

# The 2019 Technology Transfer Society Annual Conference

## September 26-28, 2019

**Session 3.1 – Chair: Jan Youtie**

**Location – CCF**

**Title:** The locus of innovation and entrepreneurship on university campuses: (How) Does it matter?

**Authors:** Peter T. Gianiodis, Tobin Turner, Gage Giunta

**Presenter:** Peter T. Gianiodis

**Abstract:**

Where the locus of innovation resides on university campuses is an important question in linking human capital inputs – scientific discoveries, technological breakthroughs, etc. – to commercial outputs – licensing agreements, venture formation, and regional economic development. Research suggests that universities have multiple “pockets” of innovation, which vary in orientation, practices and goals; centralized administrative units such as Technology Commercialization Offices (TCOs) try to align these disparate entities to enhance overall performance (e.g. Gianiodis et al., 2016). Yet, tension between the periphery (e.g. scientists and their labs) and TCOs may lead to suboptimal performance outcomes (cf. Valdivia 2013). A potential link to connect the university scientists’ potential entrepreneurial capital and the commercializing efforts of the university’s TTO may exist through entrepreneurship educational programs (Audretsch & Keilbach, 2004).

Although the subject of much research, (e.g. forthcoming special issue in JoTT), research on entrepreneurship education and university-based technology commercialization is still not a priority for many scholars. This has led to: (a) a stagnation in entrepreneurship curriculum in business education, and (b) a lack of widely disseminated and systematic evidence on the most interesting and innovative curricula, especially from programs housed outside of business schools. In this study, we seek to address these shortcomings by investigating the efficacy of one type of entrepreneurship education – Blended Entrepreneurial Programs (BEPs). BEPs merge university-level entrepreneurial education with discipline-focused degrees (Turner & Gianiodis, 2018). Though BEPs are growing rapidly, administrators are often underwhelmed with their students’ abilities and intentions toward technology entrepreneurship. However, not all BEP offerings suffer the same way; recent research points to some differentiators such as the entrepreneurial experience of students, the robustness of the curriculum, and embeddedness of the program into the regional economy (cf. Duval-Couetil, 2013).

There is much to learn because research on BEPs is at the nascent stage. To date, there has been no systematic review of BEPs, especially how they compare relative to Traditional Entrepreneurship Programs (TEPs), i.e. solely administered through business schools. Given the enthusiasm for academic entrepreneurship (AE) by most universities and their stakeholders, this is surprising. We believe it is time to close this gap with a comprehensive study examining these programs.

*Methods and Results*

In this study, we analyze data collected from BEPs and TEPs. We create 25 match-pairs based on common similarities – university size, presence of medical and/or engineering school, geographic location, etc. – and compare the programs using several important learning and entrepreneurial performance outcomes –

depth of curriculum, robustness of student opportunities, new ventures formed, technologies licensed, etc. We employ both primary (e.g. via structured interviews) and secondary data.

Preliminary findings show strengths and weaknesses in each type of program. For example, BEPs are better at leveraging specialized knowledge to connect innovation to entrepreneurship; whereas TEPs better train would-be entrepreneurs on adaptability skills (i.e. “pivoting”), which enhances the likelihood of launching a venture and for its subsequent survivability. Findings will provide guidance to policy makers and university administrators; the message – to enhance innovation and entrepreneurial outcomes requires a balance between domain-specific and generalist knowledge.

**Title:** Entrepreneurship education and firm formation

**Authors:** Shiri M. Breznitz, Qiantao Zhang

**Presenter:** Shiri M. Breznitz

**Abstract:**

Because they recognize the growing interest among students in entrepreneurship, universities have developed a continuum of support activities, such as entrepreneurship education, incubators, and, more recently, accelerators (Wright et al., 2017). Entrepreneurship education, as Gibb (2002) defines, is offered to prepare not only an entrepreneurial person who may become self-employed and an owner of an enterprise but also a person who is able to pursue entrepreneurship and innovation as an employee and/or a person who exhibits enterprising behavior. The content of entrepreneurship education could vary among institutions but is largely focused on new venture creation, covering topics such as writing business plans, networking with customers, and financing entrepreneurial ventures. Many studies show that entrepreneurship education programs contribute to the development of entrepreneurial intentions among students (Fayolle et al., 2006). The entrepreneurial ecosystem (EE) literature, which has attracted attention from both academics and policy makers in the past few years, offers new insights on how to understand the factors that underlie the success of entrepreneurship (Mason and Brown, 2014; Spigel, 2017; World Economic Forum, 2013). Stam and Spigel (2016, p. 1) define EE as “a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory.” Despite the increasing significance of this literature, only a handful of studies focus on student start-ups from an EE perspective. Because of the absence of a framework for understanding the ecosystem required to enable students to launch successful start-ups, Wright et al. (2017) identify the relevant elements that facilitate student entrepreneurship, including the university’s internal and external context, support mechanisms for student entrepreneurship, and student entrepreneurs themselves. In their case study on the University of Chicago, Miller and Acs (2017) employ Frederick Jackson Turner’s frontier theory to construct a framework for understanding the campus as an entrepreneurship ecosystem. The campus entrepreneurial ecosystem is said to possess the characteristics of Turner’s frontier: available assets, liberty, and diversity, while creating opportunity and fostering entrepreneurship (Miller and Acs, 2017; Turner, 1894). Yet research that expands empirical evidence on this topic is absent, a gap that the current study aims to fill. Adopting the EE framework, this paper focuses on the growth of student start-ups, especially those that participate in university accelerators. It employs insights from three research streams: the growth of new ventures, the operation of university accelerators, and the entrepreneurial ecosystem. This paper

analyzes the University of Toronto (U of T), one of Canada's top research-intensive universities. Specifically, we examine whether U of T entrepreneurship education and service (incubators, accelerators, etc) foster entrepreneurship (via the establishment of firms) as a result of their participation in any of the university's entrepreneurship programs.

**Title:** Entrepreneurship education in Canadian HE: Progression of an academic movement

**Authors:** Donna Heslin, Creso Sá

**Presenter:** Donna Heslin

**Abstract:**

In recent decades it has been recognized that Canada is facing an “innovation gap” relative to our international peers. This gap is largely attributed to economic, political, and cultural factors. As a result of this diagnosis, federal and provincial governments in Canada have provided support for the development of entrepreneurship in higher education as a means to promote innovation and generate employment.

As provincial governments have reacted differently to these efforts, this paper provides a quantitative review of the universities across Canada to assess the embeddedness of curricular and co-curricular entrepreneurship programs within institutions and provides comparisons between provinces. This study further assesses the trends in entrepreneurship education that have developed in relation to institutional type (medical/doctoral, comprehensive, primarily undergraduate). As medical/doctoral and comprehensive institutions are generally better resourced, larger in size, and tend to have a stronger research focus, we look at how these factors have impacted the delivery and pervasiveness of entrepreneurship education within institutions.

This study has important implications for the design of policy tied post-secondary entrepreneurship as it highlights where funding has effectively supported the growth and embeddedness of entrepreneurship within universities and where there are opportunities for modification.

**Title:** Graduate start-ups in the regional contexts: Territorial dynamics for anchoring talent

**Authors:** Fumi Kitagawa, Chiara Marzocchi, Mabel Sanchez-Barrioluengo, Elvira Uyerra

**Presenter:** Chiara Marzocchi

**Abstract:**

The role higher education institutions (HEIs) play in developing regional and national entrepreneurial environments has long captured the attention of both policy makers and scholars. However, graduate start-ups still are an understudied vehicle of HEIs' impact and entrepreneurial transformation, in particular, compared to the depth of attention devoted to other entrepreneurial outputs such as patents or academic spin-offs.

By looking at regions and HEIs in England in the UK, this paper aims to fill this gap by focusing on the relationship between graduates' entrepreneurial outcomes and policy impacts in diverse geographical

contexts. Graduate start-ups can be seen as HEIs' vehicle to anchor talent to regions by retaining entrepreneurial graduates. As such, graduate entrepreneurship is relevant not just for its role in promoting new business ventures, but also as a mechanism to channel place-based needs via the interaction between the HEIs' teaching, research and 'third-mission' agendas, and the surrounding policy environments.

This diversity of institutional and local contexts are illustrated by concepts such as 'university-based entrepreneurial ecosystems' and 'campus entrepreneurial ecosystems', that portray graduates belonging to an ecosystem with the university exerting their own influence on the chances of graduate's venture creation. At the same time, universities' entrepreneurial activities are shaped by their surrounding local conditions and national and sub-national policy environments. Existing analyses of the university-based entrepreneurial ecosystems framework are often based on single cases of good practices embedded in a particular historical and social environment, whilst diverse territorial and policy contexts and their interactions tend to be understudied.

Demands for entrepreneurship education have expanded globally over the last two decades partly driven by policy expectations, promoting the 'state-sponsored' student entrepreneurs. Particularly, in 'less favoured' regions, graduate start-ups are promoted as an alternative to graduate jobs. Drawing on literature on university academic spin-offs creation, we know 'entrepreneurial signaling effects' of universities in less-favoured regions. Differences are noted between different types of universities. A possible Matthew Effect in academic spin-offs creation is noted across the research universities gaining further advantage against other less research oriented HEIs. For graduate start-ups, not only research but also teaching attributes affect HEIs' entrepreneurial capacities and outcomes.

In the light of these, and drawing from data including the Higher Education Business Community Interaction Survey (HEBCI) and the Destinations of Leavers from Higher Education (DLHE) survey, we investigate place-based factors that affect retention of graduate entrepreneurs in a region, in relation to the university's organisational attributes (i.e. teaching or research). We focus on graduate start-ups as the businesses created by students who studied at a university in the region, analysing universities' attributes and their diverse local/regional environments. Our findings point to a large heterogeneity in graduate entrepreneurship in terms of both regional and organisational factors. The paper concludes by identifying territorial dynamics and possible intended and unintended policy consequences that affect graduate entrepreneurship activities across diverse regional and organisational contexts.

**Title:** Research opportunities considering student entrepreneurship in university eco-systems

**Authors:** Simon Mosey, Paul Kirkham

**Presenter:** Simon Mosey

**Abstract:**

Universities globally are increasing their support for student entrepreneurship through curricular and extra-curricular programmes. Within the curriculum there is a shift towards experiential education as students work on contemporary industrial and societal challenges in the classroom. This is complemented by extra-curricular activities where students and alumni are encouraged to address such challenges through venture creation. University support for student entrepreneurship is diverse and far reaching and includes

hackathons, germinators, incubators, seed and angel funding, entrepreneurs in residence and growth programmes.

Research considering the impact of such interventions offers great promise. For the first time, researchers have relatively straightforward access to the antecedents of venture creation in real time. There is potential to consider the earliest stages of venture creation across a vast natural experiment where the factors associated with venture performance can be captured and controlled for. Such an empirical bonanza encourages novel theoretical approaches. We highlight the possibilities for deploying theories from disparate disciplines across and between different levels of analysis.

For instance, we advocate taking an entrepreneurial ecosystem approach to help explain the creation, development and growth of new systems of entrepreneurship within University regions (Wright et al, 2017). We also revitalise the, more traditional, individual level of analysis by utilising diverse theoretical and methodological approaches, such as sense making (Gioia & Chittipeddi, 1991) and visual mapping (Kearney & Hyle, 2004), and show how this could yield new insights into the antecedents of student entrepreneurship.

We conclude that student entrepreneurship as a domain can yield exciting new contributions to the study of entrepreneurship and technology transfer through the use of novel methodological, theoretical and multi-level investigations.