Part of the Ewing Marion Kauffman Foundation's Entrepreneurship Scholars initiative, the Kauffman Dissertation Fellowship recognizes exceptional doctoral students and their universities. The annual program awards Dissertation Fellowship grants to Ph.D., D.B.A., or other doctoral students at accredited U.S. universities to support dissertations in the area of entrepreneurship.

Since its establishment in 2003, this program has helped to launch world-class scholars into the exciting and emerging field of entrepreneurship research, thus laying a foundation for future scientific advancement. The findings generated by this effort will be translated into knowledge with immediate application for policymakers, educators, service providers, and entrepreneurs as well as high-quality academic research.
Daniel Davis, PhD  
University of California, San Diego  
Department of Sociology

The Ventured Student: Impacts of University Startup Culture

ABSTRACT
Over two years I studied undergraduate entrepreneurs via observations, 56 interviews, and tracking 301 LinkedIn profiles. All students report significant sacrifices in time and resources for their startups. Campus incubators show remarkable similarity in the services they offered but difference in organizational models. Centralized models are dominated by business students who persist with typically-struggling startups post-graduation and are likely to make ends meet with supplemental jobs. Decentralized models are dominated by STEM students who typically leave their startups for traditional job offers. Further, entrepreneurs talk about their entrepreneurial identities as individually internalized, contextually performed, and collectively mobilized.

CATEGORY & KEYWORDS: University Entrepreneurship Ecosystems, Undergraduate Entrepreneurism, Entrepreneurial Identity, Inequalities in Career Formation

EXECUTIVE SUMMARY
Entrepreneurism has come to campus. No longer is startup culture limited to a few high-profile innovative research universities, like Stanford or MIT, nor is it contained to specific corners of the university, like the faculty in departments of computer science or mechanical engineering. Startup culture has become mainstream in the American university. So much so, that as I show in the articles contained in this dissertation, the influence of startup culture is even spreading to non-research universities as well as spreading broadly throughout the undergraduate curriculum and college experience. This is a phenomenon ripe for sociological analysis, not only for entrepreneurship’s relevancy du jour as a favored buzz word of the time, but because, as Durkheim argued many years ago, how we train our youth is both an intellectual and moral education (1925/2011) that shapes the construction of society across generations. Colleges are embracing entrepreneurism and, in many ways, changing its meanings in alignment with Silicon Valley style tech culture. As it becomes institutionalized in university structures, it is sure to have long-lasting effects on society as a whole.

In this summary, I seek to do a few things. First, I briefly sketch some of the literature showing how this new phenomenon, university-sponsored entrepreneurship, emerged out of the broader social and economic trends of the United States over the past several decades. For as much as universities seek to influence broader culture, campuses are also the reactive products of it (Stevens and Gebre-Medhin 2016). Then, I give a rationale for my choice of incubators and accelerators as the organizational site of my study, and undergraduates as the demographic of interest. Last, I offer extended abstracts that outline each of the three articles that comprise the primary chapters of this dissertation, each of which is written as stand-alone pieces, intended for separate peer-reviewed publication.

I have written the first article with a meso-level unit of analysis, looking at campus structures, while the second two articles have a more micro-level unit of analysis, looking at individuals. The first two articles are more inductive and driven by the phenomenon they are examining, though theoretical questions are asked and answered in them. The third is more theoretical, though with empirical observations to build a case for my proposal. The first article is written more for organizational and
entrepreneurial scholars, the second two articles are written more for sociologists of higher education and identity, respectively. Side by side, they may seem somewhat different, but I will offer some concluding remarks in a brief conclusion to braid the cord as best I can; because I do believe these three articles together offer a perspective that can not only help us better understand some broader sociological questions, but also make some smarter policy and programmatic changes to improve the future career outcomes for our entrepreneurial undergraduates.

Where the Enthusiasm for Campus Entrepreneurism Came From

I point first to what has widely, though vaguely, become known as the ‘new economy.’ The new economy, borne out of the transition from a manufacturing-based to a financial and service-based economy (Appelbaum and Batt 2014; Tomaskovic-Devey and Lin 2011), and described as the “creative nexus between culture, business and technology” (Fisher and Downey 2006:26), has resulted in profound modifications across U.S. structures of employment. Just after the dot-com crash in the 1990s, Benner (2002) looked at employment in Silicon Valley and linked its tenuousness to a mix of variables including unpredictable fluctuations in market demands, rapid technology change, intense global competition, shorter product life cycles, and faster skill obsolescence. The new economy is described as an era of turbulent unpredictability (Smith 2010). Among the many changes confronting the U.S. economy, a chief one is the need for a more flexible workforce able to buffer companies from turbulent markets (Jung 2015). Amman and colleagues (2007) noticed that at first these changes were presented to workers as exciting moves toward greater flexibility, often in flatter organizations promising more creative ownership. But over time the situation has revealed itself not as the giving of greater agency and empowerment to the worker, but more akin to becoming “sharecroppers who bear the burden of risks in exchange for the opportunity to work” (Amman, Carpenter, and Neff 2007:3).

Hollister’s (2011) review of the literature on employment stability in the U.S. concludes that declines in job stability have consistently taken place, especially for male private-sector workers, with somewhat more complex changes for female and public-sector workers. While work has decidedly grown more precarious, new possibilities for work lives have emerged as well, new kinds of jobs, new work arrangements, and new work-facilitating technologies. This new work environment has been described as more “liquid” and individualizing (Bauman 2001). Kalleberg (2011) documents how this results in growing polarization between good and bad jobs, those with high pay and security and the many more that have neither. Giddens has coined a phrase for this more turbulent and polarized system, the high opportunity, high risk society (Giddens 2014).

The new economy has also been cited for bringing greater corruption and inequality to the workplace. Tillman and Indergaard (2005) argue that work is now done in environments of scandal more often than before. This results largely from the proliferation of tradable products disconnected from the creation of physical goods; for example, the various species of financial vehicles traded on Wall Street. Tillman and Indergaard (2005) also say it stems from reliance on semi-closed social networks with their own informal norms that diverge from societal norms; for example, the ‘masters of the universe’ sub-culture of elite bankers. Public misinformation and regulatory loopholes allow economic deviance to become normalized. In terms of inequality, McCall (2001) showed that high-technology regions have more pronounced gender and racial inequality; and that gender-based equal opportunity policies have only helped a small percentage of women at the top of the wage scale, while greater work insecurity has harmed many women toward the bottom, resulting in wage gaps among women greater than many of the wage gaps between the genders. Kim and Sakamoto (2008) found related complexities, showing that intra-occupational wage gaps have grown more pronounced than between-occupational wage gaps, arguing that occupation may be becoming less important in the new economy than a blend of individual characteristics and workplace organizational features. In other words, the kind of lawyer or doctor you are, and where, has greater wage impacts than whether you choose to be either a lawyer or doctor.
Greater flexibility and risk taking is required of workers to survive in the new economy. This is parallel with the rise in predominance of contingent and precarious labor, often branded as freelancing or independent contracting. Typically, these arrangements have had few benefits like insurance or retirement. Employees expect less loyalty from their employer, and offer little back; rather, employees remain prepared to exploit market opportunities and to remake themselves as necessary (Neff 2012). It is survival of the most agile. These skills and value sets serve some very well, less so for others. One term in particular has been extended to describe what it means to possess the agility to adapt to the chaos of the tumultuous liquid new economy: entrepreneurship.

Reconstruction of many economic relationships are visible across multiple fronts: between consumers and products, as seen in the rise of the sharing economy; between consumers and physical space, as seen in the rise of enormous online retail environments; between workers and investors, as seen in the rise of crowd funding; between workers and employers, as seen in the rise of the gig economy; and so on. Silicon Valley culture emphasizes a particular social actor as the individual most able to adeptly navigate these newly reconfigured environments, the entrepreneur. This frame, the entrepreneur as the idealized worker of the new economy, has grown so prominent that variants of it have begun to multiply. A couple scholarly examples include work on “intrapreneurs,” those with entrepreneurial mindsets but within a traditional company (Tietz 2014), to “ecopreneurs,” those pursuing ventures that are greener and more sustainable than status quo capitalist-organized businesses (Schor and Thompson 2014). More popular-level online “-preneur” glossaries help define dozens more variations, including: antipreneurs, appreneurs, passivepreneurs, socialpreneurs, solopreneurs, etc. Labor scholars show how a national discourse has arisen that “invites actors to embrace a seemingly rebellious posture toward bureaucratic employment, construed as anathema to personal fulfillment and creativity” (Vallas and Prener 2012:347). This new conception of the entrepreneur—the cleverly opportunistic and voluntarily flexible worker of the new economy—is quite different than the small business entrepreneurs of earlier eras, whom C. Wright Mills defined as workers whose incomes were rooted in property ownership and long-term labor commitments to extract revenues from shop or land (Mills 1953)—such as the carpenter, farmer, or store owner. Now we have the freelance coder, appreneur, and the venture capitalist, whose work is not only much less tangible, but draw from far more liquid conceptions of property ownership and labor commitment. Whereas the artisan apprentice of old developed their skills under more senior craftspeople, the parallel aspiring worker of today may be building their digital portfolio from autonomous gig work, acquired from sites like fiverr.com or upwork.com, paying what regularly amounts to less than minimum wage and with no benefits.

All of this is to reiterate that as work arrangements have evolved, and in many ways become more tenuous, entrepreneurship culture has arisen in parallel. At the higher end of opportunity, entrepreneurship has become popular because of the astounding innovations and financial fortunes that advancing technologies have facilitated. At the lower end of opportunity, entrepreneurship has become popular as a term valorizing the new service work; used both by platform capitalists—like those behind Airbnb, TaskRabbit, or Uber—seeking to attract workers, and by workers themselves, as a way to rationalize their sacrifices in search of meaningful work (Kenney and Zysman 2016; Friedman 2014).

Higher Education in the New Economy

Institutions of higher education in the U.S. have a long history of active participation (Slaughter and Rhoads 2004) and co-evolution (Stevens and Gebre-Medhin 2016) with the economic, social, and political changes in the broader culture. As would be expected, the new economy has its manifestations inside of colleges and universities, from an increased reliance on financialized sources of income (Eaton et al. 2016), to the growing commercialization of academic science (Berman 2012), to the adjunctification

---

of tenure track employment (Kezar 2012). Just as a range of activity in the broader economy has taken on the language and label of entrepreneurship, each of previous three examples has as well, respectively: entrepreneurial universities come up with innovative new revenue streams, entrepreneurial faculty make startups out of their research, and entrepreneurial instructors are gig workers with the flexibility to moonlight or do other projects.

Students also feel the effects of this more precarious new economy. Students express increased expectations for colleges to help them obtain jobs—almost 9 out of 10 now say that “to be able to get a better job” is a “very important” reason for going to college (Eagan et al. 2016), a roughly 20 percent increase from the 1970s. Structured recruiting on elite campuses mixed with student anxieties lead to career funneling into a small band of industries understood by students as more stable shelters from the tumultuous new economy, sectors like finance, management consulting, and marquee technology companies (Binder, Davis, and Bloom 2016; Rivera 2015). But even these industries have begun showing the increasingly precarious and liquid character pervasive in the new economy (Lyons 2016; Benner 2015; Frier and Satariano 2015; Roose 2014; Ho 2009). Campus administrators have embraced several strategies to help students, from the development of a slew of new vocational majors (Brin 2002) to the launch of new corporate partnership programs in career centers (Davis and Binder 2016). Internships became mainstream, typically without compensation, even while the educational and professional value of most are highly suspect (Perlin 2011).

In addition to these, promoting student entrepreneurism has become a major focus of strategic development for campus administrators (Torrance 2013). A study by the Kauffman Foundation reports that entrepreneurship is one of the fastest growing subjects in undergraduate curricula with the number of entrepreneurial courses offered in U.S. four-year campuses growing from 250 in 1985 to more than 5,000 by 2008 (Torrance 2013). Beyond curricular promotion of entrepreneurism, a whole new university sector encouraging student startups has emerged over the past decade. This is chiefly done through the creation of campus new-venture incubators and accelerators. The policy changes of the Bayh-Dole Act in 1980 paved the way for campus entrepreneurism, as federally funded research could now be commercialized with ownership remaining with the founders and university rather than the federal government. University technology transfer offices spread rapidly and their staff sought to license faculty science and technologies out to firms. But rather than waiting for companies to come to them, faculty researchers discovered that creating startups around new technologies was often more lucrative and expedient than solely relying on technology transfer offices to commercialize their work (Slaughter and Rhoades 2004). Incubators and accelerators slowly began emerging to help faculty create startups around their products. As I will show in the first article however, it was not until the Great Recession and soaring unemployment rates for recent college graduates, that university leaders embraced a logic promoting entrepreneurism for students. Incubator creation surged rapidly at this point, and almost all incubators, while still catering to faculty, also opened to student participants—with some even specifically targeting undergraduates.

**Rationale for the Focus on Undergraduate Incubators and Accelerators**

Incubators and accelerators are both environments that nurture nascent startups by delivering technological assistance, expert mentoring, co-working space, and in many instances various forms of material resource investment. They are also epicenters of entrepreneurial culture on campus; promoting regular events, from high-profile speakers to high-drama hackathons and business plan competitions—usually with many thousands of dollars of prize money at stake. Ethnographic research at these hackathons show they are high emotion events for students and reshape unpaid and precarious work in student perspective as an extraordinary opportunity of self-investment (Zukin and Papadantonakis 2017). Even so, while these events are only a day or two long, the incubators create similar environments that last several months. It is because incubators are such central features to the university entrepreneurial ecosystem that they are a rich location for study. More than in formal coursework, technology transfer offices, and other startup-promoting events, incubators and accelerators are where individuals are
attempting to create real startups on a day-to-day basis. It is where much of “the stuff” of entrepreneurial behavior and identity formation happens, and begs to be investigated. Many studies have been done on entrepreneurial education, but the relative newness of incubator popularity on campuses has left this organizational phenomenon with only a very small body of literature to explain their culture, effects, and effectiveness. In addition, the increasing trend of allowing, and sometimes directly targeting, undergraduates as participants is also an area in need of research. Ever since the Bayh-Dole Act, in 1980, allowed faculty and universities to monetize and gain from research discoveries that were created with federal funding, faculty entrepreneurship has predictably increased. But the growing push among university administrators to get undergraduates to participate at higher rates is a more curious move. Not only do undergraduates rarely make large monetary gains from their startups, but campuses generally do not attempt to claim rights to the intellectual property of undergraduates. The logic is typically that undergraduates own their intellectual property made on campus because they pay to attend the university and use its resources, as opposed to faculty and graduate students who are employees of the university (Duval-Couetil et al. 2014). Without a clear financial incentive, the spreading emphasis on undergraduate startups has more of a cultural impetus, which I explore.

In addition, there are three other reasons I focus on undergraduates. First, they represent a more impressionable and often more vulnerable population than most other stakeholders of the university, and one where faculty and university leaders have a responsibility to do well by. Therefore, situations where university leaders are encouraging undergraduates into high-risk situations is worth examining. Second, undergraduates are a useful demographic for studying the organizational effectiveness of incubators. This is because undergraduates are all relatively unaware of the specifics of startups when they arrive on campus. They are at more equal starting points across campuses than graduate students or faculty entrepreneurs may be. They all also only spend a relatively similar and short amount of time in campus incubators, typically a year or two. This roughly more equal starting point and time duration means that where patterned differences in outcomes do arise, they are more likely due to organizational variables than individual characteristics. Lastly, there is currently momentum in the sociology of higher education for examinations of the organizational impacts of universities on undergraduates across a host of domains; this project is in good company among the work in that movement.

Educational institutions do not simply produce the workers demanded by the economy as a Marxist, direct correspondence theory might predict (i.e. Bowles and Gintis 1976). If the economy needs more entrepreneurs, universities do not directly serve them up. Nevertheless, the new economy does have an influence on evolving campuses norms, practices, and values. Students pick up these norms, practices, and values during their time in college—what sociology of educationists call the “hidden curriculum” (Hamilton and Powell 2011). Student identities are developed while on campus, from the personal (Armstrong and Hamilton 2013), to the political (Binder and Wood 2013), to the professional (Rivera 2015). Certainly, the hidden curriculum at individual campuses will have variants mediated by localized organizational differences (Hallett 2010), but collectively, colleges and universities play a primary role in legitimizing the core value sets and socially agreed upon bodies of knowledge shared across American culture (Baker 2014; Frank and Meyer 2007). Thus, as the new economy influences campus hidden and explicit curriculums to promote entrepreneurial practice and value sets, the larger outcome is not simply more entrepreneurs, but a legitimization of entrepreneurship culture.

To use Stevens’ and colleagues (2008) set of metaphors—as a hub deeply embedded in American social institutions, universities have mobilized a whole new apparatus for interfacing with this demand for entrepreneurialized persons. As a temple, they have legitimized entrepreneurial knowledge and activity. As a sieve, they have sorted entrepreneurial training into a range of higher and lower-quality programs able to interface with the hierarchical range of market demands, sorting graduates among them. As incubators, they are nurturing cohorts of college students trained to value, if not entirely possess, an entrepreneurial identity. To this last point, the new organizational units most often tasked with incubating this entrepreneurial identity—and the major location of observations and interviews in this study—are coincidentally called “incubators.” Colleges and universities across the country are launching these programs at a rapid pace. Previously they were mostly the domain of engineering and computer science
faculty, but the latest generation of incubators includes participation from students from across university departments. The articles in this dissertation examine this spreading phenomenon and its implications for how colleges and universities are preparing students for work in the new economy.

What norms, values, and practices are universities fostering by institutionalizing entrepreneurship on campus? The following articles examine this question in varying ways. Article one looks at campus organizational arrangements and the different kinds of entrepreneurial foci and outcomes emerge from centralized versus decentralized models: centralized models appear to emphasize business and marketing processes for startups, while decentralized models appear to emphasize science and technology processes. Article two examines undergraduate incubator participant’s preparation for the precarious new economy: STEM majors are regularly able to use their startup experiences as resume boosts for more stable employment, non-STEM majors tend to languish in startups with little market traction while becoming contingent workers on the side. Lastly, article three examines the formation of new entrepreneurial identities and shows how heterogeneous sources of identity formation illuminate a helpful new heuristic for thinking of identity formation processes more generally.

The Chapters

Below are the abstracts associated with each chapter. I break them into distinct parts clarifying the research question, methodology, and brief findings.

1. Rainforests on Campus: Comparing Centralized Versus Decentralized University Entrepreneurial Ecosystems

Research Question:
This paper contributes to the missing literature on how the organizational design of university entrepreneurial ecosystems impacts entrepreneurial outcomes. Entrepreneurial aficionados, Victor Hwang and Greg Horowitt, in their book *The Rainforest: The Secret to Building the Next Silicon Valley* (2012), suggest that regional startup ecosystems that are decentralized—which they liken to rainforests—have distinct advantages over master-planned, top-down, and centralized ecosystems; which they liken to farms. This is because, as the metaphor goes, the increased species diversification creates more frequent, and serendipitous cross-pollination, or innovation, than typically happens in farms. Though widely received positively among the entrepreneurial community, little scholarly evidence exists to support their hypothesis. I am attempting to provide such, but also, I am specifically looking at university-based entrepreneurial ecosystems rather than regional ecosystems. Do universities with decentralized entrepreneurial ecosystems have significantly better outcomes than those with more centralized entrepreneurial ecosystems?

Methodology:
I take a mixed-methods approach to compare centralized and decentralized models of campus entrepreneurial programming. I made field observations at two public university case campuses, one with a centralized startup ecosystem (at San Diego State University) and one with a decentralized startup ecosystem (at the University of California San Diego). I also reviewed programs across California to determine their size and model, then I followed over 300 undergraduate participants on LinkedIn for 18 months to determine if the campus model they were in led to noticeable differences in startup

---

2 Victor Hwang was a corporate and tech attorney, turned entrepreneur, who then led several startup support programs, and is most currently serving as the Vice President of Entrepreneurship for the Kauffman Foundation. Greg Horowitt, a serial entrepreneur, consultant, and venture capitalist, carries, among multiple concurrent roles, the title, Director of Innovation Design for UC San Diego’s new Office of Innovation and Commercialization.
sustainability or hiring outcomes post-graduation. I use Chi Square tests to look for statistical significance.

Findings:
Qualitative observations at San Diego State and UC San Diego reveal that there are inverted strengths and weaknesses to the centralized versus decentralized model. Centralized models have more visibility, efficiency, and administrator participation. Decentralized models have more expert mentoring, technological focus, and faculty participation. Undergraduate outcomes diverged significantly across the two models. Centralized models appear most commonly at mid-tier state universities and smaller liberal arts universities, where the majority of student entrepreneurs are in non-STEM majors, most typically a business program of some kind. Decentralized models are most common at flagship public universities and elite private universities, and the student participants are predominately in STEM majors.

Quantitative observations show that the non-STEM students at less selective institutions have higher rates of persistence in their startups after graduation but a higher rate of needing supplemental work to make ends meet. Conversely, STEM students, and especially at higher-tier research universities, show greater rates of non-persistence with their startups after graduation, where graduates typically accept full-time employment at traditional companies; they also show much lower rates of needing supplemental work to make ends meet. This leads me to the perspective, that many of the non-STEM majors at lower-ranked schools are being career side-tracked by remaining in startups with little market traction.

2. Failing Forward? The Risks and Rewards of Undergraduate Entrepreneurism

Research Question:
This article goes into more qualitative depth than the last one, and with a greater focus on student experiences and outcomes, rather than on the organization of entrepreneurism programs. It fleshes out more of the ‘why’ behind the gaps seen in student entrepreneurism between higher and lower ranked universities, as well as between STEM and non-STEM based projects and student majors. What impacts does participation in a university-sponsored startup incubator have on students’ college experience and career plans, particularly across institutional types and majors; and why?

Methodology:
I examine the undergraduate startup cultures at two public university campuses in Southern California at two slightly different locations in the post-secondary rankings hierarchy, one a little higher, the University of California San Diego, and one a little lower, San Diego State University, while also interviewing entrepreneurial undergraduates from across California to add field-level context. Interviews were conducted with 56 undergraduate entrepreneurs, roughly half in STEM majors and half not.

Findings:
Nearly all students first came to seriously consider entrepreneurism from campus programs after, not before, enrolling in college. Non-STEM majors reported more negative academic influences, such as lower GPAs and less time for assignments, studying, and class attendance. Non-STEM majors were also more likely to create lifestyle and consumer products with more tenuous market opportunities. Nearly all incubator participants I interviewed reported an increased risk tolerance and the willingness to sacrifice for their startups, most readily in the form of time and money. Most interviewees came to see risk-taking as a character virtue and they also reported increased preferences for flexible future employment arrangements. Nevertheless, STEM majors, especially at higher ranked research universities, are more likely to quit their startup when better job offers come along—their startup experience having served as a resume boost. Non-STEM majors, especially from lower-ranked colleges, are more likely to keep persisting in startups, whether sustainable or not, often accepting precarious labor roles to support their startup ambitions. Ultimately, undergraduate startup programming, particularly for non-STEM majors at lower ranked universities, risks directing these students into precarious work.
3. That’s How I Knew I Was an Entrepreneur: An Integrated Model of Identity Formation

Research Question:
The entrepreneurship literature shows a fair amount of concern for how entrepreneurial identities are formed, yet they borrow mostly from psychological and management literature on the topic, while a trove of sociological writing on identity formation is overlooked. The sociological literature has several families of identity theory that can be broadly organized into three traditions based on their unit of analysis and mechanisms they tend to focus on when analyzing identity formation. One tradition, rooted in social psychology and interactionist sociology, underscores how individuals internalize identities as self-structures that become relatively stable across settings. This tradition tends to take a micro approach. The second tradition, rooted in dramaturgy and cultural sociology, emphasizes how individuals contextually perform their identities through various scripts, tools, and capitals that can be accessed relative to the situation. This tradition typically looks at macro cultural forces. The third tradition, rooted in literature on social movements and the sociology of the local, stresses how collective identity becomes nurtured and mobilized at the group level. This tradition is oriented toward meso-level approaches. I also found that the three traditions are also separated from each other by a main tension or pole: identity formed more from individual or collective experiences; identity refined more from between group boundaries (us-versus-them) or within group boundaries (status hierarchies); and identity as more durable or dynamic across settings and situations. As I argue in this article, the three traditions of sociological identity theory are not contradictory, but rather, can be integrated to more productively make sense of complex domains of identity formation.

Methodology:
I conducted 56 in-depth interviews with student entrepreneurs about their experiences becoming an entrepreneur. The poles that I mentioned above were useful to identify which tradition my interviewees experiences most reflect. Once they were each categorized into the tradition their experiences most closely reflected, I then carefully looked for the unique ways the student from each tradition articulated their entrepreneurial identities. Clear patterns existed.

Findings:
Entrepreneurial identity can indeed be: individually internalized, contextually performed, and/or collectively mobilized—each with differing opportunities and challenges. Students in the individually internalized category were much more likely to speak of their entrepreneurial identity as something in their personalities or unique traits. They understood it as a kind of mindset that can be deployed in several types of contexts. The students in the contextually performed category of entrepreneurial identity formation understood their entrepreneurial identity as something that was earned through specific actions and achievements. To the students in this category, claiming that oneself is an entrepreneur without sufficient evidence is shameful. They often compared themselves to others to determine who were “real” entrepreneurs and who were simply want-to-be entrepreneurs. The students in the collectively mobilized category viewed their entrepreneurial identities as emerging out of shared team experiences, and especially out of overcoming the difficult challenges they were confronted with by a capricious and unmerciful market. I also discuss potential implications and future directions for research based on the integrated model of identity that I used.

REFERENCES


Major Takeaways

One: There are inverted strengths and weaknesses of centralized versus decentralized models

<table>
<thead>
<tr>
<th>Strengths/Opportunities</th>
<th>Centralized</th>
<th>Decentralized</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Visibility &amp; promotional advantages</td>
<td>A. Specialized mentorship</td>
<td></td>
</tr>
<tr>
<td>2. Streamlining &amp; efficiency of effort</td>
<td>B. Focus on tech &amp; securing intellectual property</td>
<td></td>
</tr>
<tr>
<td>3. Top administrator involvement</td>
<td>C. Home-unit faculty involvement</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weaknesses/Threats</th>
<th>Centralized</th>
<th>Decentralized</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Generic mentorship</td>
<td>1. Obscurity &amp; lack of visibility</td>
<td></td>
</tr>
<tr>
<td>B. Focus on inputs over outputs</td>
<td>2. Silos &amp; duplication of effort</td>
<td></td>
</tr>
<tr>
<td>C. Struggle to enlist faculty involvement</td>
<td>3. Competition for top administrator involvement</td>
<td></td>
</tr>
</tbody>
</table>

Two: STEM majors usually leave their startups after graduation for better job offers. Non-STEM majors are more likely to persist, but often need supplemental work to make ends meet.

Undergraduate Startup Persistence by Campus Model and Major

<table>
<thead>
<tr>
<th></th>
<th>Centralized Model</th>
<th>Decentralized Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEM Major</td>
<td>6/14 (43%)</td>
<td>59/161 (37%)</td>
</tr>
<tr>
<td>Non-STEM Major</td>
<td>42/69 (61%)</td>
<td>21/34 (62%)</td>
</tr>
</tbody>
</table>

\[ \chi^2 (3, n=278) = 15.268, p<.01 \]

Supplemental Work to Make Ends Meet, by Campus Model and Major

<table>
<thead>
<tr>
<th></th>
<th>Centralized Model</th>
<th>Decentralized Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEM Major</td>
<td>1/15 (7%)</td>
<td>3/178 (2%)</td>
</tr>
<tr>
<td>Non-STEM Major</td>
<td>46/69 (67%)</td>
<td>6/39 (15%)</td>
</tr>
</tbody>
</table>

\[ \chi^2 (3, n=301) = 140.579, p<.001 \]
Three: Entrepreneurial identity tends to be developed in three non-mutually exclusive patterns: Individually Internalized, Contextually Performed, and Collectively Mobilized.

The Three Identity Traditions and the Poles Separati

Entrepreneurial Identity Among the Sociological Identity Traditions

<table>
<thead>
<tr>
<th>Source:</th>
<th>Tends to Emphasize:</th>
<th>Entrepreneurial Identity is:</th>
<th>Typifying Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>Personality Traits</td>
<td>Enduring across settings</td>
<td>“I have the entrepreneurial mindset Wherever I go, I see things differently.”</td>
</tr>
<tr>
<td>Internalization</td>
<td>innovation over convention,</td>
<td></td>
<td>“I’d say I’m a serial entrepreneur. It’s in my blood at this point.”</td>
</tr>
<tr>
<td></td>
<td>passionate visionary,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>intangible qualities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contextual</td>
<td>Executed Skills</td>
<td>Proven by successes</td>
<td>“You’re not an entrepreneur until you’ve done it. Execution is king.”</td>
</tr>
<tr>
<td>Performance</td>
<td>action over ideas, seizing</td>
<td></td>
<td>“I had to try it. When would another chance like this happen?”</td>
</tr>
<tr>
<td></td>
<td>opportunity, achieving</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>milestones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collective</td>
<td>Key Relationships</td>
<td>Shared with team</td>
<td>“We knew we were going to start it together before we knew what ‘it’ was.”</td>
</tr>
<tr>
<td>Mobilization</td>
<td>who over what, loyal</td>
<td></td>
<td>“We’re family. It’s not just business.”</td>
</tr>
<tr>
<td></td>
<td>solidarity, group struggle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>