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The Resourceful Academic-Entrepreneur: How to Build Entrepreneurial Potential with Limited Budget

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ABSTRACT

Universities have always been acknowledged as important drivers of economic development. Traditionally Institutions of Higher Education (IHEs) contributed indirectly by disseminating knowledge and providing educated personnel to industries. A shift in the primary missions of universities encourages universities to take a more active role in economic development. Creating entrepreneurial capacity through Innovation and Entrepreneurship (I&E) education, and the commercialization of knowledge generated by IHEs is one of the new proposed roles. Although universities recognize the value of I&E, many are working under conditions of financial distress. The article attempts to answer the following question: how to stimulate innovation and entrepreneurship when resources are scarce? The paper uses as evidence the initiatives adopted by a Pathways to Innovation Team. The strategic objective of the team was to develop I&E mindsets by (1) increasing I&E awareness, (2) creating spaces for interdisciplinary interaction and (3) fostering collaboration between faculty and students across disciplines. The article highlights: (1) the theoretical foundations to build entrepreneurial potential (I&E mindsets) in IHEs, (2) how the Pathways to Innovation Program provided the foundations to draw a map by examining the existing infrastructure, (3) the initiatives placed to stimulate entrepreneurial potential, (4) the assessment strategies to evaluate the initiatives, (5) and strategies to overcome key challenges and move forward.

Key words: Innovation & Entrepreneurial Mindset, Entrepreneurial Potential, Entrepreneurial Ecosystem, Entrepreneurial Universities

INTRODUCTION

Universities play a crucial role at stimulating innovation and entrepreneurship (I&E). Kapetaniou and Lee (2016) put forth the idea of the university's "third mission", which extends its research

and education role. Although the specific definition of the "third mission" varies, it relates to direct contributions to economic growth and social progress (Sánchez-López et. al. 2017).

In their seminal work, Shane & Venkataraman (2000) defined entrepreneurship as the process of opportunity discovery and exploitation. In universities, the outcomes of this process are measured by the number of commercialized projects including new products, university consultancy services, licensing agreements, spin-offs and start-ups (AUTM 2010–2014). Nonetheless, these do not emerge in a vacuum. Entrepreneurial universities assemble, combine and configure resources (Sánchez-López 2013). These constitute the I&E infrastructure, which includes physical spaces (i.e. laboratories, equipment, etc.); financial resources (i.e. industry-government funding; institutional budgets); and commercial resources to drive products to market (i.e. TTOs, accelerators, etc.). The ultimate role of university infrastructure is to translate discoveries into entrepreneurial outcomes (Shane & Stuart 2002, Mueller 2007).

Despite the importance of infrastructure in generating the outcomes, there's still something missing. If 'Entrepreneurship requires action' (McMullen and Shepherd 2006), then people are key in the equation. Not only do people discover opportunities, they also decide to exploit these (Shane & Venkataraman 2000). But, how do we create 'entrepreneurial people' or what Timmons (1994) called 'opportunity obsessed'? The simple answer to the complex question is by stimulating I&E mindsets. Using the initiatives of Pathways to Innovation Team (Melting Pot Series) as a case, this article discusses how to create a program to stimulate I&E mindsets and entrepreneurial potential when resources are scarce. But first, theoretical underpinnings of entrepreneurial potential and I&E mindsets are discussed.

ENTREPRENEURIAL POTENTIAL: THEORETICAL CONSIDERATIONS

> *"Before there can be entrepreneurship, there must be the potential for entrepreneurship... potential entrepreneurs need not have any salient intentions...; their potential is latent..."*
> (Krueger and Brazeal 1994).

Social psychology literature posits that entrepreneurial potential is a function of desirability and feasibility perceptions (self-efficacy). Individuals must perceive the activity is desirable and must perceive he/she can do the activity. Emphasis on perceptions resides on the fact that beliefs and attitudes are driven more by what individuals perceive than objective measures.

Other authors (i.e. Raab, Stedham, and Neuner 2005; Athayde 2009) argue that entrepreneurial potential is manifested by characteristics such as need for achievement, locus of control, propensity to take risks, problem solving, willingness to assert oneself, tolerance of ambiguity, and emotional

stability or attitudes towards characteristics associated with entrepreneurship such as leadership, creativity, achievement, and personal control scale.

Bearing in mind that entrepreneurial potential is conceptualized as an individual's preparedness to engage in entrepreneurial activities, Santos et al. (2013) validated, both theoretically and empirically, the entrepreneurial potential construct and operationalized it as desire for independence, entrepreneurial motivation, entrepreneurial self-efficacy, vision, resource mobilization capacity, leadership capacity, innovation capacity, emotional intelligence, resiliency, communication & persuasion capacity, and network development capacity.

In STEM disciplines, the term entrepreneurial mindset has gotten significant attention in the past years. Although there is lack of agreement in the definition (Mckenna, et. al. 2018), it has been defined and measured using similar factors, including but not limited to entrepreneurial motivation, creativity, empathy/emotional intelligence, entrepreneurial self-efficacy, locus of control communication, collaboration and persuasion (i.e. Gerber et. al. 2012; Borchers et. al. 2010; Davis et. al. 2016). Although most definitions focus on individual variables, Korte, Smith and Li (2018) put forth the role of the ecosystem in promoting I&E mindset by defining it as the result from the interaction of an individual and his or her environment.

In this paper, innovation and entrepreneurial mindset is equivalent to entrepreneurial potential, and the terms are used interchangeably. Even more, this paper conceptualizes entrepreneurial potential in the broadest sense, where it represents a function of desirability and feasibility perceptions (self-efficacy). Because of this, initiatives to create entrepreneurial potential must stimulate positive attitudes towards entrepreneurship and perceived competence in entrepreneurship (self-efficacy).

Figure 1 illustrates the UIEE model based on the literature discussed. Entrepreneurial potential (I&E mindset) is the baseline in the model. Potential entrepreneurs discover opportunities and will further decide to go up the ladder and tap into the resources available, in this case, at the university. Not all individuals with entrepreneurial potential will decide to exploit opportunities, nor will succeed at it. Usually, a catalytic or displacement event triggers action from potential entrepreneurs (Shapero 1982). These triggers are usually not controllable (i.e., lack of employment opportunities; career choice; other). Because of this, the literature suggests developing entrepreneurial potential so that individuals, when confronted by a trigger event, opt for entrepreneurship.

ENTREPRENEURIAL POTENTIAL AND EDUCATION

Based on the literature discussed in previous paragraphs, I&E education should have a dual role: to create positive attitudes towards entrepreneurship and to develop competencies (self-efficacy) to

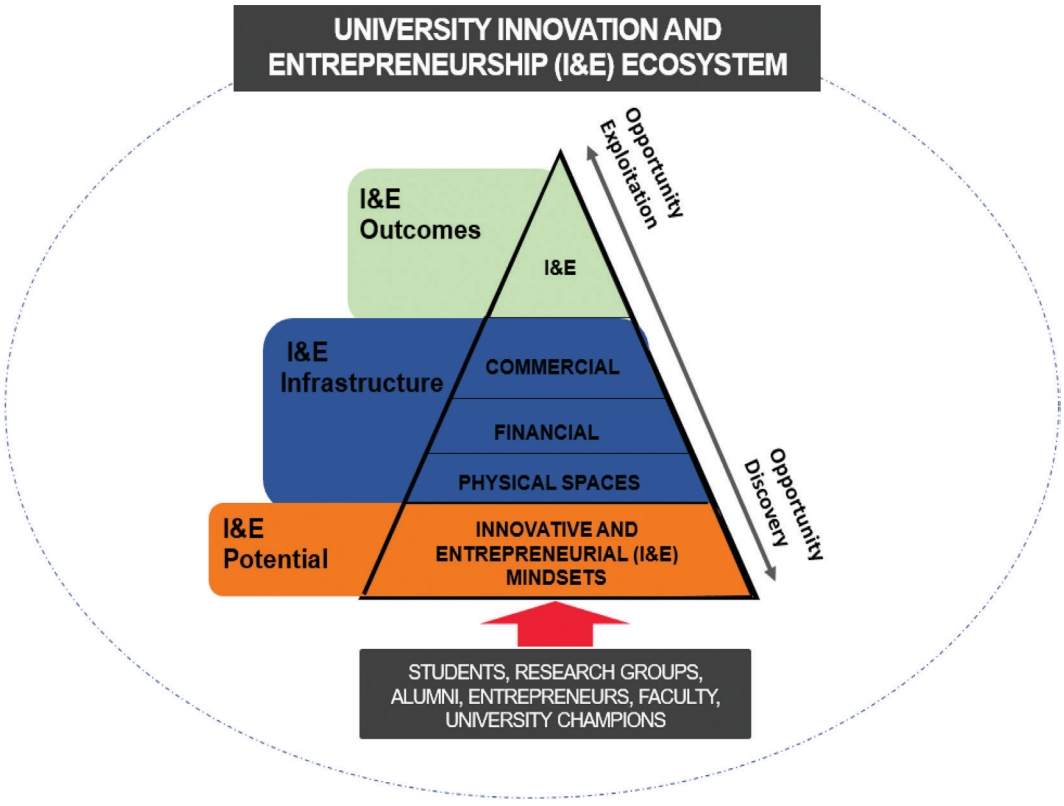

Figure 1. University Innovation and Entrepreneurship Ecosystem (UIEE)

Source: Developed by the Authors

enact the entrepreneurial process and outcomes. According to Fayolle et al. (2006), entrepreneurship education is a process of developing entrepreneurial attitudes and skills. It is a new approach to building skills, attributes, and behaviors oriented towards improving creative and critical thinking (Kirby, 2004). It differentiates from typical business education and must include skill-building courses in negotiation, leadership, new product development, creative thinking, technological innovation, awareness, idea protection, venture capital sources, among others (Solomon et al. 2002 in Kuratko 2005). According to Pollard and Wilson (2014), it is characterized by five skills: i) the capacity to think creatively, strategically, analytically and reflectively, ii) confidence in one's abilities, iii) the ability to collaborate, iv) well-developed communication skills and v) an understanding of the current context.

Several authors stress that there are different types of entrepreneurial education targeted to specific audiences, such as programs to increase entrepreneurial awareness and develop entrepreneurial skills of students with no previous experience in entrepreneurship (Jun Bae et al. 2014), or

such as students enrolled in STEM-related fields. According to Mariana (2015), engineering students need entrepreneurial education that focuses on entrepreneurial mindsets, together with a set of vocational and business skills.

In addition to the content of entrepreneurial education, there has been a growing interest in methodologies such as experiential learning approaches and, the emergence of interdisciplinary entrepreneurial teams for innovation (Weilerstein, Ruiz & Gorman 2003). Kolb (1984, 2014) defines experiential learning as a process by which knowledge is created through the transformation of experience. His model shows that individuals learn through experience, reflection, thought, and experimentation.

Several studies have examined the outcomes of experiential learning. Politis and Gabrielsson (2009) found a correlation between experiential learning on attitudes towards failure. Hoover et al. 2010 found that experiential learning has a significant impact on developing skills such as leadership, decision making, planning, organizing, communication, and teamwork. Li et al. (2007) investigated the effects of using traditional approaches versus experiential approaches. The authors found that experiential learning approaches were rated higher on overall evaluation (i.e., career preparation, educational goals, use of time, personal involvement and satisfaction with learning), and skill development (i.e., problem solving, managing operations, strategic planning, running a meeting, risk-taking, and interpersonal skills). More recently, Knight et. al. (2019) put forth its role promoting future international engagement among undergraduate engineers through experiential learning and study abroad programs.

The initiatives to stimulate entrepreneurial potential (I&E mindsets) at Universidad del Turabo were carefully designed to include the adequate content and method (i.e. experiential learning) that focused on developing positive attitudes and competencies (self-efficacy) for innovation and entrepreneurship.

DRAWING THE MAP TO MOVE FORWARD

The Pathways to Innovation Program was designed to help institutions incorporate innovation and entrepreneurship (I&E) into a range of programs. Universidad del Turabo (UT) became a Pathways Institution in 2015. The team developed UT's I&E landscape, which provided an understanding of the ecosystem in place. The landscape assisted the team in collecting information on existing courses, programs, extracurricular activities, spaces, catalysts and champions. The findings of the course inventory, which records all entrepreneurship and innovation courses for engineering students, showed that there were no required courses for engineers that covered topics or provided direct

experiences to develop I&E mindset. The senior capstone provided an indirect experience since students had to identify a problem and develop a solution. No aspects related to entrepreneurship were discussed. Overall, the findings of the inventory suggested the introduction of I&E content and experiences in early stages (freshman students).

The inventory of extracurricular activities and spaces demonstrated that although the institution had I&E infrastructure in place, it was not being maximized. The extracurricular activities inventory was designed to record all entrepreneurship and innovation extra and co-curricular programming for engineering students available on or off campus, as well as in or outside of engineering. The inventory of spaces considers the degree to which the campus provides spaces that foster entrepreneurship and innovation, including classrooms, laboratories, maker spaces, and incubators, among others. An important characteristic of a space (physical or virtual) is that it fosters collaboration, innovation and entrepreneurship.

Examination of co-curricular activities and spaces showed that less than 1% of the applications to the accelerator program came from students, and a similar percent used the FabLab facilities, and the business incubator services. This fact, in addition to the results of the champion inventory, which represents individuals who have the knowledge, influence, and time to move entrepreneurship and innovation education initiatives forward, confirmed the existing ecosystem lacked a critical piece: people. The team needed people with positive attitudes towards entrepreneurship and skills to start tapping into the existing infrastructure. Entrepreneurial potential was required. To accomplish this, the team created the Melting Pot Series. The purpose of the program was to develop I&E mindsets of students and faculty by increasing awareness of I&E and creating spaces for interdisciplinary collaboration between faculty and students. Special focus was given to introducing I&E experiences at early stages and training.

The landscape helped the team identify gaps in the I&E ecosystem and potential partners. The next section provides a brief summary of the context and how the team harnessed it to achieve the goals. Also, the journey taught us that the actual I&E ecosystem consists of any office, department or individual, regardless of whether innovation and entrepreneurship are part of its role or objectives. The section *Key Strategies for Growing Entrepreneurship Potential* describes how the team aligned the goals of other offices and departments in the pursuit of innovation and entrepreneurship.

ABOUT THE CONTEXT

Universidad del Turabo (now known as Universidad Ana G. Mendez, Gurabo Campus) is a private, non-profit, Hispanic-serving institution (HSI) of higher education established in 1972. It is located on a 116-acre campus in Gurabo, Puerto Rico. The university offers 47 baccalaureate programs, including

such areas as science, arts, and engineering, 31 master's programs, and five (5) doctoral programs. The enrollment of the university for Academic Year 2017–18 was 17,034 students (2018 Fact Sheet, SUAGM), of which a little over 12,000 were undergraduates. The university's student population is classified as 100% Hispanic. The increase in high school dropouts, emigration of the productive population, and reductions in private employment created precarious conditions in institutions of higher education (IHEs) in Puerto Rico, and even more for tuition driven institutions which serve a local and declining market. These circumstances result in lack of institutional budgets for new courses and programs, which requires resourceful and creative strategies.

In terms of infrastructure for I&E activities, the institution established The FabLab Puerto Rico, in 2011, managed by the School of Design. It has four functions: (1) School's formal lab for Fashion, Industrial, Interior, Graphic Design and Architecture (2) Open FabLab with educational projects for the community, (3) Prototyping, and (4) R&D services for all local industries. The FabLab contributed with workshops on validation and prototyping. It also provided space to develop student projects.

In 2013, The Eng. José Domingo Pérez School of Engineering (SoE) was funded by the U.S Economic Development Administration (EDA) to create the Clean Technology Accelerator, ACT Global. Its primary purpose is to facilitate financial, technical, material, and strategic assistance to entrepreneurs, inventors, and innovating business owners from any origin in the development and commercialization of their initiatives to generate wealth and specialized employment. Currently, ACT Global runs Startup.pr, an acceleration program that invests in technology-based startups. It is a 3-month program aiming to help local innovators, early-stage innovators, by providing them with seed funding, resources, and coaching to escalate and accelerate their business with a global perspective. The team harnessed the resources of the ACT Global Accelerator by (1) using spaces for pitch competitions and training, (2) recruiting personnel to assist in logistics and evaluation of projects, (3) offering services to finalists and participants of Melting Pot Series.

The university also has an Incubator and Business Development Center under the University Employment Division. It promotes business development as a real employment alternative to students and the local community. The center provides spaces, mentorship, and virtual incubation to entrepreneurs. The Center and the School of Business and Entrepreneurship coordinate the Entrepreneurial Fair, a yearly event that brings entrepreneurs, local artisans, and representatives of the entrepreneurial support ecosystem in the region to create awareness of entrepreneurship. The Entrepreneurial Fair represented an opportunity for the team. It created a space to introduce experiential workshops, coordinate competitions, and promote activities.

The School of Engineering (SoE) is currently the lead of the Consortium for Integrating Energy Systems in Engineering and Science Education (ClESESE), a U.S. Department of Energy (DOE)-sponsored project to increase the pipeline of Hispanic graduates ready to pursue a career in energy-relevant fields.

Faculty and students, from engineering and the physical sciences, participate in energy systems research through the Consortium. It also offers summer research opportunities to students. The SoE, through the Puerto Rico Energy Center (PREC), provide services (energy audits) with the participation of students. This project is the first job experience for many students. The Consortium for Integrating Energy Systems in Engineering and Science Education (CIESESE) of School of Engineering extended the faculty and student training developed by the team to the graduate level. Some I&E workshops developed by the team (Refer to Table 2) were introduced in the curriculum (modules) required of researchers in the program.

BUILDING ENTREPRENEURIAL POTENTIAL: THE MELTING POT

As previously stated, the Pathways to Innovation Team created the Melting Pot Series to develop I&E mindsets of students and faculty by increasing awareness and creating spaces for interdisciplinary collaboration between faculty and students. Each initiative impacts entrepreneurial potential in different ways: positive attitudes towards entrepreneurship (desirability perceptions) or through self-efficacy (feasibility perceptions). It is important to remember that increasing positive attitudes towards entrepreneurship (desirability perceptions) relates to making entrepreneurship desirable and attractive to individuals, while self-efficacy (feasibility perceptions) refers to perceiving entrepreneurial tasks are achievable (I can do it). Table 1 describes the initiatives developed by the Pathways Team, the entrepreneurial potential dimension it attempts to impact (attitudes or self-efficacy) and the strategic goal component it addresses.

Table 1. The Melting Pot: A Program to Stimulate I&E Mindsets.

Melting Pot Series Initiatives	Entrepreneurial Potential Dimension/ Strategic Goal Component
Faculty and Student Training - A series of experiential workshops designed to develop I&E mindsets of both students and faculty.	Desirability & Self-efficacy/I&E Awareness & Interdisciplinary collaboration
Introduction of I&E content in all freshman courses across disciplines - A module and a Handbook on I&E were included in the Freshman Seminars.	Desirability & Self-Efficacy/I&E Awareness
Freshman Idea Contest – Students and faculty worked together to identify problems and design solutions related to their environment (university).	Desirability & Self-efficacy/I&E Awareness & Faculty-Student collaborations
Rocket Pitch Competitions – Students pitched entrepreneurial concepts (video & live) at Melting Pot series events and entrepreneurial fairs.	Self-efficacy/I&E Awareness
Organizing fun events where students interact and develop I&E competencies through games – Events where students from different disciplines interact through games that develop empathy, creativity, problem solving, pitching, among others.	Desirability & Self-Efficacy/ Interdisciplinary Spaces
Connecting students working in projects with faculty and students from other disciplines – Students and professors working in projects were referred to individuals in other disciplines depending on the project.	Self-efficacy /Interdisciplinary Collaborations & Faculty-Student Collaborations

Melting Pot Series Initiatives

FACULTY AND STUDENT TRAINING

As discussed in previous sections, entrepreneurial education assists in developing entrepreneurial potential. In this section, the faculty and student training initiatives developed under the Melting Pot Series umbrella are discussed. Table 2 describes the content and learning goals of the program.

Table 2. Student & Faculty Workshops.

#	Workshop	Description & Learning Goal
1	Introduction to I&E: Course Methodologies and Tools (4 hours)	The purpose of this workshop is to expose faculty members to an inventory of course tools & methodologies to foster innovative and entrepreneurial (I&E) mindsets in the classroom. Professors are introduced to a variety of experiential exercises and resources in the following areas: (1) Creating I&E Awareness, (2) Opportunity Identification, (3) Ideation & Creativity, (4) Problem Solving & Prototyping, (5) Experimenting & Testing, and (6) Pitching. After completing the session, participants should be able to describe and apply experiential activities to stimulate I&E in the classroom using as a framework the design thinking process. Refer to the following link for training materials: http://bit.ly/meltimetho
2	Innovation Canvas (4 hours)	The purpose of this workshop is to simulate the Design Thinking Process using the Innovation Canvas (Sánchez-López 2018) allowing participants to apply each stage of the process: (1) Empathizing for Customer Discovery, (2) Problem Definition, (3) Ideation, (4) Prototyping, and (5) Testing. After completing the session, participants should be able empathize with potential consumers/users to identify problems, design creative ideas, and examine problem/solution fit. Refer to the following link for training materials: http://bit.ly/melticanva
3	Strategic Doing (4 hours)	The purpose of this workshop is to introduce faculty members to the Strategic Doing Methodology, an agile strategy tool developed by the Strategic Doing Institute at Purdue University. Building on a case, participants of the workshop go through all the stages of strategic doing, specifically: Identifying Assets; Brainstorming Ideas; Connecting Assets to Define Opportunities; Selecting an Opportunity; Defining Successful Outcomes; Developing a "*Pathfinder Project*"; Staying Connected (30/30); and Mapping the Strategy. After completing the session, participants should be able to apply the strategic doing methodology to identify problems, integrate resources, design solutions and develop actionable plans. Refer to the following link for training materials: http://bit.ly/meltistrategic
4	Business Models (2 hours)	Based on Osterwalder et al. (2010) the purpose of this workshop is to understand the components and the interrelations between the nine components required to build a sound business model, including customer segments, value proposition, channels, customer relations, revenue model, key activities, key resources, and cost structure. After completing the session, participants should be able to describe business model components and apply these to test product/market fit. Refer to the following link for training materials: http://bit.ly/meltibussmodel
5	Rocket Pitch (2 hours)	The purpose of this workshop is to introduce participants to the elements in a Rocket Pitch presentation. Participants of the workshop are divided into teams and develop a Rocket Pitch presentation using a case. After completing the session, participants should be able to communicate effectively entrepreneurial concepts. Refer to the following link for training materials (only available in Spanish): http://bit.ly/meltirocket
6	Design Thinking: Ideation Workshop (2 hours)	The purpose of this student-led workshop (by University Innovation Fellows - UIFs) is to introduce participants to the design thinking process with an emphasis on the first three stages: empathy, define, and ideation. After completing the session, participants should be able to apply creativity to identify problems and develop solutions.
7	Design Thinking: Prototyping Workshop (2 hours)	The purpose of this student-led workshop (by University Innovation Fellows - UIFs) is to introduce participants to the design thinking process with an emphasis on the prototyping stage. The workshop illustrates innovative ways to make tangible representations/models of potential solutions, including storyboards, sketches, models, and others. After completing the session, participants should be able to build visual representations to present potential solutions to problems.

Overall, the program increases desirability and feasibility perceptions (entrepreneurial potential) by creating I&E mindsets for both students and faculty members. Since participants of the workshops included students and faculty members, the training initiatives not only contributed to creating I&E awareness but constituted spaces to break down barriers across disciplines and created links between faculty and students.

ENTREPRENEURIAL POTENTIAL AND FIRST YEAR EXPERIENCES

Recognizing that entrepreneurial potential is a function of both attitudes (desirability perceptions) and self-efficacy (feasibility) suggests the importance of developing it at the early stages. The Pathways to Innovation Team at Universidad del Turabo incorporated different initiatives at early stages (first-year students). As discussed below, these strategies continued to evolve over time. An initial attempt to stimulate entrepreneurship at early stages was the introduction of I&E content in the Freshman Seminar Handbook. The Freshman Seminar is a required course under the School of Liberal Arts and General Education, which provides students with a series of activities, techniques, and educational experiences to help them accomplish personal and academic success. To introduce I&E at early stages, the team partnered with the school and introduced the following course objective: to develop positive attitudes towards I&E by increasing an understanding of the field and its relationship to their discipline. A chapter on innovation and entrepreneurship was added to the Freshman Seminar Handbook to accomplish this objective. The chapter included: (1) a definition of entrepreneurship, (2) differences between innovation and creativity, (3) characteristics of innovators & entrepreneurs, and (4) a canvas to discover opportunities.

Simultaneously, the team developed the Freshman Idea Contest. The idea emerged from the success of previous video competitions that were part of the Melting Pot Series Events that targeted students enrolled in capstone and senior entrepreneurship courses from engineering, design, and business. The purpose of the freshman idea contest is to create a space where first-year students can share innovative ideas to solve current problems through products, services, programs, or organizations. Students present a 3-minute rocket pitch that is evaluated using the following criteria: (1) problem, (2) solution, (3) innovativeness, (4) impact, (5) feasibility, (6) clarity & time management, and (7) passion. The competition is held at the end of each Fall semester, and the number of ideas has doubled since its inception, with over 60 teams competing and hundreds attending (based on numbers from November 2019).

In 2017, the Entrepreneurship Experiential Handbook for Freshman Students was developed. The handbook is used as an activity book to the Freshman Seminar course described in previous

paragraphs. The handbook contains 10 activities to stimulate innovation and entrepreneurship in all disciplines. This handbook is a practical addition because it does not alter the content of the course in any way. Instead, it focuses on incorporating experiential learning activities that introduce design thinking methodology and develop entrepreneurial skills to accomplish each of the predefined goals of the course. There are two versions of the Entrepreneurship Experiential Handbook for Freshman Students: student and instructor version. The instructors' version contains the purpose of activities, explanations of key concepts, and additional notes. The graphics in the manual were developed by a student of the International School of Design and Architecture. Refer to the following link for training materials (only available in Spanish): http://bit.ly/meltimanual.

ASSESSING INITIATIVES FOR ENTREPRENEURIAL POTENTIAL

Assessment is an integral part of continuous improvement (CI), although often perceived as tedious, bureaucratic, and complex. Student evaluations and feedback gathered from assessment practices can be applied to quality assurance and therefore improve teaching and learning (Kinash et al. 2015). Although there are several reasons for conducting an assessment (i.e., accreditation requirements or accountability issues), the underlying goal should be continuous improvement (Hinett and Knight 1996).

The Shewhart/Deming Cycle, known as the Plan-Do-Check-Act (PDCA) cycle, illustrates a process (steps) for continuous improvement CI and change. In the PLAN stage, individuals gather data to define problems that need improvement and potential solutions. In the DO stage, individuals implement the plan or pilot to test. At the CHECK stage, individuals analyze the results to evaluate goals and outcomes to adjust. The ACT stage enacts/revises the plan (existing or new) based on the results. The framework (PDCA) has been used to examine continuous improvement initiatives at universities (Temponi, 2005).

Based on the Plan-Do-Check-Act model, an assessment plan was developed by the team. The structure of the plan included: (1) the programmatic initiatives, (2) goal of the programmatic initiative, (3) expected results, (4) sources of evidence to gather the results, and (5) timeline. At the initial stages, the team employed qualitative methods. Specifically, the team interviewed instructors who attended faculty seminars to (1) examine how relevant was the training program to different disciplines, and (2) identify which materials or resources were more important, and to which courses.

Another assessment method used was a self-report survey. Drawing from the literature on entrepreneurship, a survey was developed to evaluate the training program. The instrument mea-

sured perceived importance and perceived confidence in factors associated with entrepreneurial potential (I&E mindsets). Refer to Table 3. Perceived importance was measured on a five-point Likert scale, where 5 indicates very important and 1 not important at all, and perceived confidence was measured on a three-point scale. Since there was a limited time for the workshops, a cross-sectional approach was employed to examine changes in confidence. A cross-sectional or transverse approach considers the collection of data at one point in time, at the end of the workshop. Participants were also asked to evaluate the methodology (delivery) of the training program because several authors have found that educational methodologies such as experiential learning approaches have significant effects in developing leadership, decision-making, planning, organizing, communication, and teamwork (Politis and Gabrielsson 2009). Also, when compared to other learning methodologies, experiential learning approaches have been found to significantly enhance student learning (Li et al. 2007)

First-year student initiatives have been assessed using different measures including (1) number of participating teams; (2) attendance; (3) professors supporting the activity; (4) disciplines participating in the contest; (5) Rocket Pitch rubric; and (6) the Freshman Seminar course assessment.

Table 3. Innovation & Entrepreneurship Measures.

Opportunity Identification	
Empathy	• Observe situations and contexts to understand how people think, feel, and behave. • Imagine and adopt other people's perspectives. • Understand potential users and/or consumers.
Search	• Identify a problem, need and opportunities. • Process information and establish connections between different information.
Ideation & Problem Solving	• Design solutions to problems and needs. • Develop original ideas with the potential to solve problems.
Opportunity Exploitation	
Business Modelling	• Identify the components of a business model. • Build a business model • Understand the interrelations among business model components.
Testing	• Gather evidence on entrepreneurial concepts. • Evaluate the feasibility and desirability of ideas.
Collaboration & Communication	• Work in teams. • Use resources and knowledge of others. • Communicate ideas effectively in a visual, written, and oral manner.
General Evaluation and Methodology	
• Provide the foundations to develop innovation and entrepreneurship. • Are relevant (can be applied) to different disciplines. • Promote experiential learning. • Stimulate an innovation and entrepreneurship mindset. • Are fun.	

KEY STRATEGIES FOR GROWING ENTREPRENEURIAL POTENTIAL

University ecosystems are crucial for innovation and entrepreneurship (I&E). Although innovation & entrepreneurship infrastructure is necessary, it is not effective without entrepreneurial potential. As stated by Krueger and Brazeal (1994): "*Before there can be entrepreneurship there must be the potential for entrepreneurship…"*. Entrepreneurial potential is characterized by individuals who have positive attitudes towards entrepreneurship and have entrepreneurial self-efficacy. Because of this, it is critical to develop initiatives that impact both.

This article highlighted the initiatives executed by the Pathways to Innovation Team at Universidad del Turabo. Like many others who have led innovation & entrepreneurship at their university, the team has encountered and developed strategies to overcome several challenges. The most significant ones were: (1) the *'If You Build It, They Will Come'* Syndrome, (2) no institutional budgets available to build entrepreneurial potential; and (3) lack of participation from professors and students in initiatives organized by the team.

The first challenge is what we called the *'If You Build It, They Will Come'* Syndrome. The syndrome occurs when initiatives for innovation and entrepreneurship only focus on infrastructure: 'If we build an incubator, the ideas will come'; and, the revenue from university products and services will start pouring. Unfortunately, the underlying result is an excellent infrastructure with no input; hence, limited outcomes. The problem becomes significant because it redirects institutional budgets and shifts priorities. For example, when trying to introduce initiatives directed towards entrepreneurial potential or mindsets, these get disregarded because 'there is an ecosystem' supposedly in place. It is represented in the pyramid of Figure 1, where each stage is a step up in the ladder of the entrepreneurial ecosystem. Hence, it is crucial to understand at which stage the university is at. Investing in programs that do not match the step in the ladder is counterproductive. Conducting an innovation & entrepreneurship landscape during the planning stages, as described in previous sections, provides an understanding of the ecosystem in place and its pertinence to the context. Even more, the process of collecting the information to evaluate the ecosystem in place awakens the curiosity of others and open doors to potential collaborators.

Another challenge, also related to the first, is the lack of institutional funding allocated to entrepreneurial mindsets/potential. Tapping into the network of the team was vital. Even more critical was aligning potential entrepreneurial initiatives to the goals of other departments. It prompted collaborations that allowed the team to harness existing resources. For example, it is easier to obtain support from student affairs offices when you seek to collaborate on student-led initiatives and fun activities for students that align perfectly with retention initiatives. Similarly, alumni were motivated to provide mentoring, serve as panelists, and support entrepreneurial projects, like those in Rocket

Pitch competitions, or start-up weekends. Partnering with HR personnel in charge of developing employees was another successful strategy, particularly when building the training program. The office assisted in (1) scheduling and marketing training, (2) creating incentives to participants (i.e. certifying contact hours), (3) securing spaces, and (4) collecting and maintaining assessment results.

The last challenge to be discussed in this article was the lack of participation from faculty and students in initiatives developed by the team. Imagine countless efforts and preparation; the day of an event comes, and the attendance is a complete disappointment. Looking back, why would anyone attend or participate in something he/she doesn't even know is relevant to them? Two strategies were adopted: (1) student-led initiatives and (2) creating incentives for participants. A group of four students from different disciplines (engineering, design, business, and health sciences) were trained by the University Innovation Fellows (UIFs) program. Refer to https://universityinnovationfellows.org/ for information about the program. The UIFs visited courses to encourage students to participate in the variety of initiatives in place, and even provided training on design thinking and pitching to complete classrooms at professors' requests. Student-led initiatives became very successful and helped at increasing participation of students in other initiatives in place.

The incentives for participants (students and faculty members) were particularly important at initial stages when uncertainty about the initiatives was high. For example, participants of the faculty training program had the contact hours certified by the Institute of Faculty Development. University Innovation Fellows (UIFs) also prepared certificates for students who participated in activities to use as evidence in their resumes and/or portfolios. As faculty members started to become more knowledgeable about entrepreneurship and innovation, and additional resources became more readily available (i.e., Entrepreneurship Experiential Handbook; faculty training scheduled during department meetings; specialized training for different courses - Capstone versus Freshman Seminar) participation in initiatives increased primarily because as professors started to include events in their course requirements.

FINAL REMARKS

Although every journey is different, this article described initiatives the Pathways to Innovation Team used to help develop entrepreneurial potential at Universidad del Turabo with the aim of providing examples to guide other universities in their pursuit of an innovation and entrepreneurship (I&E) ecosystem. Similar to others, our journey has been filled with both rewards as well as obstacles. In this paper, we put forward how our team overcame the challenges in hope that the lessons we learned can serve as starting point for others, who like us, are becoming 'resourceful academic-entrepreneurs' in their attempt to stimulate innovation & entrepreneurship in Institutions of Higher Education (IHEs).

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