Engagement through boundary spanning: insights from US entrepreneurship educators

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Abstract: This paper examines how the institutional role of entrepreneurship educators influences how they span boundaries and engage students and communities. We examine boundary-spanning behaviours based on four types of orientations among individuals involved in higher education – technical-practical, socio-emotional, community and organizational. We used survey data to identify how entrepreneurship educators at higher education institutions engaged stakeholders before the onset of the COVID-19 pandemic. Findings

suggest that the institutional role appears to correlate with boundary-spanning orientation. Faculty reported involvement in boundary-spanning and engagement activities, albeit to significantly lower degrees than other participants involved in entrepreneurship education and administration. This paper summarizes the results of university engagement and the roles that had emerged in entrepreneurship education just before the COVID-19 pandemic. We propose a model for 21st-century engagement and document entrepreneurship education roles evolving in concert with the needs of the entrepreneurial ecosystem.

Keywords: entrepreneurship education; academic engagement; university entrepreneurship; entrepreneurial ecosystem; roles.

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Steven Tello brings a deep history of success as a faculty member, administrator, and leader at UMass Lowell. He has been instrumental in many of the university's successes of the past decade, including the M2D2 and the Innovation Hub business incubators, student DifferenceMaker® program, River Hawk Venture Fund and the annual Deshpande Symposium. His research

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1 Introduction

Research has neglected the often-significant impact of entrepreneurship programs and their students on community engagement and impact. The contributions of entrepreneurship educators through higher education pedagogy, content, and assets are innumerable, encouraging and sustaining students, entrepreneurs, and communities (Miller and Acs, 2017; Kauffman Foundation, 2013). Entrepreneurship educators contribute through pedagogy and engagement with student entrepreneurs and community entrepreneurs at all stages of entrepreneurial development (Canziani and Welsh, 2019; Welsh, 2014; Winkel, 2013; Zhao, 2012). These programs often impact entrepreneurial social capital as well. On university campuses educators span boundaries to create cross-disciplinary courses, extend their reach into neighbourhoods, communities, centres, incubators (Kher and Lyons, 2020; Swartz et al., 2020) laboratories, and impact university governance (University of Rochester, 2019). This exploratory study examines the who, what, and where of educators and the roles they play in engagement and boundary-spanning in entrepreneurship education. Our main finding is that the institutional role of entrepreneurship educators correlates with boundary spanning and engagement, with faculty scoring lowest across the dimensions of the Weerts and Sandmann (2010) model.

Wanjiru and Xiaoguang (2021) argue that as locations of innovation, knowledge creation and talent formation, universities can most effectively play a role when they engage with communities. While this is undoubtedly central to what entrepreneurship educators do, we find that 'engagement,' is an under-explored dimension of the burgeoning literature on entrepreneurship education. Impetus for research on engagement can be traced to the critical contribution of Ernest L. Boyer's seminal work, the scholarship of engagement, which envisions the university as an institution that should be intricately linked to its community, invoking Donald Schon's idea of a reflective practitioner as an ideal for educators (Boyer, 2019). A review of Boyer's contributions can be found in Sandmann and Jones (2019).

Engagement with communities implies working across boundaries. Friedman and Podolny (1992) highlighted the inherently dynamic nature of boundary spanning, and that boundary spanning at an organisational level should not be reduced to individual job descriptions but serves as a differential function. Individuals engaged in boundary roles communicate (internally and externally) and are motivated by their values, social and emotional ties. Boundary spanning is an underexplored area in the entrepreneurship education ecosystems literature, as argued by Don Siegel at the 2023 Academy of Management (AoM) PDW on ecosystems. In the expanding research on entrepreneurial

ecosystems, there is an emerging consensus that the people dimension of the entrepreneurial ecosystem requires more depth of focus (Guerrero et al., 2023), encompassing the behavioural elements involved in the orchestration of resources, boundary spanning and developing networks (Schaeffer and Matt, 2016 in Wurth et al., 2023, p.257). Wurth et al. (2023, p.266) in a comprehensive review of entrepreneurial ecosystems acknowledge that universities contribute to ecosystem development, '... often beyond their remit of teaching and research'.

Research on how engagement takes place is needed given the evolution of programs, centres, and their governance. More and varying stakeholders are actively involved in the entrepreneurship ecosystem (Wraae and Walmsley, 2020), confirming the claim by Friedman and Podolny about the dynamic nature of boundary spanning. A stakeholder is anyone who is affected by or affects the university (Freedman, 1984). This is in contrast to the more restricted view that deems stakeholders as only those who can generate wealth for the university (Post et al., 2002). Different roles have evolved in the domain compared to even a decade ago. Little is known about the emerging roles in entrepreneurship education and how institutional roles influence boundary spanning and engagement.

The practitioner literature on entrepreneurial ecosystems has long focused on the central role of connectors as even more important than institutions (Ecosystem Builder Leadership Project, 2022, Feld, 2012, Hwang and Horwitt, 2012) along with OECD interest (Krueger, 2013). Academic research has begun to support this shift of focus toward individual agents (Krueger, 2022; Siegel et al., 2023; Theodoraki and Messeghem, 2017.) There is a need for a more granular assessment of how entrepreneurship educators engage with students and stakeholders (Wraae et al., 2022), and how they interact with and respond to stakeholders, both internally and externally (Korschun, 2015).

As entrepreneurship education spreads beyond business schools (Welsh, 2014) the individuals responsible for teaching and engaging in entrepreneurial activities are increasingly functioning at the internal and external boundaries of their organisational units. Governance of cross-campus entrepreneurship programs and entrepreneurship centres are no longer just under the dean of the business school but commonly fall under the purview of the chancellor, provost, or vice-chancellor. The entrepreneurship curriculum and entrepreneurship centres have become boundary objects as stakeholders exercise their influence. The Kaufman Foundation (2013, p.25) noted the diversity of entrepreneurship programs in the USA and drew attention to the potential management challenges:

> "Educators in the field will have a balancing act to perform as they juggle a traditional pedagogical mission with the demands of students and communities who are reshaping the mission as they go along. To serve the interests of both education and commercialisation, of both academy and community, is not an easy task".

This highlights that we have to discover HOW educators are performing this balancing act. We present data from an exploratory study on engagement and boundary spanning among US higher education educators based on two research questions.

1 Who on campus is involved in entrepreneurship education?

2 Where are these individuals located on campus (institutional role) and what types of engagement and boundary spanning do they engage in?

2 Entrepreneurship as a contested field

The definition, discourse, and practice of entrepreneurship have always been 'contested' (Mallett and Wapshott, 2015). Authors, researchers, and policy makers have presented the discipline as serving one purpose or another – small business success, job creation, and economic development versus creative self-expression, empowerment, and commercialisation of innovations. The diverse intellectual roots of entrepreneurship contribute to the contested, divergent definitions of what entrepreneurship is and how it manifests. European approaches to entrepreneurship differ greatly from those in the USA, and are more likely to value the existential and sense-making aspects of entrepreneurship rather than a primarily functionalist and instrumental view of the discipline (Frederiksen, 2017).

Entrepreneurship educators (Engel, 2017; Kuratko, 2005) pioneered formal curricula in the discipline. Institutions known for engineering and the sciences, to small liberal arts colleges, now embrace and customise entrepreneurship curricula to meet the needs of their students. Entrepreneurship educators as boundary spanners have transformed what, how, to whom, and by *whom* entrepreneurship is taught.

Despite major changes in the entrepreneurship discipline and its growing popularity, national data on engagement in entrepreneurship education is lacking. How do entrepreneurship educators work, and what does that work entail? As entrepreneurship has spread beyond business schools, the actors responsible for teaching and engaging in entrepreneurial activities are increasingly functioning at the boundary of their organisational units. They link internally with other units or disciplines in the university, and simultaneously with external stakeholders (Korschun, 2015), and 'link organisation structure to environmental elements whether by buffering, moderating, or influencing the environment' [Aldrich and Herker, (1977), p.218]. Boundary spanners play a vital role in the distribution of information in and outside the unit or organisation.

Boundary spanning facilitates the commercialisation of innovations and provides a critical link with external organisations (Huyghe et al., 2014). In the case of universities, the external links that professors and directors of entrepreneurship centres establish with commercial entities open pathways to productive fundraising (Finkle et al., 2010), collaborations, innovations, and commercialisation of research. In turn, the success of entrepreneurship boundary spanners affects their power, relationships, opportunities, pay, and promotions (Finkle, 2012, 2016; Keller and Holland, 1975; Pettigrew, 1972).

The purpose of our study is to investigate the nature of boundary-spanning activities and roles in entrepreneurship education in US higher education. We present survey data from individuals involved in boundary spanning activities in entrepreneurship education in the USA before the pandemic. Few studies have tracked boundary spanning activities in entrepreneurship education. We argue that this information is vital to understanding the boundary spanning roles by entrepreneurship educators and what activities lead to effective engagement.

3 The role of engagement in entrepreneurship education

Studies on the roles of entrepreneurship educators (Wrae et al., 2022), the dimensions of their engagement, and interactions that enhance boundary spanning are sparse judging from the comprehensive literature review conducted by Wurth et al., (2023). Wurth et al.

(2022) show how these processes unfold in the context of an entrepreneurial ecosystem, envisioned as operating across three levels. First, nested ecosystems form the foundation of intersecting ecosystems that include the elements that we show as an 'ideal-type' in Figure 1.

Figure 1   Foundational entrepreneurial ideal type (see online version for colours)
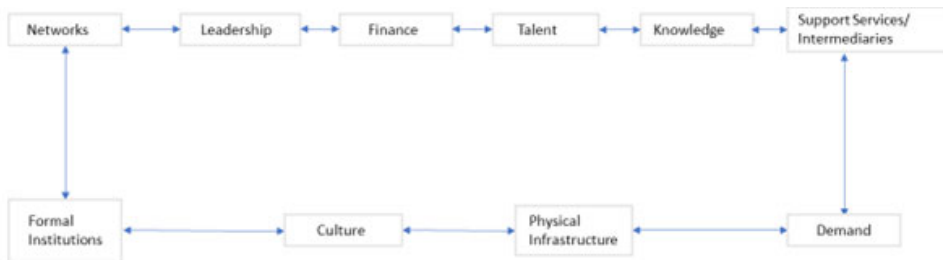
Note: Arrows show interdependencies
        Source: authors' adaption from Wurth et al. (2021) and (2023)

This foundational level is where universities are located as formal institutions that serve as resource and talent development hubs. Universities also play an intermediary role and educators help advocate for change as they interpret signals that come from downward causation to advance 'aggregate well-being outcomes' [Wurth et al., (2022), p.737]. The intermediate level includes entrepreneurial outputs that lead to the third level of aggregate well-being outcomes, or welfare outcomes as restated in Wurth et al., 2023, p.239).

So, university actors (entrepreneurship educators) in fact help with upward and downward causation. We regard these as elements of engagement. Unlike the broader literature on pedagogy, entrepreneurship researchers have not focused sufficiently on how this process of successful, sustainable community engagement takes place. What is needed is an analysis of the dimensions across organisational boundaries and the relationships that result. This provided an impetus for our research to consider engagement, defined by the Carnegie Foundation for Advancement of Teaching [Driscoll, (2008), p.39] as:

> "the collaboration between institutions of higher education and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity".

We now turn to boundary spanning and how this can illuminate how university actors enact engagement.

4   Boundary spanning in entrepreneurship education

The concept of 'boundary spanning' appears in a range of literature, from social and organisational sciences to medicine. Boundary spanners enable organisations to perform adjustments in line with changes in complex and changing contexts and relationships among the environment, university, and the individual (Leifer and Delbecq, 1978). These roles evolve in response to changing organisational or innovation needs. The number of boundary roles depends on the innovation unit's work and requirements to manage

inherent communication impedance or mismatch that occurs when knowledge work is highly technical and governed by specific conceptual or linguistic conventions. The individuals responsible for communication across boundaries decode, translate, and share information 'to and from' those boundaries (David and Cochran, 1987).

Tushman (1977) conceived of the boundary-spanning role of crucial employees as serving a dual purpose of processing and diffusing information inside the organisation while serving as the external face of the organisation. Boundary spanners frequently have overlapping roles depending on the work of their subunit (research tasks, technical tasks, developmental tasks) and on the extent of the information boundary these individuals span (Tushman and Scanlon, 1981). The type of organisation can make a difference, as can the inter-organisational goals, relations, and context (Keller and Holland, 1975; Richter et al., 2006). Individuals can span boundaries, as can their teams and organisation (Ernst and Chrobot-Mason, 2011; Fennell and Alexander, 1987; Marrone et al., 2007). Our study focuses on individual boundary spanners in the field of entrepreneurship education in US higher education.

Burt (1998) shows that boundary spanners enjoy early access to diverse and contradictory information and interpretations, deriving a comparative advantage in good ideas, creativity, and innovations. Boundary spanners help transfer knowledge between practitioners or communities that often contain relevant research information (Gulati, 2007). Small business boundary spanners rely on data from university boundary spanners to improve performance (Dollinger, 1984). Some operate as brokers who uncover areas of overlap between communities; they have connections with disparate communities through weak ties in social networks (Burt, 1998). Ansett (2005) describes how the role of a boundary spanner in the textile industry was often that of a hidden *broker* who was seldom recognised but critical to strategic initiatives. Knowledge transfer can also occur through a *translator* role, in which boundary spanners are crucial in communicating the interests of one community in a way that another community can comprehend. Such roles are typical in research and development in the sciences or engineering.

Weak ties in the social networks of boundary spanners lead to structural holes that differentiate them from the strong social ties of more homogeneous networks. Structural holes are the gaps between non-redundant contacts (Burt, 1997). Weak ties are valuable because of the value inherent in the novelty of the information or connections they yield (Granovetter, 1973). Boundary spanning and brokerage enable individuals to access social capital ordinarily inaccessible to them because of the nature of their existing (homogeneous) networks; the consequent brokerage leads to innovation (Granovetter, 1985). Burt (1992) suggests that early access to diverse and contradictory information and interpretation can lead to a comparative advantage through good ideas, creativity, and access to shared resources. Networks rich in structural holes present entrepreneurial opportunities (Burt and Merluzzi, 2016). By contrast, networks that lack structural holes are typically homogeneous, and homogeneity inculcates self-sufficiency. Individuals in these types of networks are less likely to engage in social brokerage and boundary spanning.

Given the knowledge-based nature of boundary spanning, a 'boundary object or practice' forms the focus of conflict or debate in the knowledge transfer or information processing. Boundary objects could be, in the case of entrepreneurship education, a curriculum, emerging practices, a centre, or an ecosystem. Communities of practice become transient groups that form around the solution of a problem or shared task; there is a common, tacit understanding of 'how things are done,' with a great deal of

experimentation that reinforces the practice. Sharing of knowledge is one of the benefits of belonging to the community. Boundary spanners become vectors for information across the boundaries of the organisation into and out of the network. Such activity leads to the identification of new resources or exploration of under-utilised capabilities.

It is necessary to determine where and when different types of networks represent optimising behaviour for advantage. Burt and Merluzzi (2016) posit that boundary spanning and bridging are highly dynamic processes and that network advantages result from oscillating between weak and robust networks. First, there is a brokerage in which information and control benefits arise from structural holes (e. g., weak links in networks). Second, network advantage can occur through closure (deep engagement in a group) in which an individual derives benefits from a more hierarchical and homogeneous network. A more dynamic and nuanced perspective implies that both brokerage and closure are required, leading Burt (1998, p.33) to theorise that individuals should 'pick a network for what it can do, not for the kind of people who picked it in the past.' For example, data on women or young male employees suggest that their careers benefit from using hierarchical and homogeneous networks in organisations in which they 'borrow' the social networks of a male sponsor. Structural holes theory suggests that the number of other boundary spanners in the network performing similar roles (Burt, 1997) negatively affects the value of social capital associated with bridging activity. Scarcity or differentiation is, therefore, crucial.

5   Methods

Our research on boundary spanning in US higher education institutions engaged in entrepreneurship education addresses two research questions: Who is involved in the growth of entrepreneurship education? Where are these individuals located on campuses, and what does their work entail? The use of a survey seemed to be the most effective means of addressing these questions. We conducted an overview of valid instruments on boundary spanning and the nature of engagement in higher education and selected Weerts and Sandmann's (2010) model, which was validated by Sandmann et al. (2014) and is widely cited by others in the education community.

6   Boundary spanning and engagement instrument

The literature on community engaged teaching and learning is vast and several instruments have been innovated (Sandmann and Jones, 2019) to analyse best practices. Weerts and Sandmann (2010), and Sandmann et al. (2014) offer a framework and instrument on boundary spanners and engagement in higher education that can be applied to entrepreneurship.

Weerts and Sandmann (2010) conceived of engagement as a reciprocal relationship where the institution and the community mutually benefit. Furthermore, there is collaboration to apply or to develop knowledge to address social needs. Influenced by the work of Boyer (1990) on engagement, their framework posits the dimensions of social closeness and task orientation to generate four different roles in engagement. First, the community-based problem solver is typically a non-tenure-track role in which the individual is tasked with architecting projects in or with community entities, raising funds

and retaining close social bonds in a community. Second, technical experts are tenured or tenure-track faculty members with domain expertise who serve as advisors, consultants and these individuals are often personally motivated to become involved. Their personal style and social emotional skills are critical elements that determine success in engagement. Moving up the organisational hierarchy are two more roles: internal engagement advocate and engagement champions. These are typically administrators (though not exclusively) who have a degree of power that influences institutional policies to unlock resources and infrastructure. This is classic orchestration of resources (Wurth et al., 2023). Internal engagement advocates are deans and provosts who can exert power over budgets, tenure, reward structures, hiring, etc. Engagement champions include similar roles, as do centre directors, vice presidents and also presidents.

Given the range of organisational levels and the roles that these actors occupy, opportunity for conflict is heightened, a fact acknowledged by the authors who reiterate that for a community engagement strategy to work, all of these 'roles' have to work collaboratively for a specific outcome. Following Friedman and Podolny (1992) who analysed boundary spanning roles and dimensions, Weerts and Sandmann (2010) stress that individual job descriptions do not fully capture the fluidity and complexity of these roles. Rather, we have to conceive of boundary spanning roles as highly contextual and as a 'differentiated function' performed by a range of organisational actors.

6.1 Pilot

We first conducted two interactive sessions on the topic at conferences that typically attract entrepreneurship centre faculty and staff (e.g., Deshpande Symposium on Innovation and Entrepreneurship in Higher Education, Global Consortium of Entrepreneurship Centres). These two sessions allowed us to share the boundary-spanning concept with practitioners and researchers in the field and then to actively solicit their perspectives on how the concept applies to their work. Approximately 75 entrepreneurship faculty, staff, and university administrators participated in the two sessions. These sessions were essential to help us understand how practitioners viewed their role in boundary spanning and helped us appreciate their function at several different levels in an organisation. Participant feedback from these two sessions helped inform the selection of our target subject pool and the survey construction itself.

We conducted a pilot test with a small group of experienced entrepreneurship faculty and researchers. Pilot participants were asked to complete the survey and then to review several questions for clarity, ease of use, duration, and any additional data we might solicit. This feedback resulted in some wording changes and editing in the demographic areas; however, the original scale items remained the same.

6.2 Instrument

The survey instrument used the Weerts–Sandmann boundary-spanning conceptual framework. Sandmann et al. (2014) validated the tool as it applied to community engagement activity and explained how the scales align with the different constructs of boundary-spanning behaviours identified in their earlier work. They identify four possible orientations among individuals engaged in boundary-spanning work: a technical-practical orientation, a socio-emotional orientation, a community orientation,

and an organisational orientation. An individual with a technical-practical direction demonstrates behaviours focused on work and relationships that enhance the performance of an organisation or group. An individual with a socio-emotional direction demonstrates behaviours that support the development and needs of others within the reward and authority systems that exist in an organisation. Individuals with a community orientation demonstrate behaviours that reflect an affinity or alignment with a group external to the individual's organisation, and individuals with an organisational orientation align their behaviour with that of the organisation's goals and mission.

In line with Weerts and Sandmann's (2010) recommendations, we developed a modified 38-item survey. Four groups of eight items each assessed the four possible boundary-spanning orientations. We asked respondents to indicate their level of agreement with a statement reflecting elements of each orientation on a 6-point Likert-type scale. A sample statement reflecting the technical-practical orientation is 'I design processes for projects,' and the respondent then selected among 'never,' 'rarely,' 'sometimes,' 'often,' 'usually,' or 'always.' The respondents' choices reflect the nature of their work behaviours and help determine the orientation of their respective roles. Five demographic items included organisational role (e.g., faculty, chair, senior administrator, and entrepreneur), institutional setting (e.g., university, government, foundation), nature, location of the entrepreneurship centre, and age of the entrepreneurship centre.

6.3   Sample

We solicited survey respondents via email. We sent an email message to several lists that specifically targeted faculty, staff, and administrators working in or with entrepreneurship centres, and attended the initial conferences where we engaged faculty. We compiled the list after reviewing the names of participants in several regional and national entrepreneurship conferences. The survey was developed in Qualtrics and was available online for three weeks. We sent one reminder. 268 individuals submitted survey responses. However, 62 of these were incomplete, resulting in 206 usable responses. Given the nature of our recruitment of respondents and the conferences acting as sampling frames, our sample is potentially biased by not including more research-oriented conferences such as the AoM entrepreneurship list.

7   Analysis and results

7.1   Demographic data

Most respondents worked in a university setting (80.5%), while a smaller percentage worked in an entrepreneurship-support organisation (14.2%) or a foundation or philanthropic organisation (3.4%). The sample was 64.4% male, and 60.4% of respondents were 51 years of age or older. The sample included a fair distribution of roles, with faculty constituting 30.7% of respondents, the largest single category of respondents (see Table 2). Responses to the 'other' category included university technology transfer staff, other types of university staff, and non-university-affiliated staff.

We asked respondents to identify where their respective entrepreneurship centres were located, how long the institutions had operated a cross-disciplinary entrepreneurship

program, and what office coordinated cross-disciplinary entrepreneurship efforts. These questions helped us understand the institutional focal point of entrepreneurship activities. Most respondents had operated a cross-disciplinary entrepreneurship program for 5–10 years (40.2%), followed by 3–5 years (30.9%), and 1–3 years (11.8%); 12.4% of respondents had not yet started a cross-disciplinary entrepreneurship program.

Table 1 Respondent roles as a percentage of sample

Role	%
Faculty member	30.7
Administrator	20.0
Centre/program director	21.0
Entrepreneur/entrepreneur support	13.7
Chair/Dean	7.3
Other	7.3

Note: n = 206.

While entrepreneurship as an academic discipline evolved in the business school, entrepreneurship centres and programming have expanded beyond the confines of academic disciplines: 49.1% of respondents indicated that their entrepreneurship centre's location is outside the business school, while 40% reported their centre's site within the business school. When respondents were asked what office coordinates cross-disciplinary entrepreneurship courses, their responses were relatively evenly divided among entrepreneurship centres (33.1%), business school (25.8%), Provost Office (14.7%), and other (26.4%). In this case, 'other' includes a wide range of internal administrative units (e.g., Vice President for Research Office, Chancellor's Office), other academic units (e.g., Engineering College, Continuing Education), and outward-facing engagement units (e.g., Workforce and Community Development, Entrepreneurship and Economic Development).

These demographic data are helpful in both understanding the sample and observing current trends in the organisation of campus-based entrepreneurship activities. As the locations of entrepreneurship efforts are in different parts of higher education institutions, we can test the boundary-spanning role of those who work in and with entrepreneurship centres and programs. Entrepreneurship is more than a business school discipline, suggesting the need to work across campuses, with different constituents and stakeholders who may have different perspectives and expectations. The boundary-spanning orientation of centre staff, directors, administrators, and faculty may potentially contribute to or inhibit the growth and success of a centre. Next, we review differences that emerged in the boundary-spanning orientation of respondents to the survey.

7.2   *Boundary-spanning orientation and institutional role of respondents*

The Weerts–Sandmann boundary-spanning framework informed our examination of how respondents viewed their roles in entrepreneurship education. We administered the survey to all 268 respondents. However, after controlling for incomplete survey responses and a small group of 'other position' responses, we ultimately examined boundary-spanning survey responses from 190 respondents. Respondents indicated their

level of agreement with a statement reflecting elements of each orientation on a 6-point Likert-type scale, ultimately providing a score of 1–6 on each of the 32 items.

We conducted reliability analyses of the eight items composing each of the four orientations and recorded coefficient alphas of 0.89 for technical-practical orientation, 0.88 for socio-emotional orientation, 0.93 for community orientation, and 0.92 for organisational orientation, indicating satisfactory reliability among the sample. We calculated a grand mean for the eight items composing each of the four boundary-spanning orientations. We then examined the distribution of orientation scores and descriptive statistics for these four orientations (see Table 2).

Table 2   Means and standard deviations for four boundary spanning orientation scales

Grand mean scales by orientation	M	SD
Technical-practical	4.65	0.84
Socio-emotional	4.49	0.84
Community	4.21	1.06
Organisational	4.41	1.01

Note: n = 190.

We conducted a one-way analysis of variance (ANOVA) to examine how the institutional position affected respondents' boundary-spanning activities and perspectives. The independent variable was the institutional role and included five potential roles (senior administrator, faculty, centre/program director, entrepreneur/entrepreneurial support staff, and chair/dean). Respondents needed to select a primary role, and we excluded the 'other' category from this analysis because of the broad variance in roles (e.g., technology transfer staff, student). The results of these analyses were significant across each of the four orientations, indicating that one's position in an institution correlates with one's boundary-spanning activity.

Table 3   Pairwise differences in technical-practical orientation by position

	M	SD
Faculty member	4.21	0.92
Administrator	4.97*	0.70
Centre/prog. director	4.73*	0.82
Entrepreneur/support	4.86*	0.47
Chair/dean	5.03*	0.70

Note: * p < 0.05.

7.3   Technical-practical orientation

The ANOVA was significant ($F(4, 185) = 8.19$, $p < 0.001$). 15% of the variance in technical-practical orientation is related to the position within the organisation. As follow-up, we used the Tukey HSD (honestly significant difference) test to evaluate pairwise differences among the means. There were significant differences in the means between the faculty member position and the administrator, centre/program director, entrepreneur/entrepreneurial staff, and chair/dean roles. The faculty member position scored significantly lower on the technical-practical orientation items than the other

positions in the sample. We report the means and standard deviations for each position score in Table 3.

7.4 Socio-emotional orientation

The ANOVA was significant ($F(4, 185) = 10.58$, $p < 0.001$). 19% of the variance in socio-emotional orientation is related to the position within the organisation. We again used the Tukey HSD test to evaluate pairwise differences among the means. There were significant differences in the means between the faculty member position and the administrator, centre/program director, entrepreneur/entrepreneurial staff, and chair/dean roles. The faculty member position scored significantly lower on the socio-emotional orientation items than the other positions in the sample. We report the means and standard deviations for each position score in Table 4.

Table 4   Pairwise differences in socio-emotional orientation by position

	M	*SD*
Faculty member	4.01	0.85
Administrator	4.90*	0.71
Centre/prog. director	4.54*	0.82
Entrepreneur/support	4.73*	0.61
Chair/dean	4.81*	0.67

Note: * $p < 0.05$.

7.5 Community orientation

The ANOVA was significant ($F(4, 185) = 6.14$, $p < 0.001$). 12% of the variance in community orientation is related to the position within the organisation. The Tukey HSD test to evaluate pairwise differences among the means showed significant differences in the means between the faculty member position and the administrator and the centre/program director roles. The faculty member position scored significantly lower on the community orientation items than the administrator and the centre/program director positions in the sample. We report the means and standard deviations for each position score in Table 5.

Table 5   Pairwise differences in community orientation by position

	M	*SD*
Faculty member	3.72	1.14
Administrator	4.65*	0.96
Centre/prog. director	4.35*	0.91
Entrepreneur/support	4.32	0.94
Chair/dean	4.43	0.98

Note: * $p < 0.05$.

7.6   *Organisational orientation*

The ANOVA was significant (F(4, 185) = 9.21, p < 0.001). 17% of the variance in organisational orientation is related to the position within the organisation. The Tukey HSD test to evaluate pairwise differences among the means revealed a significant difference in the means between the faculty member position and the administrator, centre/program director, entrepreneur/entrepreneurial staff, and chair/dean roles. The faculty member position scored significantly lower on the organisational orientation items than the other positions in the sample. We report the means and standard deviations for each position in Table 6.

Table 6   Pairwise differences in organisational orientation by position

	M	SD
Faculty member	3.86	1.10
Administrator	4.89*	0.88
Centre/prog. director	4.55*	0.74
Entrepreneur/support	4.59*	0.90
Chair/dean	4.73*	0.90

Note: * p < 0.05.

8   Discussion and conclusion

Our results suggest that one's institutional role correlates with boundary spanning and engagement as measured by the constructs of the Weerts and Sandmann (2010) model. Of note is that faculty scored lower across most dimensions than the actors in other roles. A logical question is whether faculty are less committed to engagement and boundary spanning or whether they are more task-focused? Faculty members might be more concerned with how they are evaluated when they are on the tenure track, or tenured. Undertaking boundary spanning activities such as mentoring entrepreneurs or raising funding might not constitute as important a part of the evaluation system. Tenure review committees evaluate faculty on research outcomes, teaching, and service activities, which might not be well defined in terms of weighting. Research outcomes weigh heavily in this process and place enormous stress on faculty given the career implications. Significantly, the other roles in the campus entrepreneurship ecosystem are not subject to the level and depth of research outcome evaluation. We agree with Sandmann et al. (2014, p.102) that we need additional research on "salient issues … to the boundary spanners themselves around issues of motivation and power, participation in decision making, and feelings of stress and satisfaction." Wraae et al. (2020) for instance, suggest that how entrepreneurship educators view their role link to their core values, which in turn determine whether their roles manifest as teacher-focused, network-focused, or student-focused.

Our initial survey of behaviours can help campus communities grasp how roles in entrepreneurship education are evolving and becoming routinised (Aldrich and Herker, 1977; Yonti and Shapira, 2008). Equally, we show that entrepreneurship education is operating in an increasingly complex institutional environment. As suggested by Fennel and Alexander (1987), governing boards as a boundary-spanning unit become more

important under such conditions. Therefore, our discussion focuses on the implications of our results for entrepreneurship faculty and on the changing institutional context faced by the entrepreneurship discipline.

8.1   Theme 1: Evolving role of entrepreneurship faculty

Our analyses (see Tables 3–6) indicate that faculty tends to be less engaged in boundary-spanning activity than colleagues in other positions in a university or an entrepreneurship centre. This finding suggests that faculty respondents have a different orientation than the other respondents, with the lowest score reported for community orientation. As such, entrepreneurship faculty may be engaging in boundary-spanning activities as part of the role that the discipline *demands*. Compared with senior administrators, department chairs, and deans, faculty are likely at the beginning of the process of orienting externally. This discrepancy in orientation scores suggests that entrepreneurship faculty, while aware of the need for engagement, have contending demands on their time and cognitive capacities. Boundary spanning is a dynamic process (Burt and Merluzzi, 2016), and faculty clearly must consider network advantages that arise from being part of internal academic networks, prioritising tenure and promotion, and publishing activities. For faculty, successful outcomes are determined by governance processes that are enforced by closed and homogeneous networks. If Burt (1998) is right in asserting that people should ignore networks individuals have chosen in the past and, instead, choose it for what it can do now, the finding that faculty scores are lowest across all dimensions of engagement makes sense.

At the same time, if entrepreneurship education is going to adhere to its promise to reach across and off campus, institutions may need to consider strategies that engage more faculty in boundary-spanning activities. This would include changing the reward and control systems used for tenure and promotion evaluation purposes. On many US campuses, the entrepreneurship centre director role is an 'add-on' to the traditional academic tenure position, without the acknowledgment that it carries separate authority and responsibility for stakeholders beyond the faculty position focused on teaching, research, and service. Time commitments to networks across the campus and the community are an additional full-time position of the job. Frequently, this administrative role is lumped in with the evaluation criteria as service because it fits nowhere else under traditional faculty evaluation areas of teaching, research, and service. Regular faculty involved in the tenure and promotion process usually have little to no understanding of the demands of this 'extra job.' In many cases, this is a 40-plus hour position in and of itself and often has different administrative reporting relationships for oversight. In some cases, this extra job receives no additional compensation but is part of the endowed chair's responsibilities that include the entrepreneurship centre and academic entrepreneurship program. As long as this is the case on many campuses, especially for schools that are smaller or have newer entrepreneurship centres or limited endowment funds, the incentive/reward systems need re-evaluation.

One limitation of our study is that our sample skews male and older than 50 years of age. This demographic might be an outcome of our limited sampling; however, these data resonate with our experience in and knowledge of the field and raises questions about how to ensure that more women and younger colleagues become part of the community. Such discussion is beyond the scope of this paper as our interest was on understanding the boundary-spanning activities and engagement orientations of faculty members. This

can perhaps explain the finding that faculty members must strike a balance between brokerage and closure (Burt and Merluzzi, 2016) to obtain tenure and promotion and satisfy requirements to remain academically active. The necessary allocation of faculty time to such 'academic' priorities creates gaps in the boundary-spanning roles an organisation requires to remain fully 'engaged' in fulfilling its mission. The increasing number of roles engaged in entrepreneurship education (echoed in the University of Rochester survey) suggests a proliferation of the roles to serve that purpose. However, Yonti and Shapira (2008, p.1191) note that 'there is a risk of limited long-term stability despite the ability of boundary-spanning organisations and elites to draw on multiple constituencies on both sides of the boundary for independence and survival'.

8.2 *Theme 2: Increased complexity in the institutional environment*

Our data suggest a movement toward shared control of aspects of the curriculum and resources typically associated with entrepreneurship education. Business schools are no longer the sole domain of the entrepreneurship discipline, and important questions emerge from this for faculty, tenure and promotion, and academic careers. Indeed, in our sample, more entrepreneurship centres were located *outside* the business school. Faculty boundary-spanning roles will likely increase in importance as the calls for engagement continue. Change is constant, and there is much value in understanding how all faculties can incorporate boundary spanning as a framework for redefining engagement.

In US higher education, external stakeholders such as AACSB and the Carnegie Foundation for the Advancement of Teaching, are encouraging research-oriented higher education institutions to adopt frameworks that encourage linkages with the community, such that reciprocal relationships with community partners result in mutual benefit. In the mid-2000s, research universities were less committed to engaging with community organisations than community colleges or other educational institutions. Traditional views of research, the demands of the tenure and promotion process, and the increasingly competitive demands to publish in highly ranked journals all mean that engagement (as envisioned by the Carnegie Foundation and other funders) was slower to take root, with unpredictable adoption of engagement practices (Weerts and Sandmann, 2010).

The Carnegie Foundation for the Advancement of Teaching calls for outreach to go beyond the traditional one-way process of universities working with community stakeholders. In 2006, the Carnegie Foundation created a classification of campuses based on an institutional commitment to curricular and community partnerships (Driscoll, 2008). Campus Compact, established in 2008, has encouraged this approach at the national and state levels. Similarly, AACSB has updated its guidance to accredited schools to include the need for engagement and impact (Holmes et al., 2017), and regional accreditors have increasingly echoed such calls. The impact of boundary spanning on the roles of university administrators is the subject of several studies (Burkhardt, 2002; Gauntner and Hansman, 2017; Pilbeam and Jamieson, 2010; Ramaley, 2014; Weerts and Sandmann, 2010). Weerts and Sandmann (2010) view community engagement as a two-way path between universities and the community to collaborate in the development and application of knowledge and the sharing of resources to address societal needs. Unfortunately, traditional forms of scholarship do not consider these activities legitimate engagement. It behoves all parties to consider how to engage in a collaborative discussion to resolve this issue. Community-engaged scholarship is being adopted by some universities and considered on equal footing with traditional forms of

scholarship. However, acceptance is lacking in some schools (i.e., business schools) that rely on external journal rankings (e.g., Chartered Association of Business Schools ranking, Financial Times 50).

8.3 Will the push for engagement produce scholar-entrepreneurs?

> "For the US entrepreneurship academics in business schools, there are major questions to be asked soon about where work should be directed in terms of subject and market, how the competing demands of research, teaching, and service should be balanced and, most fundamentally, how to maintain an entrepreneurial attitude in an academic industry that has tasted success in a big way" [Katz, (2003), p.298].

Entrepreneurship is at a point at which it has finally begun to answer the questions Katz posed and the need to add boundary spanning. Entrepreneurship education is diffusing across other disciplines, and the fruits of the enterprise will need sharing with others in institutions and communities. The questions Katz raised may be answered not by what entrepreneurship educators do, but who will carry it out and by what means. In the age of robotics, their future will be determined by the value-added of what they bring to the table and how they apply entrepreneurship education. This view is echoed in the recent contributions of Teece and Leih (2016). These scholars advocate for a new type of academic – one who is both a thinker and a doer. Moreover, educators need to do the right things and need to be reflective when they do those things.

The nature of entrepreneurship education requires entrepreneurship faculty and especially students to participate in and support boundary-spanning and engagement activities. In the past, faculty members have been pioneers in the business school. Our study suggests that their role as boundary spanners must grow and be included permanently in reward systems (i.e., tenure and promotion criteria) if higher education is going to meet changing economic and social demands. Reward systems need further research – specifically, research on the evolving role of faculty, the need for faculty to become a 'thinker-doer,' and how such a trend is likely to be institutionalised, including changes in governance structures, tenure and promotion guidelines, and reward systems.

Finally, universities can have important roles in their local and regional entrepreneurial ecosystems. Feld (2012) famously described those as 'feeder' nor 'leader' in that universities help the ecosystem (and be helped by) when they engage broadly and deeply. For an example important to this journal's readers, effective technology transfer requires effective boundary-spanning activities by human agents. These findings suggest important directions for us to serve local entrepreneurs and their ecosystems.

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