their viewpoint, decisions can be made more easily, but overall effectiveness may suffer (Janis, 1971). More recently, support exists for forming teams based on their cognitive style, as this increases the innovative performance of problem-solving groups (Basadur and Head, 2001).

Since adopting the social entrepreneurship model, the program has utilized the Basadur Creative Problem Solving Profile to form heterogeneous teams by identifying cognitive-style preferences for creative problem solving. For example, teams are composed of individuals with various strengths across the range of creative problem-solving orientations: ideation, conceptualization, optimization, and implementation. This type of diversity compliments individual experiences and professional career roles thereby offering opportunities for unique cognitive intersections within teams.

Overall, regional vitality is enhanced through a process of intersecting not only external (geographic and organizational) but also internal (professional knowledge and cognitive problem-solving style) vectors to create new knowledge much like the role that cross-pollination plays in the biological realm in creating hybrid plants. While regions with many large firms have the luxury of a store of knowledge and R&D processes in place to allow for existing intellectual capital to be developed and intersected, our region has a larger share of firms that are not as likely to have these types of knowledge stores and processes in place. As such, the program uniquely contributes to the process of knowledge creation and dissemination in the region by driving diverse actor collaborations.

Accelerating engaged learning and innovation

Accelerated learning can be conceived of as involving a “specific instructional approach that utilizes non-conventional, effective methodology” (Serdyukov, 2008, p. 38). While accelerated learning has been defined in a number of ways in the literature, our accelerated, engaged learning approach can best be described as intensive learning. Intensive learning implies not only a quantitative condensing of material but also the use of a qualitatively different (immersive) pedagogy (Serdyukov, 2008). Note that comparisons of the effectiveness of accelerated/intensive learning to traditional approaches demonstrate a pattern of results with accelerated learning as effective in terms of learning outcomes, and in some cases, more effective than traditional approaches (Tatum, 2010). Positive learning outcomes combined with greater efficiency support the value of intensive learning approaches.

Paralleling the dynamics in education, current imperatives in the business environment relate to the need to effectively and efficiently translate learning into innovation (Eighteen *et al.*, 2014). For many companies, it is the most important hiring/partnering criterion as they look for individuals and organizations that will challenge status quo thinking. This trend accounts for the growth of innovation hubs such as InnoCentive which connects thousands of problem solvers and innovators across the globe as well as European business leaders call for the growth of local and regional innovation ecosystems (Ericsson, 2015; Duune *et al.*, 2014). The focus of many of these new relational forums is to address societal problems that generate sustainable value (Eggers and Muoio, 2015).

The first several classes of the program are focused on ideation/innovation – immersion into entrepreneurial mindset development, innovative thought, openness to new ideas, opportunity recognition, collaboration, and team coaching. The entrepreneurial mindset is not just about being an entrepreneur ... it is about possessing unique thought processes and the actions of complete ownership of whatever participants are involved in ... it is also about effectively and efficiently communicating ideas.

This part of the program is designed to provide participants with an opportunity to explore creative problem – solving, self- and other-based expectations, self-identity, purpose, and foundational ideation/innovation concepts as well as engaging the student in reality-based ideation. The objective for the students is to develop their awareness and abilities in understanding the potential role that ideation/innovation can play in the regional ecosystem value creation process.

In the next couple of sessions, participants evaluate the viability of their ideas. Participants use expedited first blush analysis to hone the number of ideas down into a more manageable subset. They then engage in more detailed feasibility analysis to examine aspects of the problem/pain an idea addresses, its uniqueness, and the market potential.

The last three sessions help participants to bridge the gap between entrepreneurial thought and practice by actively immersing students in the strategic entrepreneurial process. This consists of conceiving of all of the activities that create and deliver value for customers/clients as a means of creating sustainable competitive advantage for an organization. It involves business model development and financial analysis as well as communicating the final idea, its feasibility, and the business model in an atmosphere of team collaboration and coaching.

We now focus more detailed attention on the unique aspects of the first few classes utilized by the program, self-identity reflection and the ideation process, as a means of illustrating approaches that have potential for accelerating learning and innovation.

The program has utilized aspects of the self-identity literature to address how participants come to view themselves as entrepreneurial thinkers. Identity formation is an important area for educators interested in transfer of skills beyond the classroom setting. Millennials as well as nontraditional students have been characterized as desiring supportive yet empowering environments that include mentoring to help them develop new skills. Immersion activities are assignments which engage students in active learning by structuring the course objectives around experiential tasks. Experiential-active learning has been found to crystallize understanding and promote higher-level learning much more effectively than passive forms of learning such as lectures. Furthermore, entrepreneurship and innovation are more effectively learned through hands-on experiences, rather than conventional passive learning (Wagner, 2012). Thus, immersions in activities along with frequent, specific, future-focused coaching are ideal components of pedagogy for maximizing short- and long-term learning outcomes for these cohorts.

Early in the program, participants are asked to reflect on talents and passions and how they might be uniquely married to reflect their “true” identity. This reflection can better connect them to a network of mentors and like-minded others. Participants are engaged in immersive assignments and then instructed to journal reflections on their experiences with

the process. We also address issues such as fear, failure, and resilience which provide rich opportunities for self-learning. While the background phase assignments and journaling are completed individually, the majority of the entrepreneurial engagement assignments are completed in small groups during class. Thus, students experience much less lecture than the typical programs and, instead, experience a more continuous process of thinking and developing ideas in groups, and reflecting individually on their thinking in groups.

With regard to the role of the facilitator, whom we refer to as coach, we typically go around the room while students are engaged in activity, and, through monitoring the process, develop a much better feel for student thinking that allows us to be better “real time” coaches. In addition, we randomly ask for students to share their journal reflections at various points during the program and allow for coach and participant feedback on reflections. Reflection on one’s experiences is vital for the elaboration process as it facilitates the organization and crystallization of understanding into cognitive categories related to experiential or active learning. The immersive/coaching model is an ideal fit for the program as it seeks to help participants develop a more complete understanding of the entrepreneurial process and a more holistic understanding of themselves.

We now describe the unique ideation process utilized in the program. In a recent Booz and Co. research project (Jaruzelski *et al.*, 2012), 57 percent of respondents reported their company as only marginally effective at idea generation. Further, only 25 percent of companies characterized their company as highly effective at both ideation and converting ideas to development. Yet Booz and Co. found that effectiveness in the early stage of innovation is a strong predictor of financial performance.

The current approach is aimed at enhancing and expediting idea generation and conversion. Participants start with purpose statements or existing regional problems/needs statements which are then intersected with random combinations of mega-trends, concepts, visuals, videos, and assumption reversals to develop pools of unique potential idea solutions to regional problems. Students then employ first blush analysis to rapidly hone the idea pool to the most viable ideas to then move to feasibility analysis. Note that the use of multi-sensory stimulation is in keeping with the work of Mayer (1997). This research identified a clear “multi-media effect” in which participants who are exposed to coordinated visual and verbal stimuli generated more creative solutions on problem-solving transfer tests than participants exposed to one modality (cf. Celuch *et al.*, 2014 for a more detailed description of the ideation process).

Creating unique value

Ecosystems serve communities by helping to both capitalize on and fulfill basic human nature. The social sciences, philosophy, and theology confirm that, fundamentally, people want to achieve some level of competence in an area of their life. Most also want to belong, understand and be understood, and many want to make a positive difference in their community or region (Kelly, 2015). In fact, because of the rapidity of change in our environment combined with the complexity of society’s challenges, the need for more creative and collaborative ecosystems to develop unique solutions has never been greater (Eggers and Muoio, 2015).

A key issue relates to the value creation of the newly reoriented program in comparison to the past program. In terms of quantitative ideation output, groups of participants engaging in the unique ideation process appear to generate many more potential ideas with more variability across ideas in the social entrepreneurship-oriented program than in the more “traditional” format. More importantly, the quality of ideas/projects appears to be enhanced. Without question the earlier program offered some viable projects relevant to informational and tourism needs of the region. However, as can be ascertained from the exemplars provided below, for the social entrepreneurship-oriented program, the nature of the projects reflects a trend toward projects that are broader in focus, address more significant regional problems/needs, and include more unique intersections of regional resources and stakeholders.

Below are two examples of projects developed prior to reorienting the program to the social entrepreneurship mindset.

Regional Hispanic community survey: the survey was designed to capture the concerns of the growing Latino community in the Southern Indiana region. The survey would serve to profile the characteristics of the local Hispanic community, define the needs of the Hispanic community, and determine more accurate population numbers of the Hispanic community.

Warrick County airport visitors' kiosk: created as an informational kiosk; providing information to traveling visitors of potential interesting sights to visit in Warrick County, Indiana. The kiosk is placed at the baggage claim area next to the Convention and Visitors Bureau informational kiosk at the Evansville Regional Airport. As one touch-point of communication, the goal is to help promote Warrick County.

Below are two examples of projects developed out of the current social entrepreneurship-oriented program.

Southern Indiana career camps: addresses a current disconnect between industry and education in preparing students for the job market of today and tomorrow. This misalignment creates what is called the "gray collar gap" – which continues to contribute to the skills gap and prevents employers from finding the appropriately skilled employees for critical manufacturing positions that are available. This skills gap is caused partially by the fact that students graduate without the knowledge of opportunities as well as without being able to apply skills. By 2025, the focal Midwestern state is on pace to be short 600,000 skilled workers in the manufacturing sector. The career camps provide a unique collaboration between education, community, and a specific industry in providing middle and early high school students with vocational opportunity awareness. The main outcome of the career camps is for a student to develop a strategy with education and industry to create a "career plan" that exposes the student to self-exploration, career exploration, and education/training exploration prior to high school graduation.

Mobile fresh market program: addresses healthy nutrition needs of disadvantaged, food-insecure communities and helps reduce the six billion pounds of fresh produce waste in the USA each year. The lack of access to healthy food for these communities is a growing concern across the nation. Specifically, in the focal Midwest region, a large number of individuals living in these communities travel twice as far to reach a typical grocery store as they do to reach a fast food chain or liquor store, mostly attributable to a lack of transportation opportunities. This circumstance contributes to poor diets, higher obesity, and other diet-related diseases. The fresh market program will take advantage of a fresh produce supply chain from local farms, grocery stores, and supercenters (Walmart, Target, and Sam's Club) and employ a mobile food truck for convenience to meet people in their disadvantaged communities assuring access to fresh produce; providing education relevant to healthy eating; and accepting WIC/SNAP benefits (government program subsidies) for purchase of fresh produce.

Consistent with design intentions, the pilot program experience has the potential to transfer the impact beyond the program. For example, in the words of one former participant, "As a result of the program, I made changes in the direction my life was headed. I've returned to a career that is more of an avocation than a job. The experience helped me set a new course with a new way of thinking." Another program graduate has approached the coaches with an idea for a new business. One former participant has utilized program concepts and practice in the alumnae chapter of her international sorority where she recently received national recognition for her work in physical and mental health program planning with a primary focus on the black community. She has also received state-level recognition for her regional health education work.

Thinking innovatively and participants' pre-test-post-test changes related to the ideation process

Innovation in organizations is a competency capable of generating competitive advantage (Tidd *et al.*, 2005; Barsh *et al.*, 2008). As a result, understanding innovation processes has been identified as an imperative by business and educational realms (AACSB, 2010; The Chronicle of Higher Education, 2013). More specifically, it is crucial that we understand the situational processes that can engender innovative ideas to solve complex issues (Davis, 2000; Isaksen *et al.*, 2009).

Individual innovativeness has traditionally been viewed as a trait, rather than a learnable competency. However, recent evidence suggests that creativity in the context of organizational innovation is predominantly learned (Dyer *et al.*, 2009). As such, we maintain that innovativeness particularly as it relates to ideation skill can be enhanced. Therefore, the purpose of this section of the paper is to examine the pilot program elements which create an environment where unique and potentially valuable ideas can be generated. Such capabilities allow participants to better understand and contribute to innovation in their professional endeavors.

An important outcome of the entrepreneurial revolution of the past 20 years is research on entrepreneurial cognition which includes all facets of cognition that are relevant to entrepreneurial processes. These include opportunity recognition, decision making, and complex problem solving in the context of venture creation (e.g. Baron and Ward, 2004; Krueger, 2004; Mitchell *et al.*, 2002).

One area of the entrepreneurial cognition literature that is pertinent to the current study is research on the entrepreneurial perspective or mindset which can be developed by individuals (Kuratko, 2005; Krueger, 2007). At the core of the entrepreneurial mindset is opportunity recognition which is an orientation toward identifying and acting on options for new ventures (Krueger, 2000). Developing more potential opportunities increases the likelihood of finding the best one(s) to pursue (Krueger, 2000). Beyond maximizing the quantity of ideas, evidence suggests that practices that can break the cognitive inertia associated with "typical" brainstorming can increase the variability in ideas thereby strengthening the overall quality of ideas (Reinig and Briggs, 2008; Terwiesch and Ulrich, 2009).

As noted earlier, based on the work of Mayer (1997), we use multi-sensory stimulation in idea generation. This research identified an effect in which participants exposed to visual and verbal stimuli generated a median of over 50 percent more creative solutions on problem-solving transfer tests than participants exposed to one modality. This effect was observed across multiple studies and in one instance resulted in over 75 percent more creative solutions generated (Mayer, 1997).

With respect to quantitative analysis, 18 of 23 participants enrolled in a recently completed program completed this assessment. Individuals in the program experienced the pedagogy described above. The assessments utilized a pre-test-post-test design with participants assessed at the beginning (January) and end (May) of the program.

The questionnaire contained multiple items associated with an ideation beliefs measure, an ideation self-efficacy measure, and an ideation norms measure. The ideation beliefs consisted of nine-item scales related to participants' evaluation of statements tied to the idea generation process (Basadur, 2002). Justification for the use of the ideation measure relates to the prominence of deep beliefs as the foundation of entrepreneurial attitudes and intentions (Krueger, 2007). The ideation efficacy measure was assessed via three-, seven-item scales related to perceptions of having the skills and confidence in the skills for generating unique ideas (adapted from Celuch *et al.*, 2010) (Cronbach's $\alpha = 0.86$). The ideation norms measure was assessed via three-, seven-item scales related to perceptions that entrepreneurs, individuals in large firms, and individuals in small organizations use innovative thinking (adapted from Celuch *et al.*, 2010) (Cronbach's $\alpha = 0.80$). Efficacy and norms were measured

due to the central role of these cognitions in the development of a mindset and self-identity related to entrepreneurship and critical thinking (Krueger, 2007; Celuch *et al.*, 2010). It was expected that practice and experience with the approach outlined above would significantly enhance specific ideation-related beliefs, ideation self-efficacy, and ideation-related norms.

Results

Tables I-III present pre-test and post-test means and *p*-values for the paired sample *t*-tests for the measures. Note that, as expected, post-test means are consistently significantly higher (or lower depending on item wording) for a shift in beliefs away from self-censoring and prejudging ideas during ideation and more toward greater openness in the ideation process. Further, perceptions relating to ideation self-efficacy and norms were also significantly strengthened.

These pre- and post-test results show evidence of participant change in cognitions as a result of involvement in the social entrepreneurship program emphasizing innovative solutions to regional problems/needs. Recall that platforms exist to engage diverse actors, drive new collaborations, accelerate engaged learning and innovation, and create unique value. Beyond project ideas from the program, part of the unique value of this type of engagement relates to the changes in beliefs tied to the ideation process, efficacy, and norms which can translate to future innovative behavior (Krueger *et al.*, 2000). Further, the technology transfer literature (which is also concerned with the ecosystem enhancement) notes that the transfer of process may be more important than the transfer of product ideas as it is the development of human capital (Bozeman, 2000) which is critical for future sustainability of the ecosystem development.

Item	Group means		
	Pre-test	Post-test	<i>p</i> -value
We should cut off ideas when they get ridiculous and get on with it	6.17	3.56	0.000
I feel that people at work ought to share all their ideas because you never know when a crazy-sounding one might turn out to be the best	6.22	8.11	0.000
Judgment is necessary during idea generation to ensure that only quality ideas are developed	5.94	3.78	0.001
I wish people would think about whether or not an idea is practical before they open their mouths	6.28	3.67	0.000
You need to be able to recognize and eliminate wild ideas during idea generation	6.67	3.83	0.000

Table I.
Means and *p*-values for pre- and post-test ideation beliefs

Item	Pre-test	Group means	
		Post-test	<i>p</i> -value
Ideation self-efficacy	4.57	5.78	0.000

Table II.
Means and *p*-value for pre- and post-test ideation self-efficacy

Item	Pre-test	Group means	
		Post-test	<i>p</i> -value
Ideation norms	5.52	6.22	0.008

Table III.
Means and *p*-value for pre- and post-test ideation norms

Conclusion

As higher education stands at this inflection point characterized by blurring service boundaries and competitive disruption, the need for institutions to strategically create distinctiveness that leads to competitive advantage has never been greater. Historically, education is a service where “customers” do a good deal of the work to produce short- and longer-term outcomes. As a result, resources have been directed at understanding reciprocal communication and interaction as a means of engaging students. Yet like businesses, universities recognize that they operate in a broader ecosystem beyond the institution-customer/student intersection and can thus uniquely contribute and capture value from their broader systems. Thus, in order to create genuine value in educational service delivery of the future, there is a need for more highly developed understanding of the institutional-ecosystem intersection. The present paper aims to contribute to the higher education literature by prototyping a program which points to a broader conception of the role of the university in the ecosystem development.

The prototype program described in this paper points to a number of implications for the future of higher education services in regional development:

- The university can play the role of the ecosystem integrator. As with the prototyped program, the university creates the space for resources and actors to more consistently and systematically align as a means of addressing regional problems/needs.
- The university can create new educational service platforms. As delineated in the paper, the regional development program was based on an entrepreneur minor platform. In turn, the regional development program can now spawn new platforms to address regional and global imperatives. This illustrates the power of strong platforms as they become “autocatalytic”, or self-accelerating, with an effective platform allowing more rapid development of the next iteration (Brand, 2009). In addition, such platforms can reduce program development costs and, since they are not structured as bureaucratically as a formal degree program, can mitigate risks of disruption by more flexibly reconfiguring as needed.
- The university can impact its region by co-creating transformative experiences as part of sustainable platforms. As with the pilot program, participants can develop new capabilities aimed toward co-creating unique solutions to pressing local and regional challenges. Outcomes of such experiences hold the potential of intentionally expanding and redefining the value propositions of higher education institutions.
- The fundamental boundaries that have defined educational relationships will continue to blur. For example, the program includes individuals participating as part of a degree program, certificate program, and those participating for purely professional and personal development thus blurring the degree-non-degree boundary. Further, participants receive face-to-face coaching as well as virtual coaching thus blurring the in-person-digital boundary.
- The notion of the university creating and capturing value as a regional ecosystem integrator will spur new business models that further blur the lines between tangible vs intangible incentives and public vs private sector financing. For example, shared interests, values, and mutual benefit can serve to partially incentivize participants’ efforts in the ecosystem enhancement. Further, the program was initially funded through a grant from the Eli Lilly Endowment and discussions are now underway to consider alternative funding models.

In terms of practical implementation, a primary strength of the lean yet high impact approach used in the program is that the process can be used in virtually any training environment that requires developing a social entrepreneurship mindset. Aspects of the

program have been successfully applied in five-week formats (as the Technology Commercialization Academy which partners business and engineering students with the aim of technology transfer) as well as for employees within an organization (as an Administrative and Professional Staff Workshop aimed at organizational process improvement). The unique ideation process is particularly advantageous for the nonprofit as well as the corporate environment as the greatest return on innovation efforts can be captured by improving idea generation, as this stage is relatively inexpensive compared to subsequent product or service development stages.

In conclusion, the prototype program is about connection. Over the past three years the program has helped uniquely connect university and college visions, the university to the region, program content to relevant literature, participants and their ideas to the region, participants to participants and coaches, and finally, participants to themselves. Ultimately, these connections manifest in the role of the university as an ecosystem integrator for the purpose of accelerating learning and innovation in the region.

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