A CASE STUDY OF CURRICULUM ENTREPRENEURSHIP: INTEGRATING SOCIAL ENTREPRENEURSHIP EDUCATION INTO ENGINEERING

A Dissertation in
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by
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ABSTRACT

Much research on how curriculum reform occurs in higher education has focused on top-down models that deemphasize individual agency and overlook bottom-up processes of innovation. This case study, in contrast, described and analyzed the process by which an engineering instructor used the strategies and tools of entrepreneurship, honed through his own ventures and the courses he taught, to develop and build support for an innovative undergraduate program, as well as how individual-, unit-, and organizational-level factors affected his actions and thus the development of the curriculum. Data comes primarily from 96 interviews with 83 engineering faculty, administrators, students, and various internal and external collaborators, supporters, and partners associated with this process, collected over a 10-month period. Analyses produced description of the process of curriculum innovation, and focused in particular on the perspectives and actions not only of the engineering instructor, as a curriculum entrepreneur, but also those who supported, contributed to, or viewed themselves as competitors of the program. I provide evidence of an entrepreneurial process in which the curriculum entrepreneur (and eventual director of the program) created the program as the founder of a startup might create a business venture. This effort coalesced a collection of relevant, but initially unrelated educational activities into a startup-like entity marked by boundaries, competition, and customer-equivalents that, by the conclusion of the study, reached a semi-institutionalized phase of development. While institutional culture, structure, and priorities exerted influence on the program’s development, the curriculum entrepreneur’s success in navigating different institutional levels and unlocking resources
controlled or influenced by others depended on his skillfulness in several areas: coping with uncertainty around the availability of resources, applying entrepreneurial tools, and exercising savvy with regard to organizational considerations and the curriculum development process. I propose a theoretical model of the process by which the director worked to institutionalize the curriculum and offer a set of propositions to guide research on the usefulness and development of the theory of curriculum entrepreneurship.
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I decided to pursue a doctoral degree in Higher Education upon reflection that students’ time in university molds their outlook on the world, how they interact with it, and with what mindset and skills they bring to seemingly intractable problems. Looking back on the past decade, I can only feel immense gratitude for the academic opportunities to study curriculum change along these lines, along with professional opportunities that have allowed me to work with hundreds of students as they grappled with how to go from initial thought to action.

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Chapter 1. Introduction

Calls from numerous quarters exert pressure on universities to produce graduates who are adept at tackling complex, real-world problems like poverty and pollution with their engineering and entrepreneurial skills (Duderstadt, 2008; National Science Board, 2007; Lattuca, Terenzini, & Volkwein, 2006). “Greater intellectual span,” “capacity to innovate,” “entrepreneurial zeal,” and “ability to address the grand challenges facing our world” are some of the capabilities being requested of the engineers of tomorrow (Duderstadt, 2008, p. iv). In the broadest sense these calls, which are voiced by federal agencies, industry, professional societies, advocacy groups, popular media, and students, arise from concern over the uncertain future of an interconnected world and coalesce around a belief that STEM-educated, entrepreneurial graduates should be able to thrive in the knowledge- and innovation-based economy while also addressing global issues (Augustine, Barrett, & Cassell, 2007, 2010; Duderstadt, 2008). The realization of these hopes, however, is impeded at many universities by engineering curricula that remain tipped towards theory at the expense of practice; flat, only slowly diversifying undergraduate engineering enrollments; and limited or siloed opportunities to gain entrepreneurial skills (Katz, 2003; Kuratko, 2005; Gibbons, 2005; Amadei & Sandekian, 2010a).

In engineering education, curriculum change is widely discussed as a way to reverse these trends. A small but growing body of research provides evidence that curriculum change efforts have been successful at increasing the emphasis on professional skills in the engineering undergraduate curriculum (Lattuca, Terenzini,
Knight, & Ro, 2014; Lattuca et al., 2006; Prados, Peterson, & Lattuca, 2005). However, further improvements are needed, and limited progress has resulted from curriculum change directed in a top-down manner by administrators or mandated by accreditors’ concerns. The expected diffusion of curriculum innovations has not occurred as theorized (Graham, 2012), and while engineering chairs report high levels of awareness of new curricular and instructional approaches, such as learning communities, service learning, and active learning, they report much lower rates of adoption of such practices by faculty in their engineering programs (Borrego, Froyd, & Hall, 2010). In this context, studies of curriculum change that arise organically as faculty seek to address students’ learning needs may offer a useful contribution to the literature.

**Curriculum Change**

Curriculum change is a kind of organizational change influenced as much by wide “social, cultural, political, and economic shifts” (Lattuca & Stark, 2009, p. 302) as by the individual perceptions, experiences, and actions of administrators, faculty, and staff. Though the curriculum is unquestionably vital to the success of the university’s tripartite mission, research on how and why it changes is modest. Change in higher education has typically been written about in atheoretical ways (Kezar & Eckel, 2002) and is a difficult concept to neatly define. In a multidisciplinary synthesis of change literature, Kezar (2001) questions the usefulness of offering a single definition, since the assumptions underpinning each theory or model of change generate variations to the definition of change. For instance, one definition emphasizes broad level alterations among individuals, groups, and the collective organization (Burnes, 1996), while another views
change as a difference that is detected at the individual, subunit, organizational, or organizational field levels (Poole & Van de Ven, 2004).

Change includes the aspects of *what*, *why*, and *how*. Process refers to *how* change happens, and may be characterized as “adaptive, generative, proactive, reactive, planned, and unplanned” (Kezar, 2001, p. 22). Process heavily distinguishes one change theory and model from the next, but like the general state of change literature, “the extant change process literature is replete with problems,” including “a lack of empirical data” (Kezar & Eckel, 2002, p. 296). Much research to date on curriculum change has used reactive, top-down change models that deemphasize individual agency. Despite their popularity, such models “appear to have limited support…in terms of how change actually occurs in higher education” (Kezar, 2001, p. 80).

Along similar lines, “a review of curricular changes over time suggests that colleges and universities are more reactive than proactive, but such a suggestion may overlook the important role of human agency and the complex interactions among variables that affect change” (Lattuca & Stark, 2009, p. 303). Indeed, “administrators, faculty, and staff are active agents in the curricular change process” (p. 302). As such, more research on process would help scholars and educators better understand curriculum change. Likewise, greater insight into how individual agency affects the process of curriculum change would be beneficial (Lattuca & Pollard, 2016). The attention drawn by Kezar (2001) and Lattuca and Stark (2009) to individual agency in wider organizational and curricular change processes encourages further exploration of this connection.
Faculty members have the potential to create the curriculum change they desire at the program level. This potential has not been well researched, because studies on higher education change have largely emphasized top-down processes and consensus-driven, collegial decision making (Kezar, 2001). Despite this prominent attention, however, “the cumulative evidence suggests that change can best be explained through political, social-cognition, and cultural models” that more strongly emphasize individual agency (Kezar, 2001, pp. 79-80). This cumulative evidence, along with long-standing and more recent trends, suggests that faculty members acting in a self-motivated fashion to create curriculum change may not be as rare as presently thought. Indeed, faculty members in nonprofit higher education have long enjoyed a decentralized, autonomous process of course development and revision (Lattuca & Stark, 2009).

Recent trends may also encourage faculty to work for curriculum change in an entrepreneurial manner. First, diversity in the professoriate is growing in terms of more women and minorities, although at a pace below par with their participation in higher education as students (Schuster & Finkelstein, 2006). Like diverse faculty in other fields, female engineering professors are more interested than their male counterparts in engaging students in real-world experiences and problem solving (Amadei & Sandekian, 2010a). Second, “a sweeping reconfiguration of academic appointments” has entailed dramatic reductions in tenure-track positions (Schuster & Finkelstein, 2006, p. 191). In 1975, 56 percent of faculty members were tenured or on the tenure track; the remaining 44 percent were non-tenure-track or part-time faculty. A steady downtrend in the former and uptick in the latter meant that by 2011, only 29 percent were tenured or on the tenure-
track while 71 percent were off the tenure track (Curtis, 2014). As a consequence, the majority of new full-time faculty members is free of typical tenure concerns like research and publishing and has the opportunity to focus on teaching and related concerns like curriculum change.

To investigate curriculum change that is entrepreneurial and faculty driven, I studied the development of an elective program that integrated social entrepreneurship into the undergraduate engineering degree. The way in which the founder, a faculty member, developed the program afforded the opportunity to study a process of bottom-up curriculum change.

**Introduction to the Case Study**

Though survey- and interview-based studies are common in change research in higher education, “the change process is better studied through more detailed qualitative methods such as ethnography and case study” (Kezar & Eckel, 2002, p. 296). In keeping with this assertion, I conducted a single case study of a curriculum change that, first, was initiated and developed through an entrepreneurial effort, i.e., a bottom-up effort by a faculty member to create a new program; second, integrated social entrepreneurship education into engineering. This case qualified as a change because at the time of the study, it was a freshly formalized program. In the literature, scope is a primary determinant of curriculum change: “adjustments in content or sequence made by an instructor in a specific course” is not change, but “a decision to alter several elements of an academic plan,” “modify a significant aspect of the educational environment,” or add
programs (like the one examined in this study) is counted as change (Lattuca & Stark, 2009, p. 301).

In this case, the faculty member used entrepreneurial tools like improvisation, bricolage, and storytelling to create a curricular program like a startup founder might for a business venture. Prior to the study period, which spanned a ten-month period, the effort had been under way for six years and had developed from an informal educational initiative into a recognized program of five courses with a recommended sequence over the spring, summer, and fall semesters. The program engaged students from across the university in both formal and informal learning experiences, including the courses it offered, honors theses, projects embedded in other courses, commissioned assignments, and volunteer opportunities. The objective of the program was threefold: to engage students in real-world design problem solving (specifically, multi-year efforts to create scalable social entrepreneurial ventures in developing country contexts); multidisciplinary teams with both engineering and non-engineering members; and publishable research projects.

A brief overview of engineering education reform, social entrepreneurship, and social entrepreneurship education situates this case study in a larger sociocultural and educational context.

**Engineering Curricula and Calls for Reform**

A variety of concerns animate discussions on curriculum change in engineering. Among these, “one of the most persistent challenges…has been a desire to strike a suitable balance between theory and practice” (Seely, 2000, p. 40). Practice that engages
students is key to attracting, retaining, and graduating well-equipped and diverse engineers. At a glance, some may be tempted to dismiss concerns for practice-based engagement as “the latest fad in a long line of efforts to revamp engineering education” (Seely, 1999, p. 285). However, the history of engineering education reveals a continual preoccupation with this question from the earliest days of American engineering education. In the late 1800s, engineering education favored practice, and funding from industry in the first decades of the 20th century likewise maintained a practical orientation (Harwood, 2006). However, an influx of European engineers heavily trained in theory in the 1920s and the provision of significant funding from federal agencies from the 1940s shifted the balance in favor of theory for many decades, given that the grants were often tied to academic rather than applied research (Seely, 2000; Prados et al., 2005).

During the 1950s, the earlier practical focus in engineering education gave way to a mathematical engineering science focus and remained largely unchallenged for the following thirty-odd years. Prior to the 1990s ABET, the engineering accrediting agency, supported this paradigm and stifled innovative curriculum change. However, by the late 1980s, forward-thinking education leaders, including some at ABET, were voicing concern that the theory-heavy engineering science paradigm insufficiently prepared engineers to handle evolving, real-world demands (Prados et al., 2005; Harwood, 2006). Studies conducted in the 1980s and 1990s by the National Research Council, National Academy of Engineering, American Society for Engineering Education, and National Science Foundation (NSF) built momentum for and spurred investment in education
reform. In 1995, ABET released the *Engineering Criteria 2000* (EC2000) for public comment. The new criteria relaxed prescriptive accreditation requirements, did away with simple measures of subject-area seat time, identified competencies engineering graduates should possess, and encouraged outcomes-based evaluation and continuous improvement processes (Prados et al., 2005). Greater emphasis was placed on design, which develops competency in practice, as well as non-technical skills like “oral and spoken communication, teamwork, understanding of the global and local contexts of engineering, and knowledge of contemporary issues” (Seely, 2005, p. 121).

Agencies and organizations play a strong role in the theory-to-practice debate in engineering education. The plethora of reports produced by high-profile entities make it easy to underappreciate the critical role of individual faculty. Even in the development and dissemination of EC2000, the feedback of 125 accreditation stakeholders (including faculty) was solicited through several workshops, and between 1998 and 2003 nearly 1,600 faculty elected to participate in two-day workshops aimed at “academic program improvement” (Prados et al., 2005, p. 170). Over the past century “engineering faculty and administrators clearly believed that resolution of the theory/practice issue was primarily their responsibility” (Seely, 2000, p. 41). Findings from a study on the impact of the EC2000 demonstrate this: only 28 percent of individual faculty felt ABET had a moderate or great deal of influence on curriculum changes they made in their courses. In contrast, 83 percent reported that changes resulted from their own initiative. More than 50 percent reported some to significant increases in the use of group work, design projects, and open-ended problems—all pedagogical changes that give students
opportunities to develop skills required by the profession. At the same time, faculty members reported the greatest reductions in their use of lectures and textbook problems (Lattuca et al., 2006). Given these findings, engineering faculty members appear increasingly willing to rebalance theory and practice in the undergraduate courses and programs in which they teach. The integration of social entrepreneurship education is one promising path forward, and both the general conception of social entrepreneurship and its growth in education are discussed next.

**Social Entrepreneurship**

Social entrepreneurship is an emerging concept with competing interpretations (Weerawardena & Sullivan Mort, 2006; Nicholls, 2010; Peredo & McLean, 2006). Given that “definitions of social entrepreneurship have been developed in a number of different domains, such as not-for-profits, for-profits, the public sector, and combinations of all three, a unified definition has yet to emerge” (Short, Moss, & Lumpkin, 2009, p. 161). Within the literature, consensus has been building that social entrepreneurship “is concerned with enterprise for a social purpose and involves building organizations that have the capacity to be both commercially viable and socially constructive” (Tracy & Phillips, 2007, p. 265). A more general conception less tied to financial considerations has been recast as social innovation, which is “concerned with actors that reconfigure resources in order to achieve some kind of social change or societal transformation, but who do not necessarily rely on commercial means to do so” (Lawrence, Phillips, & Tracy, 2012, p. 319; Lawrence, Dover, & Gallagher, 2014).
Concerning the relationship of social entrepreneurship to business entrepreneurship, social entrepreneurs “encounter the same challenges as more traditional entrepreneurs—opportunity recognition, the marshaling of resources, and the creation of the new venture…with the added complexity of defining, building support for, and achieving social outcomes” (Tracey & Phillips, 2007, p. 266; Smith, Barr, Barbosa, & Kickul, 2008). Despite the overlap between the two, historically social entrepreneurship did not develop from business entrepreneurship. While social entrepreneurs place social value creation above monetary returns, business entrepreneurs do the opposite. At the same time, “the distinction between social and commercial entrepreneurship is not dichotomous, but rather more accurately conceptualized as a continuum ranging from purely social to purely economic” (Austin, Stevenson, & Wei-Skillern, 2006, p. 3).

An indicator of social entrepreneurship’s growing momentum and legitimacy is the range of its advocates and supporters. Indeed, “a sophisticated network of organizations exists to support and highlight the work and contribution of social entrepreneurs” and “gives coherence and identity to a hitherto disparate group of individuals and organizations concerned with a range of issues including poverty, social inequality, and the natural environment” (Dacin, Dacin, & Tracey, 2011, p. 2). High-profile supporters include foundations like Skoll Foundation, fellowship-granting organizations like Ashoka, venture capital organizations like Acumen Fund, conference-sponsoring organizations like Social Capital Markets (better known as SOCAP), and academic programs and research centers at universities like Harvard, Oxford, and Duke (Nicholls, 2010).
Social Entrepreneurship Education

While social entrepreneurship education is becoming more prevalent (Ashoka U & Brock, 2011; Brock & Ashoka, 2008), educators continue to debate where social entrepreneurship education should be situated within the university. The heart of this debate is whether social entrepreneurship should be viewed as a subspecialty of business entrepreneurship or if it should be seen as a meta-professional skillset that can be integrated with skills taught in a variety of disciplines (Schweitzer, 2011), such that a recent graduate might say, “I’m an engineer and a social entrepreneur.” In the former arrangement, the concern is to infuse business entrepreneurship curricula with social entrepreneurship case studies, readings, speaker series, assignments, consulting projects, and internships (Tracey & Phillips, 2007; Smith et al., 2008). In the latter arrangement, the concern is to teach social entrepreneurship within disciplines outside of business (Mars & Garrison, 2009) or to create multidisciplinary programs that engage students and faculty across the institution (Morris, 2009). Such cross-campus engagement promotes entrepreneurial thinking in students with diverse study concentrations (Krueger, 2007).

Purpose

The purpose of my research was twofold. First, I sought to contribute to our understanding of the process of curriculum change. As touched on above and explored in more detail in the literature review, there is a modest amount of empirical research on curriculum change generally, and less scholarly attention that specifically focuses on the process of curriculum change. A focus on process contrasts, for example, with before and after plan comparisons of a change initiative. Much of the research that has been
conducted has focused on the diffusion of an innovative curriculum from one setting to another rather than on how curriculum innovation actually comes about within particular institutional settings. The role of individuals in the curriculum change process is another under-researched area, and the empirical work that has been conducted to date has often followed top-down models emphasizing constraints on individuals rather than their ability to take initiative and even act entrepreneurially to capitalize on opportunities, deal with impediments, and find ways to work with and modify the curricular environment.

The second purpose of the research was to illustrate issues that arise when developing a curriculum that integrates social entrepreneurship education into engineering. There are clear calls from a variety of sectors for curriculum change that will increase engineering students’ competencies in and readiness for practice. Education that integrates social entrepreneurship offers a promising avenue to help achieve this goal. In addition to calls for reform, a number of other factors may promote the development of social entrepreneurship education, including student and faculty personal interest and the freedom of more faculty members from tenure concerns, either because they are not on the tenure track or are already tenured. At the same time, there are numerous challenges to this sort of change, which originate from such sources as time constraints on students enrolled in heavily prescribed degree majors; differences in individual educator viewpoints and politics; and institutional culture and procedures.

In sum, I sought to illuminate, first, how the individual agency of faculty members could be exercised to create curriculum change using entrepreneurial tools common to startups in the business world; second, how the integration of social
entrepreneurship education into engineering might provide a way to address the theory-to-practice problem commonly grappled with in the field.

**Guiding Research Questions**

This research was guided by three related questions. First, **How is a curriculum integrating social entrepreneurship into engineering developed and/or perceived by faculty, students, and others involved?** An understanding of the development process and perceptions around this sort of curriculum provides scholars and educators with insight into efforts to graduate capable problem-solvers and innovators. Second, **What factors impede and facilitate the development of this curriculum?** This study identified and described facilitating and inhibiting influences on curriculum change. Influences originated from many sources, and the academic plan model (Lattuca & Stark, 2009) helped identify those sources and their connections to the curriculum. Third, **How do individual-, unit-, and organizational-level factors and their interplay influence the development of this curriculum?** Through this study, I contributed to our understanding of how curriculum change happens, particularly change created by a faculty member acting in an entrepreneurial manner. I examined his motivations, perspectives, and the tools he and other colleagues used in the curriculum change process. A growing body of research examines the process and motivation of entrepreneurs in business, and an empirically based understanding of the same for faculty acting as curriculum entrepreneurs sheds light on individual agency in curriculum change efforts.
Significance

This study has significance for scholars and educators interested in the following educational phenomena and problems: the process of curriculum change in higher education; the theory-to-practice debate in undergraduate engineering education and the potential for social entrepreneurship to help balance the two; and the process of entrepreneurship.

Higher education scholars benefit from this research, because it contributes to the moderate base of empirical knowledge on higher education change generally and the process of curriculum change in particular. Most research to date on change has focused on diffusion or top-down processes; by contrast, this study investigated a case in which an individual engaged in curriculum entrepreneurship, which I define as the use of an entrepreneurial approach to creating and developing a curriculum. I only succeeded in locating one study in the literature that directly applied a single entrepreneurial tool to curriculum change (Louvel, 2013).

Engineering educators and reform advocates benefit from the study’s insights into the facilitators and impediments of curriculum change that seeks to strengthen student engagement in and preparation for practice. Through the study, I probed a promising option for meeting these practice-centered goals. They will likewise learn about how individual faculty members can act as initiators of change rather than being recipients of change efforts. Indeed, research on engineering faculty perceptions of curriculum change and adjustment indicates strong personal attribution (Lattuca et al., 2006). Thus, this
study adds to a small but important body of empirical knowledge about individual agency in the process of curriculum change in engineering education.

For those with interest in social entrepreneurship education, this study contributes to knowledge of this rapidly emerging field by examining a case that, first, was centered outside the typical business school context and, second, actively promoted cross-campus engagement and contributed insights to multidisciplinary education models. Further, the study provides insights into the kinds of opportunities and resistance that faculty members and program champions encounter when seeking to introduce social entrepreneurship education into the study of different fields.

Finally, scholars of entrepreneurship benefit from my qualitative examination (Bygrave, 2006) of a semi-institutionalized effort that was developed through an entrepreneurial process in a highly competitive and resource-constrained environment. Other studies have focused alternately on nascent actors (e.g., Baker, Miner, & Eesley, 2003) and established players (Baker, Pollock, & Sapienza, 2013). Thus, the study’s focus on a semi-institutionalized effort yielded findings that complement current work on the process of entrepreneurship.
Chapter 2. Literature Review

This review is a product of the open process undertaken in qualitative research, namely that research insights shape the inquiry. It reflects a framing of the research that was identified prior to data collection in the proposal stage and applied from the beginning of the study. An initial interest in curriculum change involving social entrepreneurship and engineering (given both fields’ interest in practice) led to the identification of the case, and prior to data collection the basics of the case suggested that the faculty member who developed the curriculum used some tools common in entrepreneurship, similarly to how a founder launches a startup venture. Just as the director created opportunities for students to develop implementable ventures, so too he used his entrepreneurial acumen to create the program. This framing of the curriculum change process was consonant with an emic, or insider’s perspective (Pettigrew, 2000).

Given this framing, this chapter examines higher education literature on several topics, including curriculum change and engineering education reform, along with scholarly work on entrepreneurship.

Scant to moderate amounts of research speak directly to this study; rather, much of the literature is anecdotal or conceptual in focus. The local nature of curriculum change favors informal, real-time knowledge sharing between colleagues over evidence-based practice and formal study. In addition, entrepreneurship researchers have only recently started responding with vigor to calls for greater attention to process and the tools used by entrepreneurs, their earlier work having centered on other concerns (Aldrich and Ruef, 2009).
My review of the relevant literature is divided into four sections. In the first section I discuss curriculum change. In the second section I review literature that provides a warrant for applying an entrepreneurial framework to the study. Reviewed in particular are the organizational nature of mainstream US higher education institutions; a widespread cultural shift towards entrepreneurialism via academic capitalism; and demographic shifts in the professoriate. In the third section I delineate tools in the entrepreneurship literature that apply to the case. The fourth section reviews literature that illuminates the particular context explored in the study, that is, social entrepreneurship education within engineering.

**Part I. Curriculum Change**

The academic plan model (Figure 1) developed by Lattuca and Stark (2009) depicts the myriad and dynamically interacting elements that influence curricular planners, typically faculty members, as they develop curricula at course, program, and/or institutional levels. It “seeks to promote a thorough consideration of factors influencing curricular activities…and is thus an aid for inquiries into educational innovation” (Lattuca, 2011, p. 1). Academic plans consist of eight elements, or “decision points,” for faculty members; these include purposes, content, sequence, learners, instructional resources, institutional processes, and assessment and evaluation. Faculty members may not intentionally or conscientiously consider each of these, but they all are implicated in the planning of a curriculum.
Figure 1. The Academic Plan in Sociocultural Context

Plans are embedded in educational environments that are shaped directly and indirectly by the other components depicted in the model. Most directly, this environment is shaped by salient external influences like accrediting agencies and disciplinary associations as well as internal influences at the institutional and unit levels. The educational environment in which plans are created and revised is affected by what actually happens in the implementation of a curriculum (i.e., the educational process), and by what students actually gain through their experience with the curriculum (i.e., educational outcomes). More indirectly, the sociocultural context influences planning; it embeds the plan in its “temporal context, recognizing, for example, that curriculum changes that might have been radical in one time and place might be commonplace in another” (Lattuca, 2011, p. 3). The final elements depicted in the model are various
evaluation and adjustment paths supported by research on curriculum planning, but also reflect an ideal. For example, many curriculum researchers and reform advocates would hope for change or adjustments in curricula based on explicit and rigorous evaluations of educational outcomes. The efficacy of the model lies in its delineation of the many elements that interact in a complex way to shape curriculum. It fosters “a systems perspective on curriculum development and reform” (p. 3) and draws attention to its numerous influences, including personal faculty experiences, colleague perspectives, institutional structures, actual implementation of a curricular plan, and so on.

As I discuss in Part IV of this review, the literature on social entrepreneurship education generally and in an engineering context reflects a preponderance of descriptive work. This work is important at the early stages of a field, because practitioners especially want to explain and share what comprises their innovations around curriculum. With this study, I did descriptive work while also going beyond it to illuminate influences on curriculum change at and across various levels (i.e., the individual, unit, and organizational levels). My focus was on how individuals can affect substantial change, and the literature on how individuals are seen in relation to curriculum change is discussed next.

Scope of curriculum change. In my introduction to the study, I presented an argument for why the case constituted change and not merely “adjustment.” The curriculum change literature, as attested by Lattuca and Stark’s review (2009), focuses on change that very clearly qualifies as “transformational,” meaning it is both deep (i.e., affecting behavior and structures) and pervasive (i.e., affecting many institutional units).
In a two-by-two matrix presented by Eckel, Hill, and Green (1998), the kinds of change that may occur along the continuum between transformational change and change that is isolated, i.e., deep without being pervasive across an institution, are not specified. The case in this study was situated somewhere between the two, because in terms of pervasiveness of change, it concerned a single program housed in an engineering department that also engaged a wide cross-section of students, faculty, centers, university offices, and external stakeholders. In terms of depth of change, the case departed significantly from curricula within and beyond its immediate environment owing to its innovative content that integrated engineering design and social entrepreneurship concepts; pedagogies that engaged students in the creation of social ventures; and program arrangements that allowed students and faculty to participate in various, flexible ways. Moreover, the case did not represent an instance of top-down or coordinated curriculum change, i.e., the type of transformational change emphasized in the literature. As the next section shows, existing models of curriculum change provided a generally poor fit with the case.

Models of curriculum change. Lattuca and Stark (2009) review four overarching curriculum change models. The diffusion model, according to Hefferlin (1969), is the most common and suggests that most change in higher education results from diffusion rather than local innovation. Diffusion happens when those in an institution become aware of, screen, and adopt externally developed ideas or curricula. Diffusion theories “attempt to describe this process, suggesting that the decision to adopt a particular innovation depends on awareness of the innovation, interest in it, evaluation of its merits,
and a small-scale trial” (Lattuca & Stark, 2009, p. 309). As external influences become “sufficiently powerful,” “convincing,” and “economically or politically sound,” they may become an “internal imperative” through an “interpretive process” (p. 306). Thus, in the diffusion model, individuals play a central role, but they are portrayed as rational in their evaluation and consideration of already existing ideas or curricula (Rogers, 1995; Lindquist, 1974; Fincher, 1988). The case was one of local innovation not diffusion, because an individual founded the curriculum and developed it according to a trajectory he charted.

Planned change models contrast with diffusion models, because they focus on “goal-directed action” rather than react to “external influences or educational ideas initiated elsewhere” (Lattuca & Stark, 2009, p. 310). In the R&D approach, change advocates conduct research to “suggest a carefully tested and logical alternative to current practice” (p. 310). In this model, along with the linkage model (Havelock, 1971) and closely related problem-solving model, an individual “feels a need for the change” (Lattuca & Stark, 2009, p. 311) and then diagnoses, researches, and presents a solution. Planned change models thus emphasize, as do diffusion models, deliberative processes that follow well-understood steps to reach rational decisions about the change. As such, these models likewise do not reflect the process that occurred in the case.

In political models of curriculum change, rationality is supplanted by interactions characterized for their contention, conflict, and exercises of power (see Conrad, 1990). Politics help explain “the sources of change” and “the dynamics of the final decision-making process” (Lattuca & Stark, 2009, p. 316). Groups, coalitions, or key individuals
come into conflict because of concern over particular and often self-directed interests, disciplinary differences, and “sincere competing beliefs about the efficacy of instructional processes” (p. 316). Thus, in the political model, individuals and their competing interests and beliefs are held as key to understanding curriculum change. This model had some applicability to the case owing to the political forces at play, but did not account for the primary driver of change, i.e., the program director’s entrepreneurial efforts.

The social cognition models of curriculum change emphasize how variations in individual understandings and local contexts affect “responses to curricular change efforts” (p. 316). This emphasis appeared consonant with the case; however, beyond this, the literature on social cognitive curriculum change focuses on the “organizational learning” concept. Through this perspective, deliberative efforts to change the curriculum require both “knowledge of the group norms and the social skills necessary to work with them” (p. 318) and commitment to engaging in collegial learning through forums, meetings, and development workshops. Thus, social cognition models of curriculum change focus on the importance of individuals, their idiosyncratic perspectives, and the need for leaders to engage others in planned learning activities. The first two points appear consonant with the case, but the third point departs from it through an assumption of systematic engagement.

In short, the first two models were not useful to understanding the case, while the latter two models contained some insights but provided limited applicability. For this
reason, I considered how an entrepreneurial framework might help understand the curriculum innovation that happened in the case.

**Curriculum change in engineering education.** The literature on the process of curriculum change in engineering focuses heavily on diffusion and planned change models, or what Henderson and Dancy (2011) call “the development and dissemination change model” (p. 8). The diffusion of innovations is generally discussed in terms of the stages of initiation, screening, and adoption articulated by Rogers (1995). The authors writing in this area have been more or less satisfied with the variety of curriculum innovations that have been conceptualized and piloted. They have been much more concerned that only modest progress has been made in the diffusion of these innovations from educational research centers to institutions, especially because sizable resources have been poured into this change strategy for the past 20 or so years (Borrego et al., 2010; Henderson & Dancy, 2011; Froyd, 2011).

Planned change processes are reflected in the emphasis on “tested research-based instructional ideas and strategies” (Henderson & Dancy, 2011, p. 1). The extent and expense of these systematic efforts are seen, for example, in the National Science Foundation’s investment in curricular improvement through “Engineering Education Coalitions, Engineering Research Centers, Model Institutions of Excellence, and Centers for Learning and Teaching” (National Science Board, 2007, p. 5). The gap between efforts and results has spurred research on the ineffectiveness of systematic curriculum innovation and diffusion (e.g., Froyd, 2011; Borrego et al., 2010). Knowledge and interest are insufficient to create change (Henderson and Dancy, 2011). As such,
researchers have centered their efforts on understanding the importance of alignment between change strategies and change goals (Seymour, 2001), expectations about change outcomes (Clark, Froyd, Merton, & Richardson, 2004), and institutional culture and context (Merton, Froyd, Clark, & Richardson, 2009).

The strategies used by faculty members are not well addressed in the extant research on both general and engineering-specific curriculum change. To help fill this gap in the literature, I employed an entrepreneurial framework to help explain the process of curriculum change that occurred in the case study. The research discussed above conveys deep concern and restlessness with current approaches to curriculum change in engineering. The Jamieson and Lohmann (2009) report especially refocuses on the importance of individual faculty, and my research built upon this sentiment to contribute to our understanding of compelling alternative possibilities for curriculum change.

**Faculty member involvement in curricular planning.** The literature on curricular planning in higher education institutions emphasizes the role of individual faculty, focusing on the role of consensus-building and institutional constraints. This literature constitutes the majority of scholarly work that considers the role of individual faculty members in shaping program and course plans.

To begin, a program is defined as “a planned group of courses and experiences designated for a specific group of students” (Lattuca & Stark, 2009, p. 127). Majors, interdisciplinary studies, study abroad, cooperative education, individualized studies, and so on fit into this flexible definition of what constitutes a program. In the literature, program planning resembles change, because it is often episodic and spurred by external
forces as well as internal ones like the “arrival of a new faculty member with special interests and expertise” (p. 128). Lattuca and Stark (2009) discuss some differences between program planning and course development, notably the role of the individual. Whereas in course planning an instructor often has a great deal of leeway, in program planning the individual typically has less discretion in decision making because the process is collective. Accordingly, compromise dominates and satisfactory conclusions may or may not be reached. Research into faculty involvement in program development has focused on systematic and ongoing planning (Stark, Briggs, & Rowland-Poplawski, 2002). There has been very little attention given to how individual faculty members initiate and drive programs; it is this under-researched area that I addressed through the case study.

Growing frustration with the shortcomings of rational diffusion and planned change approaches (favored in engineering) made the study of a bottom-up effort driven by an individual all the more timely. The academic plan model (Lattuca & Stark, 2009) highlights individual decision-making around the change process and draws out dialectical assumptions, namely that a variety of internal and external influences (including individuals) shape plans. It argues for an understanding of curriculum development and change as the result of interactions among particular individuals in particular contexts. The academic plan model provided me with a guide for considering the range of influences on the curricular program developed in the case. My use of this model helped me avoid the pitfalls of other studies of change that overemphasized certain
internal influences to the neglect of other influences, both internal and external to the institution (Kezar, 2001).

**Part II. Defining an Entrepreneurial Frame and its Fit for the Study**

Having drawn on the curriculum change literature to delineate one aspect of my analytic framework in Part I, I next discuss how an entrepreneurial perspective provides a compelling contribution to the study’s frame.

**Defining entrepreneurship from a process perspective.** In popular culture, the term *entrepreneurship* conjures up images of innovative, successful start-up firms based in San Francisco, New York, or the like. While such firms may be the fruit of entrepreneurial efforts, they alone fail to capture the definition of entrepreneurship and its range as either a societal phenomenon or a scholarly construct. Davidsson (2008) handles the debate on the place of success in the definition of entrepreneurship by distinguishing between the former and latter applications. For entrepreneurship considered as a societal phenomenon, Davidsson argues that it is appropriate to include an outcome criterion in its definition. For an effort to be considered entrepreneurship, practically speaking, an outcome criterion must be satisfied, i.e., new ventures must generate measurable value. In the business realm, for instance, startup ventures create economic and job growth. Davidsson goes on to assert that success is a less useful criterion in defining entrepreneurship in the domain of scholarly research. This is because researchers need to “study entrepreneurship as it happens” (p. 27), regardless of its success or failure, in order to maximize insights about it.
The definition of entrepreneurship as a scholarly construct has been debated since at least the 1970s, when entrepreneurship as a field began an earnest push for academic legitimacy. Since that time, much research on entrepreneurship has failed to offer a clear working definition of the construct (Gartner, 1989; Davidsson, 2008). In the absence of this much-needed clarity, a great deal of focus has been given to so-called “traits research” on the cognitive and demographic characteristics of entrepreneurs. This line of research has been fairly unfruitful, because no particularly compelling differences between entrepreneurs and others have been detected through it. This has been the case because the traits approach treats entrepreneurs as possessing a fixed personality type or state of being, rather than engaging in episodic, transitory efforts (Gartner, 1989). The traits examined have ranged widely, from locus of control to values to risk-tolerance to age and so on (Gartner, 1989). Not only were few differences detected, but at least one study found, as an example, that new entrepreneurs were even less tolerant of financial risk than the general population (Xu & Ruef, 2004).

A good deal of scholarly attention has also been paid to the characteristics and performance of start-up firms. In this work, success is part of researchers’ working definitions of entrepreneurship, whether articulated or not (Shane & Venkataraman, 2000). As mentioned, an outcome criterion limits researchers, and entails a strong selection bias because only successful instances of entrepreneurial efforts are studied under it. Implicitly, this definition of entrepreneurship only allows researchers to look at outcomes post hoc and ignores process (Aldrich & Ruef, 2009).
As the limits to these lines of research have been increasingly acknowledged, scholars have turned more intently to defining entrepreneurship in terms of process. Aldrich and Ruef (2009) summarize the competing understandings of entrepreneurship that have appeared in the literature, stating that scholars have alternatively preferred to emphasize (1) high growth/high capitalization, (2) innovation, (3) opportunity recognition, or (4) the creation of organizations. They favor the fourth perspective because it focuses on process or what individuals are trying to do, i.e., “create new social entities” (p. 63). In their view, it offers the richest possibilities for researchers to shed light on more than just successful organizations, which can be identified and judged only after their establishment. Although the other perspectives have their merits, Aldrich and Ruef cite strong selection bias issues with the first two perspectives: respectively, they point out that “growth is an outcome of an uncertain process” (p. 63) and “a priori, it is difficult to classify which acts are innovative and which are not” (p. 64). With the third perspective, they take issue with an over-endowment of individuals’ cognitive powers to know what is or is not an opportunity and a potential slippery slope that easily leads researchers back to traits research.

One of the most influential process-oriented perspectives on entrepreneurship was articulated by Gartner (1989). He examined several dozen earlier works to illustrate the inadequacies of the traits approach in entrepreneurship research, stating that studies placing the entrepreneur as the unit of analysis are examining something “one step removed from the primary phenomenon of entrepreneurship—...the process by which new organizations come into existence” (p. 57). He called for a refocusing among
researchers on the emergence of new organizations and the behaviors directly affecting that process. His work helped move scholars away from research into entrepreneurs’ traits and towards behaviors and processes: entrepreneurship is “something one does and not who one is” (p. 62). In sum, Gartner’s work helped evolve a scholarly definition of entrepreneurship by emphasizing process, behavior, and the emergence of organizations within their particular contexts. It placed the entrepreneur into the “complex process” of venture creation, which is “the outcome of many influences” (p. 57).

Shane and Venkataraman (2000) built on Gartner’s concerns and advanced what became in the decade that followed the most widely discussed, process-oriented definition of entrepreneurship. After Venkataraman (1997), they “define[d] the field of entrepreneurship as the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited” (p. 218). They suggested that “the field involves the study of sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate, and exploit them” (p. 218, original emphasis). Calling this definition “a starting point” (p. 224), its explicit purpose was to spark greater attention to the task of articulating a distinct and rich scholarly definition of entrepreneurship. In 2012, Venkataraman and colleagues reflected on that discussion, noting “a more nuanced view of entrepreneurs,” “an ongoing theoretical conversation on the discovery versus the creation of entrepreneurial opportunities,” and “the identification of specific mechanisms of entrepreneurial action” (Venkataraman, Sarasvathy, Dew, & Forster, 2012, p. 22). Several scholars countered this definition’s objectivist/positivist
connotations, namely, that opportunities exist independently of individuals, just waiting to be discovered by those keen and predisposed enough to detect and exploit them (Davidsson, 2008). Sarason, Dean, and Dillard (2006), for example, advanced a structuration view, which “presents entrepreneurial ventures as recursive processes that evolve as the entrepreneur interfaces with the sources of opportunity and engages in the venturing process” (p. 288).

Structuration (Giddens, 1984) refers to the ways in which “entrepreneurs interpret and influence their world to accomplish their purposes” (Sarason et al., 2006, p. 303). While entrepreneurship scholars have traditionally focused on entrepreneurs as those who find gaps and fill them, the concept of structuration calls attention to the fact that “opportunities do not exist a priori waiting to be discovered, but become manifested to the entrepreneur and to others as they are conceptualized and developed by the actor as part of the venturing process” (p. 287). Sarason and colleagues (2006) connect structuration to Shane and Venkataraman’s (2000) proposition that a touchstone of entrepreneurship is how entrepreneurs and opportunities come together. They acknowledge that entrepreneurs have a great deal of agency, even as they are both enabled and constrained by their surroundings. The processes entrepreneurs engage in include “discovery, evaluation, and exploitation of opportunities” (Sarason et al., 2006, p. 303).

More recently and consonant with these perspectives, Moroz and Hindle (2012) analyzed scholarly perspectives on entrepreneurship viewed as a process (e.g., Bygrave, 2004; Ucbasaran, Westhead, & Wright, 2001; Zahra, 2007). They identified several
qualities of the entrepreneurial process present in the literature, including the critical relationship already noted above between individuals and opportunities. Among the qualities of the process that they articulate (2012, p. 811): “not every opportunity can be processed by every would-be entrepreneur;” the importance of time, as “opportunities do not last forever and market receptiveness can differ over time;” the importance of action, as “formulating a plan or deciding to apply resources” only partially realizes an entrepreneurial effort; and the criticalness of context, as “an overt commitment to understanding context” shapes outcomes.

**Fit of the higher education context.** To show an adequate fit of the higher education context with the entrepreneurial frame applied to the present study, I next discuss some pertinent strands from the higher education literature. To begin, entrepreneurship is often explored in a business context, but it need not be confined to it. For example, though Davidsson (2008) emphasizes monetary value, he states that value can take other forms and be created in any market or market-like situation i.e., so “long as there are close equivalents to both customers and competitors” (p. 26). In this study, students and others served by the curricular program were equated with customers, and other elective programs within the same university (and more directly the same department) were seen as competitors. Similarly, Aldrich and Ruef (2009) assert that entrepreneurship may involve any type of unit demonstrating organization-like properties, i.e., those having “the characteristics of a bounded system” and “boundary-maintaining processes organized around the persistence of the unit and the perpetuation of its activities” (p. 30). The defining qualities of organizations as “goal-directed
boundary-maintaining activity systems” (p. 64) are, to varying degrees, displayed by a range of entities such as “work groups, departments, divisions, organizations, and populations” (p. 30). To this list may be added curricular programs, focusing on their existence as units within a higher education environment, which is occupied by other programs that potentially compete or cooperate in the pursuit of resources and recognition, much as do traditionally considered organizations. Supporting the idea that entrepreneurship need not be confined to the creation of whole, new organizations are Shane and Venkataraman (2000), who suggest that “entrepreneurship can also occur within an existing organization” (p. 219).

The conditions under which entrepreneurship can happen warrant a brief discussion, because the higher education context must exhibit them for entrepreneurship to be considered an appropriate framework for my analysis. These conditions affect the environment as much as those acting entrepreneurially within it; their hallmark is uncertainty. Frank Knight (1921) identified a genuinely indeterminate kind of uncertainty, known as Knightian uncertainty. It is “a situation where the future is not only unknown, but unknowable” (Davidsson, 2008, p. 34). In a situation with Knightian uncertainty, no amount of calculating and planning can generate reliably accurate predictions; rather, knowing comes from action (Davidsson, 2008). This type of uncertainty, which marks entrepreneurial environments (McMullen & Shepherd, 2006), differs from other two other types of uncertainty identified by Knight, which map to classical and statistical probability (Wiltbank, Dew, Read, & Sarasvathy, 2006). Uncertainty in the environment is important to entrepreneurship, because under such
conditions, distinct tools (discussed later in this review) become useful to entrepreneurs seeking to advance their startup and its development. By contrast, under conditions of certainty, new organizations (or organization-like entities) may be likened more to small businesses that can succeed by following rational and well-established principles. For the sake of illustration, a generic comparison of the former and the latter might be a startup seeking to commercialize a new technology (under necessarily uncertain conditions), as compared with opening a local laundromat (under certain conditions).

The subsections that follow sensitize the reader to characteristics of and trends in higher education that are conducive to the environmental uncertainty required for entrepreneurship.

Organizational nature of and approaches to change in higher education. US higher education institutions are by no means homogenous, and the discussion in this section does not aim at a full review or description of their complexity and diversity. Attention is given to research universities and the academic sphere, because the present study was conducted in this context. In a concise review of literature on the nature of higher education organizations, Kezar (2001) identifies thirteen distinguishing features¹; these entail, among other things, ambiguous organizational structures and goals; complex and contrasting values across positions and disciplines; interdependence with disciplinary

1 The thirteen features are listed by Kezar (2001) as: “(1) interdependent organization, (2) relatively independent of environment, (3) unique culture of the academy, (4) institutional status, (5) values-driven, (6) multiple power and authority structures, (7) loosely coupled system, (8) organized anarchical decision-making, (9) professional and administrative values, (10) shared governance, (11) employee commitment and tenure, (12) goal ambiguity, and (13) image and success” (p. 61).
societies, government, and other external bodies; and a currency measured in prestige, recognition, and resource acquisition. Cumulatively, these features contribute to an environment that is amenable to entrepreneurial efforts, owing to the ambiguity and/or relative independence they suggest for individuals and especially faculty members. In order to refrain from an exhaustive discussion of each feature and its implications, I consider two notable, closely related ones below: “loosely coupled structure” (p. 70) and “organized anarchical decision making” (p. 71).

Higher education institutions, particularly research universities, are often described as loosely coupled systems, in which elements are “somehow attached” but retain “some identity and separateness,” with their attachment “circumscribed, infrequent, weak in its mutual affects, unimportant, and/or slow to respond” (Weick, 1979, p. 3). One consequence is that “if all of the elements in a large system are loosely coupled to one another, then any one element can adjust to and modify a local unique contingency without affecting the whole system” (pp. 6-7). Thus, local changes and small adjustments initiated from the bottom-up are more sensitive to the outside environment and more easily accomplished, while top-down, diffusion, or blanket initiatives often struggle owing to a lack of coordination or tight hierarchy (Weick, 1979; Clark, 1983; Boyce, 2003). Loosely coupled organizations are distinguished by goal ambiguity and only a soft focus (Clark, 1983), giving its members a great deal of leeway to pursue ends that interest and concern them most. In short, higher education institutions experience a great deal of internal unpredictability (Kezar, 2001; Weick, 1979) arising from their loosely coupled arrangements.
Related to loosely coupled structure, higher education institutions are often identified as organized anarchies, which have “inherently ambiguous goals” and are “uncertain, unpredictable, and nonlinear” (Kezar, 2001, p. 71). Hierarchy exists to some degree, but because of multiple lines and sources of power, decision making is largely anarchical, again working against attempts at centralized change and favoring more local change, say, within a department. These two related features—loose coupling and anarchical decision making—contribute to an ambiguous, question-laden environment, which is precisely the kind required for entrepreneurship.

Notwithstanding wide acknowledgement of higher education’s ambiguity, unpredictability, and lack of tight coordination, practitioners have historically pursued top-down change, while scholars have in like manner focused their research on models favoring top-down change. Tacitly if not explicitly, both have viewed the nature of universities as a liability and something to work against or perhaps alter. Consequently, of the six change models Kezar (2001) identified in her review, only one—the social cognition model—views individuals as varied, autonomous agents who affect change. Perhaps following this observation, Kezar’s recent work has examined the phenomenon of grassroots leadership in higher education and the strong role that individuals can play in creating various types of change within their institutions (Kezar & Lester, 2011).

**Competing institutional logics and the rise of academic capitalism.** To further elaborate my warrant for applying an entrepreneurial lens to a higher education context, I next touch upon the intensifying influence of competing institutional logics, and the space for uncertainty that is created through their jostling within universities. Institutional
logics are practices and constructs accessible for consideration by everyone within a common field, such as higher education. These logics have underlying beliefs and assumptions that may be accepted or rejected to varying degrees by different people in the field (Scott, 2008). Gumport (2000) observed that “the dominant legitimating idea of public higher education has been moving away from the idea of higher education as a social institution… toward the idea of higher education as an industry” (p. 70). In the latter conception, higher education organizations are likened to businesses that respond readily to market and economic demands. To remain viable and relevant, they must compete in multiple markets for students, graduate placement, faculty members, research dollars, industry collaborations, and so on. In the former view, they are guardians and centers of learning, citizenship, and knowledge creation for the public good and, as such, should be insulated and preserved from short-term economic and political trends. Gumport (2000) noted the difficulty of “reconciling [these] competing institutional logics” (p. 69), and worried that certain trends are causing a degradation of the social good logic. One trend she named is increased academic consumerism, through which constituents, notably students, see themselves as customers accessing goods and services that promise to increase their personal financial success. As Hoffman (2012) described it, “students are commonly conceived of, and often conceive of themselves, as paying consumers who need an enjoyable and friction-free instructional product” (p. 12). Loose coupling, Gumport (2000) nonetheless noted, might enable both logics to flourish indefinitely within higher education, with no loss of legitimacy to higher education either as a public-good-preserving or an economic-prosperity-inducing institution.
Slaughter and Rhoades (2004) described the shifting dynamics among institutional logics as a change from “a public good knowledge/learning regime to an academic capitalist knowledge/learning regime” (p. 28). Academic capitalism is “an umbrella term for capturing the wide array of market and market-like activities universities engage in to generate external revenues from education, research, and service” (Hoffman, 2012, p. 12). In a theory of academic capitalism built on a foundation of work begun in the mid-1990s, Slaughter and Rhoades (2004) articulated that because of this phenomenon “faculty, students, administrators, and managerial professionals” act in networks that readily and permeably cross organizational boundaries in “complex networks”; they do “not always act together,” but their activities are “directed toward the opportunity structures created by the new economy, which channels their efforts in similar directions” (p. 306). Owing to the broad array of activities captured by the term, including grant-seeking, industry consulting, patenting, course material copyrighting, distance education, and so on, related and perhaps euphemistic terms like “the entrepreneurial university” have emerged in academic writing and popular media (Hoffman, 2012).

As many scholars have noted, though universities have long engaged with and depended on funding from external agencies for some of its activities, chiefly research, a distinctive shift towards an academic capitalist logic began in the 1980s, when (among other contributing trends) the state’s share of public research university operating budgets fell from roughly 50 percent to 28 percent (Slaughter & Leslie, 1997). From that time, the shift has entailed higher education institutions “seeking to generate revenue from their
core educational, research, and service functions, ranging from the production of knowledge” to “curriculum and instruction” (Rhoades & Slaughter, 2004, p. 37). This revenue has come to constitute “a basic source of income” for institutions (p. 37). The public good regime—which favors academic freedom, basic science research, and benefits accrued to everyday citizens—has been displaced, not replaced (Slaughter & Rhoades, 2004). While those in academia have not given up the public good regime, their daily work has become increasingly ordered by and centered around market behaviors, which “have come to permeate almost all aspects of colleges and universities” (p. 305). In sum, the purpose of this concise discussion of competing logics within higher education, in particular the ascent of an academic capitalist logic, was to underscore a second current in higher education that demonstrates the suitability of an entrepreneurial framework for the study. Unpredictability was clearly detected in the line of research investigating academic capitalism. For instance, in a study of departments, researchers found that in the face of financial pressures, some department heads complained about the situation without any plan or strategic action, while others who pursued entrepreneurial efforts were opposed by many in their faculty: “Thus, the pursuit of academic capitalism was not only contingent but also debated and both actively and passively resisted” (Slaughter & Rhoades, 2004, p. 184). Though work on academic capitalism is concerned most directly with activities pursued for their revenue-generating potential, some work has been done on an infiltration of this logic into spheres beyond this concern. Internal departmental competition among programs to attract students, for example, has intensified as finances have been increasing tied to credit-hour productivity
and novelty has proven critical in securing outside resources and recognition (Slaughter & Rhoades, 2004). “Faculty self-promotion through branding, personal websites, and blogging” (Hoffman, 2012) speak to this extension of market logic, whereby faculty view themselves as “small businesspeople” (Rhoades, 2005, p. 40), perhaps in most aspects of their work, whether directly tied to revenue generation or not.

**Shifts in faculty appointments.** The third trend in higher education that I discuss to support the use of an entrepreneurship frame is the sea-change in faculty appointments and its yet uncertain implications. Part-time and full-time contingent (i.e., non-tenure-line) faculty now comprise two-thirds of the faculty (Kezar & Sam, 2010); their proportion has increased in most fields and across all types of colleges and universities (Baldwin & Wawrzynski, 2011). When both part-time and full-time faculty are counted, “three out of every four” new faculty appointments are now made off the tenure track (Kezar & Sam, 2010, p. 3; see Schuster and Finkelstein (2006) for one of the few recent and comprehensive quantitative studies on changes in faculty work, appointments, and demographics). The cause of this dramatic shift in appointments has been credited to “two opposing interpretations” in much of the literature which, to date, has been heavily influenced by unexamined biases on the part of commentators and researchers. In their meta-analysis of work on non-tenure-track faculty, Kezar and Sam (2010) suggested that these views be seen “as not mutually exclusive but as a gradient—at the one end the conscious creation of an exploited class of faculty and at the other the accidental development of a non-tenure-track workforce” (p. 41). In support of the first of these interpretations, scholars point to academic capitalism, and the conscious actions of
department heads, deans, and other administrators to maximize profits and efficiency through reduced benefits, voice in governance issues, and job security in the face of fluctuating student interests and enrollments (Slaughter & Rhoades, 2004). According to the second interpretation, the current state of faculty appointments is the cumulative result of a number of fairly independent decisions. Decisions about hiring are responsive to several factors, including hard-to-accurately anticipate course enrollments, a limited number of relatively costly tenure-track appointments, and administrators’ tentativeness about new fields and areas of study. These and other considerations unwittingly favor non-tenure-track faculty in appointment decisions. The absence of clarity on how and why faculty appointments have shifted so dramatically in the past few decades underscores just one of the ways in which higher education has and is undergoing rapid change.

A problem with many studies has been that they “look to outcomes and effects” of the shifts in faculty appointments, but “very few can adequately explain why the results are what they are” (Kezar & Sam, 2010, p. 59). Several studies have noted that non-tenure-track faculty frequently feel like “second-class citizens,” and the threat of non-tenure appointments to the sanctity of the tenure that many researchers examining this issue hold themselves helps explain the “deficit framing” they have favored (Kezar & Sam, 2011). In this framing, non-tenure-track faculty members are assumed to “lack qualities that are important to a functional workplace such as commitment, satisfaction, social capital, agency, [and] the ability to learn and form collegial relationships” (p. 1421). Scholars have recently advocated for more scrutiny of the assumptions that
underlie research in this area, since choices of theories and frameworks are intimately connected to assumptions, and most of those that have been applied so far have had limited efficacy. For instance, the often-repeated conclusion that non-tenure-track faculty negatively affect student learning is not well substantiated or explained; many studies have had too narrow a focus to allow generalizations (Umbach, 2007). Recent findings drawn from a large, representative data set by Baldwin and Wawrzynski (2011, p. 1504) parallels the findings of Umbach’s (2007) smaller study: “in most cases, full-time contingent faculty (usually on fixed-term contracts) approach their teaching more like their tenured and tenure-eligible colleagues than like their part-time contingent counterparts.” This finding hints at what are likely rich variations in experiences, practices, and motives among contingent faculty, along the lines of exact appointment type, demographics, education level, field, and type of institution.

The purpose of this discussion was to provide a third illustration of the uncertainty present within the environment of higher education institutions. From the perspective of my study, the possibilities created by loosely coupled structures, competing logics, and diversifying faculty appointments make it a suitable environment for entrepreneurial efforts. To reiterate, my purpose was not to provide a comprehensive overview of higher education’s complexity; rather, I sought to provide a sufficient warrant for applying an entrepreneurial frame to this setting, which was the one in which my study took place. In the next section, I present an overview of tools discussed in the entrepreneurship literature.
Part III. Entrepreneurial Tools

The following provides a review of the literature on tools commonly employed in entrepreneurial efforts, which contribute to my analytic framework. Some of the entrepreneurial tools pertain more to the organizational level, like *bricolage*, while others apply most readily to the individual level, like *passion*; some tools have acknowledged versatility at both levels, including *improvisation* and *bricolage* (Baker, 2007). Additionally, while all of the tools pertain to process, their bases are diverse. For instance, *bricolage* is largely underpinned by the resource-based view of the firm (Baker & Nelson, 2005). In contrast, *entrepreneurial passion* is based heavily on psychological research on emotions (Cardon, Wincent, Singh, & Drnovsek, 2009).

In drawing from the entrepreneurship literature, which concerns itself chiefly with business contexts, some translation for the higher education context is necessary. For instance, a faculty member who might work to create a program corresponds to the “entrepreneur” spoken of in the below literature. A program, in like manner, is considered synonymously with the literature’s mention of “venture,” “organization,” or “firm.” The university setting maps to discussions about the environment and available resources. To assist the reader, I provide some generic examples of how each tool could be applied to a curriculum entrepreneurship effort. Additionally, the discussion of each tool covers its definition, findings or assertions about it, and relationships noted with other tools.

**Entrepreneurial passion.** *Entrepreneurial passion* (Cardon et al., 2009; Cardon, Foo, Shepherd, & Wiklund, 2012; Cardon & Kirk, 2013) is “consciously accessible,
intense positive feelings experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur” (Cardon et al., 2009, p. 517), including an inventor identity, a founder identity, a developer identity, or some combination of the three. Entrepreneurs may express passion along a continuum from under-regulation, characterized by an inability to optimally control or balance internal feeling states and giving way to impulsive responses, to overregulation, characterized by suppression of one or more internal feeling states and a lack of response spontaneity and novelty (p. 518). Passion keeps “energy focused on overarching but challenging goals and promote[s] cognitive mechanisms that [are] not easily hindered by temporary setbacks, impediments, or failures” (p. 528).

A faculty member using well-regulated passion in her interactions around the new curriculum she is developing will see that others are attracted to the effort and are eager to find ways to be supportive. For instance, the faculty member might speak about the curriculum at a university conference and afterwards be approached by career services staff who want to know more so that they can share the opportunity with the students they encounter in mentoring sessions.

**Storytelling.** Storytelling (Aldrich & Fiol, 1994) often follows a predictable beginning-middle-end structure, “with transitions and event sequences propelled by plot lines and twists and shaped by defining characters” (Lounsbury & Glynn, 2001, p. 549). In broad terms, stories “are a fundamental tool by which humans make sense of ambiguous situations and communicate their insights to others” (Martens, Jennings, & Devereaux Jennings, 2007, p. 1115). Storytelling serves a number of functions, making it
highly useful to entrepreneurs. First, stories are a “powerful means to convey an entrepreneurial firm’s identity” (p. 1114). Second, they legitimate actions by serving as “sense-making and sense-giving devices” (p. 1115) that link cause and effect, and “are often used to explain a social entity’s actions (past, present, or future), making those actions appear justified and/or plausible within a given context” (p. 1115). Through the use of metaphor and analogy, stories “strive to make the unfamiliar familiar by framing the new venture…in terms that are understandable and thus legitimate” (Lounsbury & Glynn, 2001, p. 549). Third, storytelling helps leverage entrepreneurs’ existing resources in their attempts to gain more resources. When done well, stories are “constructed in such a way that key gatekeepers who control resource flows… perceive the credibility of the story line and the storyteller” (p. 553).

Furthermore, “successful stories don’t just inform readers; they generate interest and commitment, thereby motivating audience members to act in a manner consistent with the author’s intended outcomes” (Martens et al., 2007, p. 1117). Though not explicitly articulated in the literature, there seems to be an apparent link to entrepreneurial passion, because, in the words of Martens and colleagues (2007), “qualities of the entrepreneurial storytellers themselves, such as their demographic characteristics and/or social skills…, might be just as influential as the stories they tell, or maybe even more influential” (p. 1126). Passion is very likely one of the qualities that play a part in determining the effectiveness of the stories told by entrepreneurs.

A faculty member who uses storytelling effectively to advance the new curriculum might share her well-crafted narrative in formal presentations and one-on-one
meetings with administrators, faculty, staff, students, or external supporters. She shifts the emphasis of each storytelling session to match her understanding of what is important to the audience, and she uses memorable phrases and imagery. This in turn spurs the audience to become more interested in the curriculum, ask follow-up questions, and join its efforts.

**Networking.** Networking refers to the work that entrepreneurs do to consciously create and reshape their networks (Martinez & Aldrich, 2011). Networks are themselves “conduits for the flow of relevant, valuable resources” (Vissa, 2012, p. 507; see Granovetter 1985). Nascent entrepreneurs want a mix of strong (cohesive) and weak (diverse) ties (Aldrich & Ruef, 2009; Martinez & Aldrich, 2011). In shaping their networks, entrepreneurs engage in network broadening, i.e., “reach[ing] out to new people and establish[ing] interpersonal knowledge about them” (Vissa, 2012, p. 494). Network deepening “strengthens ties to existing personal network contacts by time pacing interactions with them, overlaying friendships over purely business relations, and preserving existing ties” (p. 494). Highlighting the importance of these two processes, Aldrich and Ruef (2009) expect that “successful nascent entrepreneurs [will] emerge from positions that are connected to diverse information sources, as well as from positions benefiting from a reliable set of strong ties” (pp. 71-2). They also note a paradox in which outsiders are likely to struggle, owing to their weak networks in their newly entered industry, but “those that survive will also generate many of the most radically innovative organizational forms” (p. 80).
A faculty member developing a new curriculum might engage in networking by, for example, joining informal faculty networks around campus with similar interests. She engages with them to learn about potential opportunities for collaboration and funding. In addition to gaining a reservoir of support from colleagues across the campus, she contributes to these networks by attending and presenting at periodic retreats.

**Improvisation.** Improvisation (Moorman & Miner, 1998) involves a process whereby an entrepreneur “compares the problem to others that he/she has previously faced” and selects a strategy or plan based on past experiences. If these strategies or plans seem inadequate for meeting the challenge, the entrepreneur will “improvise by either extending or reconfiguring” the strategy or plan “to construct a novel course of action. This entire process occurs extemporaneously, such that the individual is assessing probabilities and formulating strategy while acting out the solution” (Hmieleski & Corbett, 2006, p. 47). Drawing attention to the social complexity that often surrounds entrepreneurial activity, some people confronted by the same circumstances may improvise, while others may not. For example, in a circumstance in which an entrepreneur improvises, others involved may do nothing, plan, or also improvise (Baker, 2007). Furthermore, improvisation is always “tightly linked to the specific local issue and time” (Miner, Bassoff, & Moorman, 2001, p. 318), and, just as it can produce something favorable, it can be “unskilled and can cause harm” (p. 329).

Improvisation is perhaps “the most reasonable course of action” for an entrepreneur to take “when resource constraints are prohibitive” and s/he is “faced with a novel problem or opportunity” (Hmieleski & Corbett, 2006, p. 46). It is “a sensible
approach to strategy in the conditions of high uncertainty” (Baker et al., 2003, p. 256). Further, improvisation may be used tactically in response to unexpected problems or it may be used strategically. Improvisation also relates to *bricolage*, discussed next, in that it may cause or be caused by the latter (Baker & Nelson, 2005). A faculty member improvising in relation to a new curriculum might, for instance, meet another professor with an overlapping interest and devise, on the spot, a way for the two to work together. This formulation and the decision to collaborate happen simultaneously and in the moment.

**Bricolage.** Baker and Nelson (2005) point out that Lévi-Strauss (1967), who provided initial insights into the concept of bricolage, did not offer a specific definition. Consequently, scholars from a number of disciplines have interpreted and applied the term in various ways. Following a review of these diverse definitions, Baker and Nelson (2005) suggest that in organizational studies, at least, bricolage is “making do by applying combinations of the resources at hand to new problems and opportunities” (p. 333). Through bricolage, institutional or environmental constraints become more of a constructed reality than an externally imposed reality. That is, entrepreneurs see opportunities where others do not, because they find ways to “make do” or recombine resources to which they have access or can negotiate access (Baker & Nelson, 2005). Furthermore, bricolage “implies a bias toward action and active engagement with problems or opportunities rather than lingering over questions of whether a workable outcome can be created from what is at hand” (p. 334). Although this implies a good deal of “tolerance for ambiguity and messiness and setbacks” (p. 356), Lévi-Strauss (1967)
pointed out the potential for bricolage to yield “brilliant unforeseen results” (p. 17). There is also a creating “something from nothing” aspect to bricolage, which is “in many ways simply an extreme version of more from less” (Baker & Nelson, 2005, p. 357). It entails seeing value where others generally do not and calls into action an individual’s creativity, tolerance for uncertainty, and improvisation skills.

Through bricolage, entrepreneurs engage in a creative, comparative process of figuring out how to assemble easily accessible resources to meet a practical need (Duymedjian & Ruling, 2010). Lévi-Strauss refrained from precisely defining the concept and rather illustrated it through a comparison of ideal types. To contrast with an individual acting as a *bricoleur*, he described the *ingenieur*, who “searches for resources that correspond to exact design requirements,” and who strives for results that closely match initial plans. These results are “free standing” and “can be operated independently from its designer” (Duymedjian & Ruling, 2010, p. 140). The bricoleur, on the other hand, creates “a repertoire of heterogeneous resources, collected during unplanned encounters and built up with no clear intention and purpose” (p. 140). When a need or objective arises, he or she engages in a “dialogue” with the at-hand resources such as but not limited to “physical artifacts, skills, or ideas” (Baker & Nelson, 2005, p. 336). Some are likely to be “available very cheaply or for free, often because others judge them to be useless or substandard” (p. 336). The bricoleur’s knowledge about resources comes from personal, first-hand experiences, and pertains to how things *relate* more than to what they completely *are*. He or she draws from a “broad and versatile” knowledge, often rooted in different fields. All that matters to the bricoleur is that “an effective arrangement” can be
cobbled (Duymedjian & Ruling, 2010, p. 141). Put another way, “the bricoleur’s strength lies in his expertise and capacity to assemble heterogeneous resources by following a performance logic rather than the accepted general principles of any particular profession” (p. 146). Unlike the ingenieur, the bricoleur produces arrangements that are not so free-standing, i.e., s/he often “becomes an essential element for operating the bricolage and maintaining its outcome” (p. 140).

**Network bricolage.** As one of a few specific types of bricolage identified in the literature, network bricolage is “dependence on pre-existing contact networks as the means at hand” (Baker et al., 2003, p. 265). “Sometimes the network contacts are themselves the resources at hand; sometimes they are direct conduits to the welter of resources needed for organizing a new business” (Baker, 2007, p. 704). It is common in the early stages of entrepreneurial efforts and highlights that “entrepreneurial activity relies on bricolage in the social construction of resource environments, and in the rejection of institutional constraints” (Dujmedjian & Ruling, 2010, p. 135). Network bricolage contrasts with *networking*, through which entrepreneurs seek new contacts and/or “opportunities and other resources through people who were previously strangers” (Baker et al., 2003, p. 265).

Without care, bricolage is easily confused with *improvisation*, but the two are distinct: “most improvisation relies on bricolage” (Baker, 2007, p. 698), because there is no time to seek out new resources when design and execution converge; however, bricolage can happen without improvisation. To illustrate, one can engage in bricolage but not improvisation by planning to do something with the resources that appear at hand
in the future, e.g., planning to build a campfire with the kindling that will be found at a campsite later on (Baker, 2007).

A faculty member engaging in bricolage in relation to a new curriculum might, for example, reach out to undervalued units within the university and actively collaborate with them. While other professors avoid the IRB office, for instance, an entrepreneurial faculty member might work side-by-side with that office to create a guide for students to obtain approval for a certain kind of study known to pose ethical considerations that often vex others. In this way, the faculty member may gain respect and an enhanced sense of legitimacy, because the arrangement with an undervalued entity enabled her to be seen as a leader in the highly valued area of research.

**Hustle.** This tool refers to “a willingness to do more with less by working harder” (Powell & Baker, 2011, p. 7). With hustle, entrepreneurs act with vigor and nimbleness, thereby partially substituting for the need for more financial resources. Hustle further implies a focus on tactics and execution, and contrasts with planned strategy and “big plays” against competitors, such as attempts to erect barriers to their efforts (Bhide, 1992; 1986). A faculty member using hustle to advance a new curriculum might regularly work late hours and weekends to make up for a lack of resources like program support staff.

**Bootstrapping.** Related but clearly distinct from hustle is bootstrapping, that is, “a set of processes through which entrepreneurs find resources, increase resource efficiency, and minimize explicit costs” (Patel, Fiet, & Sohl, 2011, p. 421). Through it, the need for resources is partially met “without there being a financial transaction” (Windborg & Landstrom, 2001, p. 237). According to Harrison, Mason, and Girling
(2004), it “involves imaginative and parsimonious strategies for marshaling and gaining control of resources” and “strategies for minimizing or eliminating the need for finance by securing resources at little or no cost” (p. 308). A faculty member might increase the efficiency with which she uses time by, for instance, recording and making available lectures on topics with which her students often struggle and use meeting times instead for discussion. Also, she might stretch available resources by, for example, using a portion of her small program budget to send students to competitions that have monetary prizes. The prize money, when won, is used to support subsequent travel by students to conferences at which they present their work.

**Resource seeking.** Through resource seeking, entrepreneurs attempt “to attract and use resources that are not at hand” (Baker, 2007, p. 695). It is a response to “environmental constraints by seeking to acquire externally the appropriate levels and types of resources that…new challenges appear to demand” (Baker & Nelson, 2005, p. 353). Resource seeking contrasts most directly with bricolage, and in the founding process an “admixture of bricolage and resource-seeking” (Baker, 2007, p. 699) is often observed. Bricolage is not, however, a taken-for-granted opposite of resource seeking. That is, an entrepreneur may be passive and gain something fortuitously, while bricolage requires an “active attempt to ‘make do’” (p. 705). A faculty member might seek resources to support, for example, a graduate assistant to help manage the program’s daily administrative needs. She might also, in another example, pursue a grant from an external funder to help her develop a new course for the program.
In sum, this section of the literature review introduced the reader to entrepreneurial tools theorized and/or studied by scholars of entrepreneurship, and which comprise another component of my analytic framework. In the fourth and final part the review, I provide contextualization for the case, namely, its focus on integrating social entrepreneurship education into engineering.

Part IV. Social Entrepreneurship Education in Engineering

In this section, social entrepreneurship education practices and research are considered generally, followed by a discussion of literature relevant to the inclusion of social entrepreneurship education in engineering. It illustrates the momentum building around curriculum development and reform in social entrepreneurship and engineering education, and the potential for the two to connect to mutually meet the goals of their respective advocates, particularly those pertaining to graduate readiness to meet mounting global and social challenges.

Social entrepreneurship education practices and research. Literature on social entrepreneurship education is sparse but growing. It mirrors on a smaller scale the development of literature on social entrepreneurship generally. For the 20-odd years leading up to 2009, for example, about 80 peer-reviewed journal articles and books were published on social entrepreneurship (Brock & Ashoka, 2008; Trivedi, 2010). While the latter body of literature is chiefly concerned with developing knowledge that builds and legitimizes the field (Nicholls, 2010), educators “draw on the growing body of literature….to create educational experiences that prepare social entrepreneurs for the demanding and often ambiguous world of social enterprise” (Tracey & Phillips, 2007,
In 2012, the *Academy of Management Learning & Education* journal published a special issue on social entrepreneurship education. The goal of the issue was to help social entrepreneurship educators “base their decisions about course design and execution on informed evidence from experts in the field” (Lawrence et al., 2012, p. 319). In a similar vein, the third-edition *Social Entrepreneurship Teaching Resources Handbook* (Ashoka U & Brock, 2011) provided guidance on pedagogies, published research, and networks including a directory of 500 faculty members.

Among academics, there has been a marked preoccupation with the location of social entrepreneurship courses within the university, with 75 percent offered in business schools and only one percent in STEM units (Brock & Steiner, 2008). While the business school remains the favored hub, many authors have lauded the development of entrepreneurship education that either includes non-business students or is based outside the business school altogether (Katz, 2003; Kuratko, 2005; Mars, 2007; Mars & Garrison, 2009; Schlee, Curran, & Harich, 2008). Informal case studies of the curriculum dominate the social entrepreneurship education literature, and many faculty members describe practice-based or experiential curricular components. These range widely, and have entailed among other possibilities “writing a case on an actual social venture,” “developing a business plan for a social venture or consulting with social ventures,” or actually “launch[ing] social ventures during the semester” (Brock & Ashoka, 2008, p. 21; Smith et al., 2008). Authors who cited an experiential learning component advocated for its widespread adoption and development because, they reasoned, much of the knowledge about social entrepreneurship is learned through practice. The inchoate state of theory in
social entrepreneurship indirectly encourages a greater emphasis on practice in the curriculum, and many authors welcome theory development as a complement to the current focus on practice (e.g., Schlee et al., 2008).

Assessment of student learning is addressed briefly in several articles. For example, Bloom (2006) relied on basic metrics to assess the experiential learning component of his course: class enrollments, student evaluations, and number of student competitions won and amounts awarded. Smith and colleagues (2008) noted a common dilemma for practice-based learning: “we have identified the ways that learning should occur…however, it is more difficult to measure whether or not learning actually occurred” (p. 351). The authors asked students to provide written feedback on perceptions of their learning from the venture-creation project. Brock and Steiner (2008) likewise suggested more research on student learning and outcomes.

The preponderance of informal case studies and sharing of lessons learned, along with meager evaluation of course and program curricula, demonstrate that many gaps remain in our knowledge of this relatively new, high interest area. From this review, educators and researchers appear most preoccupied with curricular purpose, content, and instructional processes. They also indicate interest in strengthening assessment of course and program effectiveness. Finally, they focus a good deal on the context in which the curriculum is taught, i.e., whether it caters to business students or draws in students from other fields. Lattuca and Stark (2009) note that all curricula require decision making about course and program elements such as content, instruction, and assessment, but that these decisions are not always intentional.
Burgeoning student interest appears to facilitate the spread of social entrepreneurship education beyond the business school (Tracy & Phillips, 2007; Mars, 2009), while tenure requirements and discipline-associated suspicions of the financial or social bottom lines emphasized in social entrepreneurship impede this movement (Bloom, 2006). Beyond these observations, not much else has been done to examine what facilitates or impedes the development of social entrepreneurship curriculum in academic programs or in universities generally. The variety of factors affecting social entrepreneurship curriculum development requires further investigation, and this study advanced an understanding of how and why individuals working in their local contexts created change along these lines.

**Social entrepreneurship education in engineering.** Social entrepreneurship applies business principles to social issues like hunger, poverty, and sanitation both domestically and abroad. The coupling of social benefit with financial sustainability or profitability requires a high degree of innovation and entrepreneurialism, along with global-mindedness and comfort working in diverse, multidisciplinary teams. It is exactly these qualities that engineering education reformers have called for over the past 25 years. As such, the application of social entrepreneurship education in engineering offers a promising way to advance these goals. In my introduction, I provided historical perspective on the calls to rebalance the emphasis on theory and practice through greater student engagement in learning experiences that focus on engineering as professional practice. Here, I draw out themes from these calls that can be directly related to social
entrepreneurship and discuss growing interest in the integration of social entrepreneurship and engineering education.

One theme centers on the development of engineers who are adept at directly addressing social issues. In its *Moving Forward to Improve Engineering Education* report, the National Science Board (NSB) states, “The next generation of engineers will be challenged to find holistic solutions to population, energy, environment, food, water, terrorism, housing, health, and transportation problems” (2007, p. 3). This theme is reiterated in the “Grand Challenges for Engineering” sponsored by the National Academy of Engineering (NAE) to spur widespread discussion among practitioners, educators, and policymakers on how engineering can address societal problems. These “involve energy and sustainability, medicine and healthcare, reducing our vulnerability to natural and human threats, and advancing our human capabilities and understanding of our world and ourselves” (Vest, 2008, p. 236; see also “Grand Challenges for Engineering,” 2010). The skills and experiences that engineering graduates need to effectively address these issues include, according to the National Science Board (2007, p. 2),

- passion, some systems thinking, an ability to innovate, an ability to work in multicultural environments, an ability to understand the business context of engineering, interdisciplinary skills, communication skills, leadership skills, an ability to adapt to changing conditions, and an eagerness for lifelong learning.

Facility in working in multidisciplinary teams (National Academy of Engineering, 2004, 2005; Vest, 2008) constitutes another theme, which stems from the following logic:

“Because of the increasing complexity and scale of systems-based engineering problems,
there is a growing need to pursue collaborations with multidisciplinary teams of experts across multiple fields” (National Academy of Engineering, 2004, pp. 34-5). Graduates “will be working with diverse teams of engineers and non-engineers to formulate solutions to yet unknown problems” (p. 43).

Another theme pertains to attracting and retaining more students in engineering, especially those from diverse backgrounds. As the National Science Board stated (2007, p. 48):

In spite of the nation’s growing population and the explosion of knowledge in science and technology and its impact during the past decade, the number of recipients of bachelor’s degrees in mathematics, engineering and the physical sciences from United States universities has remained virtually unchanged. Efforts to diversify the undergraduate population in engineering have had mixed results. Women’s graduation rate from undergraduate engineering programs has remained close to 20 percent despite attention to increasing their representation (Vogt, Hocevar, & Hagedorn, 2007). Minority participation has modestly improved, but remains proportionally well below white student participation. Many factors contribute to underrepresentation of women and minorities in engineering (National Center for Educational Statistics, 2000). Among these, the National Science Board (2007) offers that “many students, especially women and minorities, cannot see themselves as engineers,” because engineers are not typically seen as “individuals who prefer to work with others on teams and who want to contribute to solving social problems” (p. 2). Efforts to change these perceptions are centered on engagement with K-12 education (Augustine et al.,
2007, 2010) and the more general public through the Grand Challenges initiative, for example ("Grand Challenges for Engineering," 2010).

A final theme mentioned here pertains to student retention. Since engineering curricula tend to be highly prescriptive, students switch out of engineering far more than they opt in during their undergraduate careers. This makes retention all the more crucial (Jamieson & Lohmann, 2009). Potential ways to improve retention identified by the National Science Board (2007) include, “introducing students to the excitement and relevance of engineering early in the educational experience; exposing students to research early on; [and] placing engineering in a social or business context” (p. 2).

Although engineering school and faculty interest in social entrepreneurship education have yet to be systematically evaluated, several indicators suggest that it is growing. First is the vibrancy of foundation-backed organizations that convene engineering educators around entrepreneurship, innovation, and curriculum change. While these organizations do not always specifically espouse social entrepreneurship by name, they focus on molding students who can solve real-world problems and welcome faculty members interested in engaging their students in addressing social problems domestically or abroad. Sample organizations include VentureWell, which has over 190 university members and “support[s] technology innovation and entrepreneurship in universities and colleges to create experiential learning opportunities for students, and successful, socially beneficial businesses” (VentureWell, n.d.). The Kern Entrepreneurship Education Network (KEEN) is another foundation-backed organization that works to instill an entrepreneurial mindset into engineering students across its
network, which convenes faculty members, deans, and college presidents (Kern Entrepreneurship Education Network, n.d.).

A search for “social entrepreneurship” in the published conference proceedings of the American Society for Engineering Education’s (ASEE) website yielded 119 conference papers, with the number produced between 2012 to 2016 more than twice the number produced between 2002 and 2011. As expected given the only recent interest in actively expanding social entrepreneurship education beyond the business school, most of the papers were heavily descriptive. A number of authors focused on outlining their social entrepreneurship course projects, courses, or programs. A few authors (e.g., Coyle, Clement, & Krueger, 2007) conducted some level of program assessment, with a focus on student outcomes. A review of VentureWell conference proceedings indicated a richer variety and number of papers. These papers, like those in the ASEE proceedings, frequently focused on description of curricular initiatives and programs (e.g., Amadei & Sandekian, 2010b; Mathew, McMillen, & Mullen, 2010). Other papers provided descriptions of and lessons learned from specific student ventures (e.g., Rogers, Henderson, & Pugliese, 2010; Martin, Barton, & Rees, 2009); explored pedagogies for enhancing innovation among students, such as “embedded case studies” (DeMartino, Glenn, & Lundgren, 2008); and discussed possibilities for cross-campus, multidisciplinary collaboration (e.g., Lukens, 2009; Matychak & Schull, 2010). On the whole, the reviewed papers lack guidance for researchers, i.e., they are generally descriptive or atheoretical. The typically scant connections made to scholarly research are
not well substantiated or thoroughly explored. Very few papers indicate systematic efforts to study the implementation of courses and programs.

Service-learning and humanitarian engineering constitute two interests that appear to complement or encourage interest in social entrepreneurship. Briefly, service-learning is “the intentional integration of service experiences into academic courses” (Oakes, 2009, p. 189). Engineering Projects in Community Service (EPICS) started at Purdue University in the mid-1990s to engage students in for-credit projects with community partners and rapidly spread its curriculum model to two dozen institutions (“EPICS Overview,” n.d.). Humanitarian engineering focuses on “design under constraints to directly improve the well-being of underserved populations” (Mitcham and Munoz, 2010, p. xi; Amadei & Sandekian, 2010a). Engineers for a Sustainable World (n.d.) and Engineers Without Borders (n.d.) are two nationwide non-profits espousing humanitarian engineering ideals and supporting extracurricular chapters at a number of universities.

Growing interest in social entrepreneurship education in engineering is partly captured by the activities and conference proceeding papers discussed above. Like those writing on social entrepreneurship education generally, engineering-focused authors are intently concerned with the content of initiatives and programs; the contexts in which learning takes place (i.e., in multidisciplinary, collaborative projects); and the need for further development of assessment strategies and instruments. These curriculum innovators acknowledge the need not only to share what they are doing, but also to demonstrate how well they are doing it.
To summarize, this section examined the literature on social entrepreneurship education and its integration into engineering. I drew attention to the growing interest and credibility in the former and what it offers for curriculum change efforts in the latter. My study provided an empirical perspective on this integration.

**Summary.** This literature review consisted of four parts. In Part I, I reviewed curriculum change models and the role of individuals within them, and discussed the existing models’ generally poor fit with the case. In Part II of the review, I discussed the suitability of applying an entrepreneurial lens to the case’s organizational context, noting trends in and attributes of higher education institutions that make it suitable for curriculum entrepreneurship. In Part III, I presented an overview of entrepreneurial tools that contribute to my analytic framework. In Part IV, I familiarized the reader with the study’s specific context by discussing social entrepreneurship education, engineering education, and their intersection.
Chapter 3. Research Design and Data Collection Methods

Through this research, I sought to contribute to our understanding of the process of curriculum development and change by focusing on how social entrepreneurship education is integrated into the undergraduate engineering curriculum through bottom-up, entrepreneurial efforts. The chief concern was to gain insight into how individual faculty members might achieve substantial curriculum innovation, while also remaining open to the possibility of a theoretical contribution based on the introduction of a novel analytical framework that incorporates entrepreneurial tools.

Three research questions guided the study: (1) How is a curriculum integrating social entrepreneurship into engineering developed and/or perceived by faculty, students, and others involved? (2) What factors impede and facilitate the development of this curriculum? (3) How do individual-, unit-, and organizational-level factors and their interplay influence the development of this curriculum? These questions were examined through a single case study. A qualitative approach was appropriate for addressing this under-researched question, because it allowed me to consider the complexity of the context-specific setting while also exercising selectivity about what received focus (Edmonson & McManus, 2007; Hammersley, 2008; Miles & Huberman, 1994).

Furthermore, qualitative methods are well suited for answering questions like the ones I posed, which ask how and emphasize qualities, processes, and meanings (Denizen & Lincoln, 2008).
Case Study

Methodologists are not uniform in their definition of or approach to case study (e.g., Yin, 2003; Stake, 1994; Merriam, 1998; Eisenhardt, 1989). In terms of definition, boundedness of some entity or unit is most frequently what defines a case, and researchers use case study to yield insights about and from a specific context. Merriam (1998) states that a case study is “an intensive, holistic description and analysis of a bounded phenomenon such as a program, an institution, a person, a process, or a social unit” (p. xiii). The case or object of study for this research was a curricular program housed in a college of engineering that integrated social entrepreneurship education. My study investigated how those involved in the curriculum developed and/or perceive it; what facilitated and impeded the curriculum’s development, and how factors interacting across the individual, unit, and organization levels influenced the change process. The case study was instrumental, meaning that while I also sought to provide a rich account of the case, its central purpose was to “provide insight into an issue” (Stake, 1994, p. 237) and potentially make a middle-range theoretical contribution. In similar terms, the case study was explanatory, meaning it uncovered how things happened rather than just describing them (Yin, 2003). Although this case study was not an ethnography, I did employ some aspects of ethnographic research, namely sustained engagement with subjects in the field to build rapport and trust, repeated interactions, an attempt to express an emic view, and a flexible use of multiple data sources (Murchison, 2010; Atkinson & Hammersley, 1994).
Case Selection

Writing about the possibility of developing generalizable knowledge from case studies, Schofield (1990) suggests that cases may be selected on the basis that they allow us to study what is (i.e., that which is typical), what may be, or what could be. A basic familiarity with the case selected for study confirmed that it was not typical in content or development process, and so it did not reflect what is. For instance, prior to the study period, the program had received a national award in a category recognizing niche engineering programs. When studying what may be, researchers strive to maximize “fit with future trends and issues” (p. 226). They study “the ‘leading edge’ of change” (p. 215), searching for factors that might differentiate the case from present practice or conditions. Such studies illuminate practices “that are now in their infancy but that many informed observers see as likely to be common in the future” (p. 215). When studying what could be, researchers identify situations that seem ideal or exceptional in some way and they then study the situation “to see what is actually going on there” (p. 217). Such studies may be “important in demonstrating what is possible, even if not what is generally likely” (p. 220).

In broad terms, the case was selected for its potential to address what may be and/or what could be. Time will tell if this case was an outlier or if it was on the cutting edge of trends around content and/or the process through which it developed. It is possible that the trend of integrating social entrepreneurship education into engineering (in name or philosophy) will gain momentum. It is also possible that more faculty will act entrepreneurially in relation to curriculum beyond making adjustments to the courses
they teach. While we wait for the trends to become clear, this case study remains one of what could be.

Atypical cases (of either what may be or what could be) may offer generalizations for other settings. Though the concept of generalizability (beyond generalizing to theory) remains contentious in qualitative research, Schofield (1990) defines it in a specific way: generalizability is “a matter of ‘fit’ between the situation studied and others to which one might be interested in applying the concepts and conclusions of that study” (p. 226). This definition aligns with what other qualitative researchers call transferability (e.g., Miles, Huberman, & Saldana, 2014). With this in mind, this study provides the reader with the information she needs to sufficiently orient herself and help her decide if and to what extent the findings apply elsewhere. Multiple data sources including interviews and a variety of documentation inform the thick description, conceptualizations, and theoretical contributions.

The case was selected because it offered an example of how an engineering instructor integrated social entrepreneurship education into an engineering program. At the time of study, the program consisted of one permanent course which was offered in the spring term; a petition was circulated the subsequent fall for four additional experimental courses to be made permanent curricular offerings. As such, the program was neither in a nascent phase nor a fully institutionalized phase. This developmental phase was valuable to study, because few researchers have qualitatively examined entrepreneurial startups (or startup-like entities) that had scaled beyond a collection of activities but had yet to achieved a fully routinized or institutionalized stage.
Efforts to diffuse curriculum innovations have focused primarily on top-down models, especially in engineering, and these efforts have not created change commensurate with the time and expense poured into them. As such, investigating a case in which curriculum change occurred in the opposite direction, from the bottom up, yielded valuable insights for curriculum change theory and the practical efforts made to shape it. It also provided insights for understanding entrepreneurial processes and tools in the specific context of higher education.

**Methods for Data Collection**

This qualitative case study was conducted through informal and semi-structured interviews and documentation. I also used participant observation to build an emic, or insider, understanding of the program and formulate relevant questions. The data collection period spanned ten months, beginning in the spring and concluding prior to the following year’s spring semester. Two months prior to formal data collection I engaged in preliminary participant observation to familiarize myself with the program. When the study began, I approached data collection in three loosely delineated phases. Before describing these, I address the question of how I approached participants and presented myself.

**Gaining entry and accessing informants.** Qualitative research literature is replete with advice on how to gain entry into a setting and considerations of how to present oneself to participants (see, e.g., DeWalt & DeWalt, 2002; Kvale & Brinkmann, 2009; Murchison, 2010). After an email introduction and initial meetings to discuss the intent of my research with the program director, he introduced me to his classes as a
doctoral student researching the program. This welcome into the course sections gave me ongoing access to the students and the program’s week-to-week activities, which focused on social entrepreneurial venture creation. My dramaturgical posture toward the students was generally one of an inquisitive peer who helped out with tasks when asked, such as carrying equipment. For one of the three student venture teams I followed weekly, I acted more like a fellow team member, e.g., when the team participated in a venture development workshop, I worked alongside the students to refine and present a pitch of the venture. This more active role was encouraged by the fact that the team was small.

The program director’s support also provided a legitimizing function for when I approached administrators and others familiar with the program, the student ventures, and/or the summer fieldwork component. Without the program director’s support, it would have been more challenging to approach the variety of participants identified in the sampling frame, particularly administrators, outside supporters, and developing country community partners. The exception was my approach to faculty members within the director’s academic unit who were known to be unsupportive or even hostile to the program. I approached them on my own, taking on a dramaturgical posture of an inquisitive, respectful student seeking their perspective. All but one pointed me back to the director saying they did not know much about the program.

To elicit more candid responses, I built rapport and, as appropriate, asked my questions conversationally rather than reading them from a list. Candid responses often led to new lines of relevant questioning, which I verbalized on the spot. After the interviews, I jotted down the new strands of information or perspective in brief memos. I
sought to explore these new strands in subsequent interviews with similar and/or other knowledgeable informants, following Jorgensen’s (1989) suggestion that memos written after interviews can provide “a source of new questions to be checked out by further questioning of insiders” (p. 94).

**Interviews.** In flexibly structured interviews, researchers keep certain questions in mind, but they use them in a mental checklist as they allow interviews to flow conversationally and remain alert to compelling statements that warrant immediate follow up (Whyte, 1979). Informal interviews are related but slightly different, in that they may happen as part of a natural conversation during participant observation. The benefit of both these types of interviews is that they help mitigate participants’ careful screening or possible adjusting of answers based on what they believe the researcher wants to hear (Murchison, 2010).

The program directly engaged several hundred students each year from a number of departments and colleges within the university and, to varying degrees, collaborated with or was mutually supported by about two dozen professors. It also interfaced with administrators, staff, and external entities. Given this range, I developed a sampling frame to help identify the variety of informants who had perspectives to offer about the program (DeWalt & DeWalt, 2002). In Table 1, I provide a list of participants with whom I interacted and interviewed. In general terms, participants included faculty, students, administrators, university personnel, and external collaborators. The study’s participants were selected based on their involvement in or knowledge of the curriculum and its development. In summary, I conducted 96 interviews. Specifically, I interviewed the
program director 8 times over the study period, as well as 9 administrators (6 in the engineering college including the college’s dean, several associate deans, and the department head for the program, and 3 in the business school or university innovation center); 10 collaborative or supportive faculty from across the institution; 12 university support staff members (in career services, global programs, risk management, the teaching and learning center, and the libraries); 8 peer faculty of the program director (6 from the director’s university and 2 from other universities); 8 international collaborators (entrepreneurs, faculty members, and locals assisting the student ventures); 3 external funders and allies; 9 student alumni of the program (including 4 who had served as program assistants); 23 current students over 29 interviews because some students were interviewed more than once (8 graduate students; 15 undergraduate students).

Table 1. Sampling Frame

<table>
<thead>
<tr>
<th>STUDENTS</th>
<th>UNIVERSITY PERSONNEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering/Non-engineering</td>
<td>Based in college of engineering/</td>
</tr>
<tr>
<td>Undergraduate/Graduate</td>
<td>Based in other colleges</td>
</tr>
<tr>
<td>Lower-division/Upper-division</td>
<td>Deans/Associate deans</td>
</tr>
<tr>
<td>Female/Male</td>
<td>Department heads</td>
</tr>
<tr>
<td>Minority/White</td>
<td>Support office staff</td>
</tr>
<tr>
<td>Repeat/First-time participant</td>
<td>Career services</td>
</tr>
<tr>
<td>Enrolled/Volunteering</td>
<td>Teaching center</td>
</tr>
<tr>
<td>Participating in early stage/</td>
<td>Risk management</td>
</tr>
<tr>
<td>advanced stage of venture creation</td>
<td>Global programs office</td>
</tr>
<tr>
<td>Travelling/not travelling for fieldwork</td>
<td>Development</td>
</tr>
<tr>
<td>Highly engaged/Less engaged</td>
<td>Administrative staff</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FACULTY</th>
<th>EXTERNAL SUPPORTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program director</td>
<td>US-based/Internationally-based</td>
</tr>
<tr>
<td>Collaborative/supportive/oppositional</td>
<td>Partnering organizations/Individuals</td>
</tr>
<tr>
<td>Inside department/Outside department</td>
<td>Grant-providing/Network-enhancing</td>
</tr>
</tbody>
</table>
The openness of these selection criteria allowed me to investigate a wide array of possible influences on the curriculum and its development. For the flexibly structured and informal interviews with study participants, I identified participants in a number of ways, including through participant observation in courses and related experiences, e.g., meetings, presentations, showcases, and fieldwork in a developing country context. Numerous informants were identified by the program director, because he was acquainted with others who were knowledgeable about facilitating and inhibiting influences on the curriculum. A third source of potential participants came from informants who were asked if they knew of others who may have been informed of or involved with the curriculum.

**Participant observation.** Participant observation comprises “participat[ion] in social activities with the subjects of study over an extended period of time” (Whyte, 1979, p. 363). Observing and experiencing the curriculum first-hand helped me formulate meaningful interview questions and triangulate the details and perspectives on how the program developed. It allowed “for greater rapport,” granted “better access to informants and activities,” and “enhanced understanding of the phenomena” (DeWalt & DeWalt, 2002, p. 93). Specifically, my dedication to attending and participating in class meetings and other events related to the curriculum, including meetings lasting well into the night, built trust among participants. This rapport helped me obtain more naturalistic data and truthful responses in conversations and interviews, and afforded access to a number of rich primary documents that may not have been shared with me had I used a non-immersive approach (Jorgensen, 1989). My field notes consisted of jottings that I
translated into follow-up questions with the director and others involved. As such, they were not systematically analyzed. I consciously refrained from taking detailed field notes because my purpose was to ask broader questions about how the program came to be, how it attracted resources, and so on. As such, recording specific details of particular meetings or class periods did not serve my research goals.

Documentation. Documents served three purposes in this study. First, they provided background information to me as the researcher and helped me better grasp details about the program. Second, they were central to constructing the case’s timeline, especially since informants’ sense of time proved to be more sequential than precise. Third, they helped verify and triangulate informants’ assertions. This is consonant with Yin’s (1994) suggestion that documents can supplement and corroborate other data sources like interview transcriptions and participant observation field notes. Several kinds of documents were collected and examined: news articles and feature pieces in university and non-university publications, conference proceedings and published journal articles, emails sent by the director to the program mailing list, student blogs, student videos, and the program’s website.

Data Collection Phases

Data collection followed the phases described below. Table 2 summarizes the data collection effort.
Table 2. Data Sources and Key Interview Questions

<table>
<thead>
<tr>
<th>INTERVIEWS</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program Director</strong></td>
<td><strong>Students</strong></td>
</tr>
<tr>
<td>- Why do you do what you do?</td>
<td>- How did you decide to get involved?</td>
</tr>
<tr>
<td>- How do you select collaborators?</td>
<td>- How does this experience compare, e.g., with research, travel, other engineering?</td>
</tr>
<tr>
<td>- What challenges and opportunities have you encountered?</td>
<td>- What excites or frustrates you about it?</td>
</tr>
<tr>
<td><strong>Faculty</strong></td>
<td>- What have you gained from it?</td>
</tr>
<tr>
<td>- Why do you support or collaborate with the program, and what’s involved?</td>
<td></td>
</tr>
<tr>
<td>- What do you think helps or hinders the program’s ongoing operation or growth?</td>
<td></td>
</tr>
<tr>
<td>- What are the strengths and weakness of the program?</td>
<td></td>
</tr>
<tr>
<td><strong>University Personnel</strong></td>
<td></td>
</tr>
<tr>
<td>- What factors encourage or discourage your (or the administration’s) support?</td>
<td></td>
</tr>
<tr>
<td><strong>External Supporters</strong></td>
<td></td>
</tr>
<tr>
<td>- How is this program similar or different from others you have supported?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Class sessions</td>
<td></td>
</tr>
<tr>
<td>- Extra class prep meetings with students</td>
<td></td>
</tr>
<tr>
<td>- Student venture travel and fieldwork in developing country</td>
<td></td>
</tr>
<tr>
<td>- Travel and participation in student-attended conferences</td>
<td></td>
</tr>
<tr>
<td>- Curriculum assessment meetings and presentations</td>
<td></td>
</tr>
<tr>
<td>- Meetings with potential and existing external collaborators</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DOCUMENTS/MEDIA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- News articles and feature pieces in university and non-university publications</td>
<td></td>
</tr>
<tr>
<td>- Conference proceedings and published journal articles</td>
<td></td>
</tr>
<tr>
<td>- Emails sent by the director to program mailing list</td>
<td></td>
</tr>
<tr>
<td>- Student blogs and videos</td>
<td></td>
</tr>
<tr>
<td>- Professionally produced videos</td>
<td></td>
</tr>
<tr>
<td>- Program website</td>
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</table>

**First phase: Early fieldwork and interviews.** Owing to a compressed timetable necessitated by the sequence of the curriculum, I applied for and received IRB approval for this research midway through the spring semester, on the basis that it was a case study on the development of a higher education curriculum (see Appendices B-F for recruitment letters and consent forms). I provided some possible questions in the IRB application to demonstrate that the types of questions I planned to ask would not harm participants. Prior to IRB approval, I conducted early research rather than a pilot study.
This early research consisted primarily of participant observation to gain familiarity and trust with informants. I attended the class meetings of the one-credit seminar along with three sections of the complimentary two-credit venture development course. Once IRB approval was granted, I distributed recruitment letters and informed consent forms to students at the start of a seminar session. Students who had missed the seminar were asked to grant permission at the next session. Once I received their consent, I conducted interviews with the program director and a number of students and university staff.

Second phase: Intensive fieldwork and interviews. I accompanied the program’s director and more than two dozen students working on three different ventures to a developing country during the summer. There, the students advanced the social entrepreneurial ventures they had worked on in the spring semester through testing, research, and consultation with local community partners. While in this international setting, I engaged in participant observation to gain understanding of the curriculum’s international fieldwork and formulate clarifying questions that I followed up during informal and flexibly structured interviews with the director, traveling students, and local community partners. Interviews ranged from 20 minutes with local partners who were less highly involved in the ventures to more than an hour with recent graduates who had volunteered their time to advance the ventures in the local community in the months leading up to students’ summer fieldwork.

While abroad, I did not determine the number of interviews I would conduct beforehand, in keeping with my intention to remain flexible and sensitive to context. The program director, students, and local community partners were all extremely busy, with
students working from early morning until past midnight nearly every day while in the
field. Given the fluid nature of scheduling and sense of time in the local context, students
were generally unable to schedule times to speak with me. Therefore, I caught them when
they happened to have some down time.

Third phase: Focus on interviews and document compilation. Upon my return
from travel with the student teams, I continued to conduct interviews with a variety of
individuals described in the sampling frame. Additionally, I compiled pertinent
documents, such as news stories, program web content, email announcements, and
student-produced materials such as blog posts and videos. These materials primarily
served to build my understanding of the curriculum and its development, and contributed
heavily to construction of the case timeline (See Chapter 4). Data collection wrapped
once I had reached at least one informant of each kind mentioned in the sampling frame,
excluding departmental administrative assistants within the university, who, despite
contributing value noted by the program director, demurred and turned down my repeated
requests for interviews.

Data Analysis

Data analysis began with the organization of the data into files and accompanying
spreadsheets. With the data well organized, transcription of the interview recordings
commenced. I transcribed 56 of the 96 interviews, and a transcriptionist completed the
remaining 40. For those done by the transcriptionist, I listened to the tape and checked
that the transcript was accurate. After I finished each transcription or checked those
completed by the transcriptionist, I wrote memos to capture initial analytical thoughts (Saldana, 2009).

Once a transcription was completed, coding could begin. Codes are words or short phrases that “symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute” for some chunk of data (Saldana, 2009, p. 3). Using the qualitative software program Atlas.ti, I examined the data through a constant comparative method of coding to check my interpretations and build nuanced understandings of the data. Through this process, I determined the data’s fit with the emerging code list and either applied codes as they were or refined their definition, created new ones, or merged existing ones. I also created families or categories that combined groups of codes that were conceptually related. I developed and utilized a codebook that included definitions of each code (Appendix A). This codebook includes descriptive, in vivo, values-centered, and process-oriented codes that I used in this phase of data analysis (Miles et al., 2014). Each of these code types yielded insights valuable to constructing a holistic understanding of the case and answering the research questions. To provide a sample code of each type: collaboration backstory is descriptive, business-like terms mentioned spontaneously by informants are in vivo, motivation (e.g., of the program director) is values-centered, and scaling the program is process-oriented.

Concurrent with the coding process, I began constructing the case’s chronology. I used the online program Tiki Toki to create a visual timeline, which also allowed links to relevant news articles and information source pages. After coding the interviews, I integrated the data under the “program maturation and history” code into the timeline.
This helped fill gaps in the timeline not covered by publicly available documentation, created a richer understanding, and also led to some new clarifying questions that I asked of the program director in a clarifying phone interview.

The academic plan model and current research and theory on the process of entrepreneurship and its tools informed my thinking about the case and thus my data analysis. The academic plan model depicts a full spectrum of influences on a curriculum and the environment in which it is created, changed, or adjusted (Lattuca & Stark, 2009). The components in the model and the connections among them helped me make sense of what was most salient in the development of the curriculum. I used the model as a reference while developing many codes and code families. For example, the institution code family addresses institutional influences depicted in the model, the program code family includes codes addressing purposes, content, sequence, and assessment, and the student experience code family addresses learners.

The literature on entrepreneurship describes a number of process-oriented strategies and attuned me to the exercise of agency by individuals, most especially the program director. While coding the data pertinent to entrepreneurial process and tools, I relied on a combination of inductive and deductive coding. I asked informants for their understanding of how the program developed and how the director worked. During interviews, I retained an awareness of a dozen entrepreneurial tools discussed in the literature but did not ask about them unless participants mentioned them on their own. Some informants mentioned tools like hustle, passion, and storytelling in explicit terms, while tools like bricolage were described indirectly. The tools for which the data
provided rich evidence are discussed in the findings in Chapter 6. Following the thematic analysis of these tools, I abstracted how the director used them in interactions with other elements in the environment, including other individuals; institutional factors; and the curriculum itself. The multi-level considerations and complexity conveyed by the academic plan model informed this interpretive work and yielded a process model of curriculum entrepreneurship that I present in Chapter 7.

**Trustworthiness of the Research**

Interpretive qualitative researchers focus on several strategies to ensure trustworthiness (or validity). Researchers show fit or resonance of findings with participant experience; contextualization, depth, and variation of concepts; creativity and sensitivity; and evidence of reflective memos (Corbin & Strauss, 2008). I have used several strategies to enhance trustworthiness in this study. First, the prolonged data collection process ensured that I collected data from a variety of individuals who had contact with the curriculum that I studied. I collected rich data from faculty and administrators, as well as from students who experienced the program under study, and I complemented the interview data with documentation and other artifacts that helped me capture the program at different points in its development. I was able to follow up with interviews to ask clarifying questions through informal interactions as well as formal requests for further information.

I wrote memos during the transcription process to preserve early interpretive thoughts. The main benefit of the time-intensive process involved in transcription was longer exposure to and consideration of what was said and how it was said. Emphasis in
language, pauses, laughter, and notable tone of voice (such as sarcastic or amused) were noted in the transcriptions. As noted, I did the majority of the transcriptions, and a transcriptionist was employed for the remaining interviews. I reviewed her work by checking it against the recordings.

My research also benefited from triangulation of data from multiple sources. Semi-structured interviews, sometimes conducted on more than one occasion with the same informant, were informed by my field observations along with documentation such as news articles, website content, emails, and videos. Documentation also helped corroborate perspectives and was especially helpful in establishing the case chronology. I conducted phone interviews to clarify ambiguous points, and I transcribed and analyzed these interviews as well.

While the inherent usefulness of member checks is not a given (Emerson and Pollner, 1988), qualitative researchers often conduct them at various points in their studies. As noted above, my extended period of data collection allowed me to follow up participants’ statements in subsequent interviews or via email as questions arose. I did not conduct post-data collection member checks owing to the gap in time between my data collection and data analysis, but instead endeavored to avoid misinterpretation through the steps discussed immediately above. Additionally, during interviews I asked informants to reflect on negative experiences or impressions related to the program or its development, and to discuss inhibiting factors and threats as much as positives, facilitating factors, and opportunities. Still, I was unable to explore the counterfactual, that is, what would have happened if the program director, Ronen, had not taken the
actions that he did. None of the data suggested, however, that the program would have been created if he were not at the helm, or that other elective engineering program directors would have decided, as Ronen did, to integrate a rigorous undergraduate research component.

**Ethical Issues**

A researcher’s “moral responsibility” is highlighted in qualitative research, because in such studies, the researcher “is the main instrument for obtaining knowledge” (Kvale & Brinkmann, 2009, p. 74). In general terms, I handled the ethical issues I encountered in three ways. First, I used “practical wisdom” (p. 67) as a guide. This was especially critical, since I often found myself in new situations with different informants or parties with favorable or unfavorable interests in the program. For instance, early in the study, I drove several student team members to an out-of-town conference and spent a great deal of time working alongside them in the role of student team member. In this situation, I had to make judgments about how much information to share about myself as well as what I was finding out through my research. Second, I heeded Spradley’s (1979) guidance to “go beyond merely considering the interests of informants” and rather “safeguard” them (pp. 35-36). This was important, because the relative uniqueness of the case made it more subject to inadvertent identification. I discussed with my advisors (or “community of practice”) ways to adequately blind the program and its details while reporting the research findings, especially around interpersonal conflicts and politics (Kvale & Brinkmann, 2009).
Limitations

The first limitation of the study was sensemaking: while my research spanned nearly a year, it relied heavily on recollections and anticipations of participants to obtain a more longitudinal understanding of the curriculum and its process of development and change. Specifically, my efforts to learn about the early development of the curriculum through retrospective interviews was likely influenced by the informants’ sensemaking since that time. The second limitation was uneven access to informants: while some were accessible in an ongoing manner for multiple interviews or clarifications, such as the program director and students, others were not able or willing to be reached for clarification, such as administrators and community partners based in developing countries. A third limitation was my inability to secure interviews with any administrative assistants, who played a consequential role in the program’s development. Despite my repeated invitations and explanation of the value of their perspective, they demurred on the basis of not feeling they had much to offer. These limitations are offset to some extent through the extended period of access to many individuals engaged in the development and institutionalization of the program over time, which allowed me to understand its genesis and growth in the contexts of the engineering school and university.

Researcher Perspective

Transparency about the background, interests, and position of the researcher contribute to the trustworthiness of interpretivist qualitative research. In my undergraduate years, I began developing a sense about the potential for higher education
to help students develop their capacity and desire to actively address social problems. Through an undergraduate research award, I was able to travel to India to conduct independent research with villagers that addressed both sociological and technological issues. Researching a real-life problem in such an active, hands-on way influenced my perspective on the kind of experiences and skills that most benefit graduates on personal and professional levels. After my undergraduate years, I participated in a fellowship program, StartingBloc (n.d.), for likeminded young professionals. Through my participation in the StartingBloc institute, I developed a career interest in furthering social entrepreneurship learning experiences in higher education. After the study period but prior to completing data analysis, I worked for a university doing just that. I gained insight into territorial and conceptual issues that arise in universities around social entrepreneurship. While my interest in social entrepreneurship gives me a particular perspective, this subjective understanding is not a “bias”; an interpretivist stance rejects the notion that any researcher can be truly neutral. What is needed is a recognition of one’s subjectivities and positionality so they can be understood and managed (e.g., Peshkin, 1988) and disclosed to readers. I assumed an open-minded approach to my analysis and paid attention to perspectives that expressed criticism of the program and/or social entrepreneurship. These perspectives are reflected in the rendering of the findings of the case, and contribute to the trustworthiness of my interpretative work.
Chapter 4. Case Chronology

In this chapter, I present a brief chronology of the case to familiarize the reader with its unfoldment over time. Each stage demarcates a shift that helps “structur[e] the description of events” and indicates that there “is a certain continuity in the activities within each period and there are certain discontinuities at its frontiers” (Langley, 1999, p. 703; Langley & Truax, 1994).

Stage I. Precursory, Unconnected Efforts

Ronen’s pursuit of teaching and volunteering activities define the precursory efforts stage in the curriculum’s development. This stage began in the spring, six years prior to my study, and ended three years later before the start of the spring semester. It opened when Ronen volunteered as a mentor for a student group interested in creating solutions for poverty-related problems in the developing world. He took on this role after having grown bored with his university-based consulting job, which he started immediately after earning his master’s degree from the same college of engineering a year and a half previous. When he entered his master’s program, Ronen thought, “I wanted to go into corporate America, be the CE [chief engineer] of a company, have the top floor of the highest building in New York City kind of a deal.” Consonant with this motivation, his studies and later consulting work focused on high tech, profit-driven innovation. Indeed, during this stage, he developed and taught a grant-supported high tech innovation course that was unconnected from his volunteering effort. This first stage in the curriculum’s development concluded with Ronen poised to offer, in collaboration
with an academic program outside of engineering, a course that combined insights he had

gained about pedagogy and content from his volunteering and teaching efforts.

**Mentoring students through an extracurricular opportunity.** Over the first

year and a half of his consulting job at the university, Ronen’s restlessness gradually
grew. One day he decided to attend a student club meeting, and was subsequently invited
by the group’s faculty sponsor, Louis, to mentor a team working on a solar project to
supply electricity to a rural community in East Africa. Louis, a non-tenure-line assistant
professor with long-standing interest in engaging engineering students in service
learning, recollected that shortly before Ronen started mentoring the students, club
officers came to him and said they wanted their future projects to be sustainable in the
financial and organizational sense of the word. “We don’t want to do service anymore,”
they declared. While the shift away from a service orientation dismayed Louis, the
interest in creating long-term solutions revived deeply embedded motivations that Ronen
had developed from a young age. After he started leading the solar project and focused on
how it could generate lasting change, Ronen said, “I realized that’s what I always wanted
to do” and recounted the time when he was nine years old and filled a whole booklet with
his handwritten solution to providing necessities like housing and furniture to all the
people in his hometown. In short, he realized his passion for applying his skills in high-
tech entrepreneurship to humanitarian issues in the developing world.

For the solar project, Ronen and the students wanted to deliver more than
technology. Ronen showed the students the image of a broken solar panel completely
overrun by weeds to the point that it was almost impossible to identify. This, he said,
captured what he hoped to avoid. To do so, Ronen and the students worked to embed the technology in a business solution that could sustain over time. With this goal in mind, Ronen established a collaboration among a women-led development group in a rural East African community, a university in that country, and the student club under the banner of the university’s name. The collaborators drew up guiding principles for their work, which placed high value upon inclusive relationship building, sustainable solution seeking, and student initiative-taking. The project’s goal was to develop a locally built and maintained solar energy system that served the local population in a way that was cheaper and better than current options. In other words, the collaborators sought a social entrepreneurial solution to the problem of energy scarcity in this developing country community.

Less than a year after beginning his volunteer position, Ronen traveled to East Africa in the fall semester to gain on-the-ground insights to help the team create a contextually appropriate, business-minded solution. He spoke with potential customers, i.e., local members of the community; identified a site for the solar installation; and spent time building reciprocal relationships with local authorities. Following this trip, in the spring semester, the team applied for and was awarded a $10,000 project grant from Innovation Central, an organization that, among other things, supports universities (through faculty and students) to create technologically innovative solutions that deliver social good. Also at this time, Ronen began to articulate the project’s approach and guiding principles in institutional forums and national association meetings. His earliest presentations headlined the concepts of service-learning and community service, which he reflected upon in hindsight as ill-fitting. With time and experience, he pivoted his
framing to one of social entrepreneurship. Whereas service-learning evoked for Ronen the image of “holding hands and singing songs” that primarily benefits outsiders of the community—that is, students and faculty—he viewed social entrepreneurship as focused on creating business-minded solutions that strive to mitigate poverty-related issues in the long term.

In the following fall semester, the student team worked on campus to develop the technical aspects of their solution, and mapped out a business plan based on insights gained through Ronen’s earlier fieldwork and ongoing conversations with international collaborators. For the spring semester, Ronen recruited two volunteers (from other universities) to work for three months in the local community on a prototype of the solution, gathering and incorporating insights from East African collaborators along the way. In the summer, Ronen and three students and spent a month elaborating the technical and profit-driven sides of the solution, which stayed in long-term operation under local ownership and management. The project yielded a successful, sustainable venture that met the goal set by Ronen, the students, and their collaborators. Through his work mentoring this venture-based project, Ronen articulated his values and forged processes to put them into action while working with students, developing-country entrepreneurs, faculty members, and other like-minded collaborators. This mode of learning by doing was one that Ronen consistently embraced over the curriculum’s development, starting at this precursory stage when the concept of the program had yet to emerge.
Teaching an elective tech-innovation course. While pursuing the solar project, Ronen further diverted his efforts beyond traditional consulting work by securing a $25,000 grant from an industry partner to develop an elective course to teach undergraduate engineering students rapid product development. Ronen’s consulting supervisor supported the effort since he viewed it as a money maker for the department. The course was offered for the first of several years, with concurrent sections for lectures and lab work. Ronen taught students about entrepreneurship, innovation, venture funding, and related topics alongside technical instruction. One of the labs asked students to design for “the hospital of the future,” and during the semester Ronen made a connection between this lab and a global competition on disaster relief that had come to his attention. His idea was to modify the lab to create a mobile health clinic that could be entered in the competition. Competition was another childhood value for Ronen: “Growing up, I was all about competition…So as soon as I see a competition, I just want to go and compete in it. Right, that’s just the way I grew up.”

Learning from a collaboration with a service-learning initiative. During the solar project, Ronen learned about a six-credit service-learning experience that the Women’s Studies program had started offering. Following a spring seminar, students travelled to East Africa to implement service-learning projects. In the second year that Women’s Studies offered the experience, Ronen was invited to visit the program after he concluded his fieldwork in another East African community for the solar project. From working in a rural community, and especially from engaging a women’s cooperative there, Ronen learned firsthand that the success of a social venture depends heavily on soft
factors like sociocultural dynamics, which largely determine the appropriateness of the technological aspects of a venture. With this realization in mind he considered collaborating with Women’s Studies, since their students and faculty were equipped to analyze socially rooted dynamics that engineering students were not trained to evaluate. The Women’s Studies faculty, in turn, saw an opportunity to expand their students’ interdisciplinary knowledge base. Having found this “sweet spot”—a term often repeated by Ronen when forming collaborations—the Women’s Studies faculty members and Ronen planned to jointly teach a freshly cross-listed version of the spring seminar coupled with the follow-on summer experience.

**Stage II. First Programmatic Iteration**

Ronen’s forays into these precursory and unconnected activities—mentoring the solar project and teaching the elective class—yielded insights that converged in what he described as “a first attempt” to offer a curriculum-based experience to students. Specifically, for this first programmatic iteration of the curriculum, Ronen co-developed and -taught a two-course sequence with Women’s Studies. The spring course focused on the development of social entrepreneurial and service-learning projects, and was followed by a summer course to implement the projects in East Africa.

**Carried student project forward with a teaching collaboration.** Ryan, a student who had worked on the mobile clinic project in the fall elective course and wanted to continue the work, approached Ronen prior to the semester’s end. Ronen recommended that he enroll in the spring course that he had worked with Women’s Studies to cross-list with engineering. Stemming from Ryan’s interest, one of the student
teams focused on developing the mobile clinic for an East African context. Five of the 15 students in the spring course elected to join this team. Ronen recollected coming up with the venture’s name during one of countless late-night student meetings he either initiated or was part of over the years. In his office, he and Ryan sat flipping through the Swahili dictionary and came up with Sawaza—a name indicating good health. Over the curriculum’s development, this vanguard project captured and sustained the attention of students, administrators, and collaborators both internal and external to the university.

**External recognition created a captivating student-centered story.** Midway through the spring semester, the students entered Sawaza into a national competition and won $10,000 in corporate-sponsored funding, which they used to support their summer fieldwork in East Africa. The award framed Sawaza as a student-driven venture, which, in the words of Evelyn, an associate dean in the college of engineering, “jumpstarted” the visibility of Ronen’s curricular efforts in a “very captivating” way that “brought a lot of visibility and helped solidify a level of activity around that.” Administrators, staff, and faculty were, with a handful of exceptions discussed later, impressed by the story of a student-led initiative focused on creating a sustainable solution to a poverty-related problem. Ronen initially bristled at this perception, since his guidance so strongly informed the venture’s inception and ongoing development. After trying to clarify a few times with colleagues, they “kind of winked at me as said, ‘You know, everybody knows that, but this is a nicer story to tell.’”

**Tapped into a university-wide network of faculty members.** Also in this spring semester, Ronen joined a network of faculty members interested in community
development. The group had existed since the mid-1990s and included William, a seasoned tenured faculty member from communications who conducted research in East Africa. In part because it dovetailed well with his plans to travel with student teams for summer fieldwork, Ronen joined William’s grant-supported research team investigating the intersection of technology and communication in East African communities.

**Summer field experience sharpened curricular purpose.** In the summer, the Sawaza student team traveled to East Africa with Women’s Studies and worked under Ronen’s guidance to further validate the concept for the mobile health clinic and the business model that was part of the venture’s preliminary design. Meanwhile the other two student groups, under the supervision of Women Studies, completed service-learning projects that had limited expectations of ongoing community engagement. Ronen said that through the experience of collaborating with Women’s Studies he further defined what he “was about,” which was neither analysis for its own sake nor service-learning. He said the collaboration “was great learning experience but it did not end very well, just because we saw the world very differently.” He had hoped to “work on meaningful projects” by tapping into the curricular content and structure Women’s Studies had already built and the students they already involved. However, the Women’s Studies faculty members elected to retain their focus on analysis and deconstruction. By contrast, Ronen’s focus sharpened on social impact and the construction of solutions. With their curricular interests polarized, he realized that the collaboration did not have the potential to grow social entrepreneurial efforts.
Also during the same summer, through the grant-supported research headed by William, Ronen gained an appreciation for the possibilities that cellular communication opened for East African community development. This sparked Ronen’s concept for a second social venture, Kesi, which his students began to develop the following spring. As a communications scholar, William’s disciplinary focus balanced research and application, making him more amenable to Ronen’s interest in real-world impact than the Women’s Studies collaborators. As a tenured faculty member, however, William disliked Ronen’s prioritization of innovation over research and his early lack of scholarly rigor. Though tensions marked their collaboration, which continued through my study period, they worked together on projects and co-authored a half-dozen journal articles.

In summary, in this second stage Ronen combined insights from his earlier curricular and extracurricular offerings to forge collaborations that helped him try out new things with a minimum amount of resources. He learned a lot about what made a good collaboration and what issues commonly emerged, chiefly around ownership and scholarly or professional credit. He advanced Sawaza, the vanguard social venture that remained part of the curriculum from this early stage through my study period. He sketched the core concept for a second social venture, Kesi, that students and collaborators could begin to elaborate. From his experience in this first programmatic iteration, he realized that he needed to find an arrangement that gave him greater control over the curriculum. The collaboration with Women’s Studies ended after the first time they offered the learning experience together owing to incompatible expectations based in disciplinary differences. Even so, this second stage concluded with Ronen having
“learned so much” about working with interdisciplinary teams and ready to articulate his curricular model and launch the program

**Stage III. Curriculum Model Coalescence**

During the third stage, model coalescence, which spanned an academic year and the summer that followed, Ronen articulated—in papers, presentations, and one-on-one meetings—a curricular model that integrated the experiences and insights he had gained over the previous three years of “trying a lot of crazy things.” He realized that directing a learning experience composed of multiple course offerings would best serve his goal of engaging students in the creation of social entrepreneurial ventures. During this stage, Ronen created and named a stand-alone program, recruited more than fifty students, developed two social ventures, and both encountered opposition from within the program’s home department and formed new collaborations.

**Used a compelling story to recruit students.** The fall semester proved to be an inflection point, during which Ronen shifted from emergent, experimental efforts to the deliberate construction of a curriculum. He went from working with two to six students each semester on social entrepreneurial projects (i.e., the solar and mobile clinic ventures) to recruiting over 50 students for courses he began to teach in the spring. The marked increase in student numbers, Ronen said,

happened after I went to [East Africa] and I saw what things were like, and I kind of realized and I understood a little bit more, and I could tell a good story. And show some good photos, and say, “Okay, this is what it’s like; this is what we need to do.”
He contrasted this narrative, which emphasized long-term engagement to bring social ventures to market, with one that said, “Well, there’s some people over here in Africa—poor, starving people—and we need to do something thing for them.” For Ronen, this latter statement characterized attitudes and efforts he had seen in some of the faculty members and students he had worked with since his initial efforts as a volunteer mentor. A record of experience, coupled with the clear articulation of an approach that broke from a charity or mission-work mentality, helped him recruit students for the spring semester. Ronen wanted the curriculum to be about three things: “impact, impact, and impact.” This outcomes or solutions-based emphasis mattered to Ronen because when we do things we should not be doing it just for the sake of learning. It should be integrated. It should be learning and, you know, ask some questions and let’s try to answer them and make sure that it has the impact on the ground. And I actually get very emotional when I start explaining these things. Because they are really important to me.

**Established a new collaboration to expand student engagement.** An associate dean in the college of engineering, Evelyn, summed up her impression of the curriculum’s founding: “I’d say it was really a number of different things that happened: the right people, perhaps over the right period of time, intersecting in rather unusual ways.” With this statement, she had in mind a serendipitous meeting that happened outside her office in the fall. After a chance meeting with Julian, a tenured faculty member in the bioengineering program, Ronen started a collaboration that continued over the course of my study. Julian taught a design lab for upper-division students. He planned
to make global health the focus of the spring lab. He requested a meeting with Evelyn to
discuss supplemental funding for the lab. Separately, Ronen requested a meeting with
Evelyn to discuss his program. The associate dean’s secretary assumed that Ronen and
Julian were part of the same meeting owing to their similar interests and scheduled them
at the same time. Their serendipitous meeting sparked a conversation about enlisting
Julian’s students to work on contextually appropriate, i.e., low-cost and durable,
biomedical devices for Sawaza.

The collaboration allowed Ronen to engage many more students in the ongoing
development of this venture and, in turn, Julian gained access to a real-world problem for
the design lab. The collaboration they arranged specified that biomedical engineering
students who wished to travel for the summer fieldwork enroll in the two courses that
Ronen began to offer that spring. At Ronen’s suggestion, Julian travelled for the
fieldwork for two summers in a row to help him better contextualize the teaching material
for students in the lab. The two worked on papers, presentations, and grant applications
together. Julian appreciated collaborating with a colleague who took care of the time-
consuming logistics and relationship building with field collaborators. He likewise
appreciated that the venture engaged students deeply and continued year to year. Julian
said, “Sawaza could have been like a lot of these ventures in developing countries where
somebody goes in and tries a little something and then that’s the last you see of it.” By
contrast, “[Ronen] really does the hard work for the long term.” Their mutual respect
sustained over time and remained strong throughout my study period.
Expanded an existing collaboration to build curricular offerings. While Ronen engaged in his own learn-by-doing process, Louis, the faculty member who welcomed his fresh energy on the solar project, pushed forward with his curricular agenda. Specifically, Louis championed a service-learning certificate for engineering students that gained approval three years prior to my study. Louis endured a dozen years of largely negative reception from faculty and administrator colleagues, in part because he hurt his against-the-grain interests with a seemingly willful lack of political savvy: “I’m not politically adept and I don’t want to be. I don’t like the politics.”

Slowly over time, some engineering faculty members from across the college began to independently engage their students in service-learning. Discussions about how to unite these learning experiences led to the idea of a highly flexible certificate with few dedicated course offerings. Louis spearheaded the certificate application, which included a listing for a permanent two-credit project development course. When Ronen wrapped up his collaboration with Women’s Studies, he turned to Louis to see if he might add sections for Sawaza and Kesi to the following spring offering of this project development course. Louis, who led a third section, once again welcomed Ronen for his dynamism and ability to attract students. The decision to collaborate on the course reflected willingness to make do: Louis disliked what he saw as preoccupation with “success” at the expense of service, while Ronen recoiled at “service,” which appeared in the course’s initial title. Ronen said, “I did not like the word service. But I thought, ‘Alright, we can play along’ and look beyond the semantics for now… I looked at it like a chance to develop new content.”
Ronen complemented the two-credit sections with a one-credit seminar. The seminar provided a way for him to deliver content that he wanted all the students to learn (e.g., how to ethically work on social ventures in developing country contexts) while developing venture projects in the separate course sections. Initially, Ronen and Louis co-taught the seminar, but by the fourth class meeting Ronen took sole control of the seminar, because Louis’s lectures struck him as “totally off the mark.” Over the years of their collaborative relationship, which lasted through my study period, Ronen handled the conflicts created by differences in the pair’s teaching philosophies, curriculum change strategies, and organizational/political savviness by reducing Louis’s role.

Regardless of tensions, Ronen considered the relationship to be constructive for the critical start of his efforts. Louis, he said, “did a lot of things right that he should get credit for,” among them mentoring the student club that in the early- to mid-2000s completed infrastructure projects in developing countries. Madison, a graduate student who participated in the program over multiple years, said, “Louis helped legitimate [the program], because he had been in [the department] so long. So it wasn’t like Ronen just swooping in from somewhere.” Indeed, Louis labored for more than a dozen years to advance an adjacent interest in service-learning, and while progress remained slow and contentious for reasons discussed in Chapter 6, it created an opening for Ronen’s efforts.

**The new program encounters opposition.** Having set up collaborations with Julian to involve biomedical engineering students and with Louis to offer three dedicated credits, Ronen decided to identify the effort as a program. He rejected more long-standing terms like service-learning and named the program Social Entrepreneurship in
Engineering (SEE) to reflect his values, which centered on a market-centric approach to poverty alleviation. After receiving approval from the department head, Edwin, who said, “There’s no harm in it,” Ronen created a website that marketed the program to students, listed current faculty partners, and welcomed future interdisciplinary collaborations from across the university.

Until this moment, Ronen’s curricular effort had been peripheral and regarded as such by established programs within the department. The website, however, codified his set of courses as a program. Immediately, a small handful of oppositional faculty members who directed academic minor programs in the department petitioned an associate dean who was friendly with them. This associate dean voiced concern to her fellow associate deans, using a procedural complaint as a proxy for political opposition. She argued that, first, Ronen needed formal approval to use the word “program” and, second, that it created confusion for students since it did not lead to a degree. Ronen exposed the political motivation of the latter point by sharing with me the example that “Women in Engineering is a program, and you can’t get a degree in it.” He refuted the former point by stating that the channels to get approval to call something a program “have never been established really…And nobody knows what those channels are.”

These spurious concerns led to Ronen being asked to take the website down. Ronen said, “That was a really, really frustrating moment—where we have courses, we have everything. But these four or five people who were against it basically made us shut it down.” Ronen said the semblance of an approval process entailed, quite vaguely, the “powers that be” saying, “Okay, this is a program.’ And then you can call it a program.”
Over the two and a half years that followed, the oppositional faculty members and associate dean policed the language used to describe SEE. Despite Ronen’s compliance with using the word “initiative,” other entities (such as the university’s news service) would sometimes use the word “program.” Ronen shared:

Anytime they would see “program” written anywhere, they would automatically directly write an email to one of the deans, who would write an email to the rest of the deans. They’d write, “Well, see, they’re calling it a program again.”

Ronen was frustrated by the extended time the program had to be called “an initiative” to assuage the oppositional faculty members. Over the years, their attacks extended beyond this procedural complaint to include intellectual arguments against the concept of social entrepreneurship, bureaucratic maneuvers to prevent courses from becoming permanent, and other efforts discussed in Chapter 5.

**Taught a freshly repurposed course and engaged faculty networks.** In the spring, Ronen used the arrangement he had made with Louis to implement a foundational component of the curricular model: multiple project development sections (for 2 credits) unified by a common seminar (1 credit). He viewed this arrangement as a “sweet spot” for meeting the logistical constraints created by simultaneously working to expand collaborations, engage students, and rapidly develop social ventures. The seminar provided a “good overview” of a wide range of topics “provided in a just-in-time manner.” Ronen took control of the project development course that had been created for the service-learning certificate and repurposed it, turning it into a key course listing for the SEE program. Louis did not stop him, in several informants’ view, because Ronen
was successful at recruiting students, and each student that enrolled learned about the certificate and completed one of its requirements. Louis valued the certificate, but for his part, Ronen said he “never cared” about it. While completing something on paper called “the SEE program” did not matter to him, he cared deeply about launching social ventures in developing countries and teaching students to handle contextual ambiguity and complexity. In sum, he was “always about building the program” to maximize impact in communities and on students themselves. Ronen said, “I saw the students as the ultimate way to scale that impact,” as when they launched social entrepreneurial careers or pursued graduate studies influenced by social entrepreneurship.

Beginning in this spring semester (i.e., two years prior to my study period), Ronen tapped into various faculty networks interested in topics like entrepreneurship, experiential learning, sustainability, and international development, and invited a dozen of these colleagues to serve as design review judges for the student venture teams, which presented their progress to the whole seminar during mid-terms and finals. He did this in large part to gain, in his words, “more buy-in and legitimacy” from faculty colleagues. This reservoir of support bolstered the program’s reputation and helped Ronen find future collaborators, which was a necessity given his extreme resource constraints.

Awarded grants for assessment and venture development. Less than a semester after opposition to the SEE program began, Ronen pulled together a last-minute application and secured a $15,000 grant from the university’s teaching and learning center to conduct assessment on the program. Equally interested in improving student outcomes and building legitimacy, Ronen worked with the center’s staff to evaluate
students’ global engagement, interdisciplinary teamwork skills, and social entrepreneurial mindset. For the next two years, Ronen and the center’s staff conducted focus groups, surveys, and interviews, as well as analyzed student written assignments, with the expectation of student improvement in these three areas over the course of their engagement with SEE. At the time of my study, results were pending but promising. Also in this prolific spring semester, Ronen and Julian received a multi-year grant from Innovation Central to support Sawaza’s development. This success encouraged their amenable, ongoing collaboration.

**Fieldwork conducted with students and collaborative faculty.** Having focused students on preparing for summer fieldwork during the spring semester, Ronen traveled to East Africa with 30 students and two collaborating faculty members, Julian and Louis. While in the field, the students worked with a great deal of autonomy from sunrise to past midnight almost every day of the three-week trip. Ronen developed structures to support students’ maximal engagement while in the field. These included a core student leadership team, small sub-teams of students that each “championed” different aspects of the venture’s development, and daily debriefing sessions to discuss what happened with all the sub-teams during the day and to plan for the next day. In other words, students landed in East Africa with guiding goals rather than a preset itinerary. In addition to the mechanisms that Ronen set up, his high expectations pushed students to arise to his level of dedication to advance the ventures.

In summary, in this third stage of the curriculum’s development, Ronen set out to establish and direct a program. The undergraduate student, Ryan, who worked on Sawaza
from its earliest stages said, “the SEE program kind of developed while I was in it.”

Bemused by its rapid development, he observed, “It kind of went from, ‘Hey, this is a real cool thing,’ and then the next thing I knew, [Ronen] was like, ‘Yeah, it’s going to be a program.’” At this juncture, it consisted of two spring courses and three weeks of travel in the summer, along with project work integrated into another faculty member’s spring design lab.

Though Ronen expanded the program’s course offerings in subsequent stages, he rejected on philosophical and strategic grounds any notion that the program would eventually become a certificate or a minor. He worked within extreme resource constraints to build a curricular model that depended upon collaboration with faculty members from within and beyond the college of engineering. Until just prior to my study period, in fact, his official position remained in the consulting unit and he advanced his curricular efforts informally. The director of the consulting unit, Vernon, and the head of the department that eventually housed SEE, Edwin, acted as gatekeepers that supported his curricular efforts even as they held power to shut down the effort in this and the subsequent stage.

Stage III concluded after the summer fieldwork of the new curriculum’s first academic year. With the program’s basic structure built and operation tested, it was poised to enter a stage of traction and elaboration. In the next stage, Ronen built on the foundation established over the previous year and benefited from a decision made by the university’s leadership.
Stage IV. Program Traction

The following academic year and summer comprised the curriculum’s fourth stage, program traction. During this stage, Ronen elaborated on the foundation of the previous year’s efforts by expanding student recruitment activities, securing grants and developing new courses, and offering some version of the built-out program’s five courses. Crucial to the program’s future, the university’s leadership selected SEE as one of just four stories highlighted in a general capital fundraising campaign.

**Established a competition to recruit students and build notoriety.** In the fall, one of the faculty networks to which Ronen belonged co-sponsored a film screening with the tourism department. The documentary, which contextualized socioeconomic challenges in East African communities, aligned with SEE’s goal of creating solutions to problems like those it so vividly described. Upon hearing about the screening, Ronen approached Oscar, a tourism faculty member, about an idea to create a competition for students to submit short videos on potential solutions for these communities. Oscar agreed to collaborate, and Ronen and Oscar secured judges to rate the students’ submissions on contextual appropriateness, innovativeness, and potential to scale. The competition, named after the documentary film, engaged students primarily from SEE and the tourism department, though it remained open to all students. In the three years that followed, Ronen secured sponsors for cash awards and expanded participation to include students in other schools in the US and East Africa. For Ronen, the goal of the competition “was just to get students to kind of take interest. It was really a way to advertise the program, to be perfectly honest. And to build pipelines to the program.”
In addition, Ronen sought to reach students, who were the bloodline to the program, through a number of efforts. He developed interdisciplinary collaborations that brought other faculty members’ students to the program; engaged supportive faculty and staff (especially administrative assistants and career services officers) who could speak one-on-one with students about the program; and conducted traditional marketing efforts such as information sessions, listserv announcements, and posters.

**Iterated spring courses.** In the spring, Ronen once again taught the seminar and course sections for the same ventures that students had worked on during the previous academic year, including three weeks of intensive summer fieldwork in East Africa to test ideas and meet with local collaborators there. Most students were new to the venture teams, though a few students elected to participate for more than one year and find a way to “make it work” with their course schedule and requirements, e.g., by completing an honors thesis on a topic addressed in the program. One student, Casey, participated over multiple years and reflected on the program’s development: “It’s gotten more organized which is good because [in previous years] it was just like we were literally making up everything as we went along.” The improvisation in the program stemmed partly from its bottom-up, early stage of development. It also stemmed from the content of the curriculum, which took students through an entrepreneurial process that was emergent rather than controlled in nature. Ronen worked during this and subsequent semesters to codify the curricular content and routinize the program as much as possible.

**Featured in university campaigns.** In the spring, the university’s capital fundraising campaign featured SEE along with just a handful of other programs in print
and video materials. This decision, wholly outside of Ronen’s influence and independently championed by development officers familiar with SEE, moved the program towards formalization. In connection with the campaign, the university’s leadership invited Ronen and some of his students to a dinner for big donors. The university president introduced Ronen to the donors and spoke about Sawaza. The dean of the college of engineering heard the remarks and a few weeks later invited Ronen to present SEE to a meeting of the engineering department heads. Ronen said:

That’s when the dean said, “Oh, and by the way he was introduced to me by [the university president] and to our alums.” And that really helped, because it showed that, look, if the president of the university is supporting this, and this is on the capital campaign, it’s really awkward for [the college of engineering] to keep it this underground thing.

The awkwardness stemmed from the university president’s perspective when speaking about the program in the capital campaign. In Ronen’s words, SEE was one of the featured stories told by the president to raise money for the university, “so from his perspective…this is a set program. I mean, he doesn’t know what’s actually going on here.” At this stage in the curriculum’s development, Ronen remained employed by the consulting unit and had no formal faculty title. Opponents in SEE’s academic department still policed the language used to describe the program, labeling it as merely “an initiative.”

On the heels of the capital fundraising campaign, the global programs office selected SEE as the subject of the first in a series of feature videos. The vice provost said
his office selected the program because in addition to encouraging student participation, it showed faculty that integrating a global component into their teaching and research “is actually doable” even with competing time pressures. In short, the “program was very emblematic of what could be done.” A videographer travelled with the students for summer fieldwork in East Africa and produced a documentary style video that vividly conveyed the program’s purpose and activities.

**Increased friction with departmental faculty.** This high-profile exposure increased friction with opponents within SEE’s academic department since, as Ronen paraphrased their stance, How can SEE, which “is not even a legitimate program” be highlighted in the capital campaign? The introduction of the student research component likewise stoked friction. As mentioned above, Ronen began to develop this pillar of the program only after experiencing several needs that he realized could be addressed through research. He did not value building a personal publication record, since he was neither on the tenure track nor inculcated by a doctoral culture that valued publications. The oppositional faculty misinterpreted his motivations, because many of them held tenure-line positions or were tenured, and thus prioritized their own publishing record. In the words of the department head, these opponents “ascribe impure motivations” to Ronen and “wonder why he’s doing something in a certain way. Rather than just ask him, it’s easier to ascribe, ‘Well he’s doing that for personal gain.’” Attempts to undermine the program, discussed in Chapter 5 in more detail, ultimately failed to derail it. However, the future of the program remained uncertain until the next stage, formalization.
**Developed grant-supported fall course.** For course offerings, Ronen realized during this stage that he only had time to touch briefly on business model development and validation during the spring semester, and so he applied for and received $40,000 in course planning and development grants from Innovation Central to create a new fall course on these concepts and their connection to social entrepreneurship. He wanted students to learn “how to conduct due diligence on the business side of the things we were developing,” meaning students would learn how to scrutinize and test their assumptions about who would pay and how much for the value that their ventures intended to produce. Under an experimental course listing, Ronen offered this course for the first time at the outset of Stage V and enrolled a dozen students.

**Initiated student research component.** Over time, Ronen came to appreciate the importance of engaging students in research—and not just any research but publishable, human subjects approved research. As with business development concepts, time constraints prevented him from covering the research process adequately during the one-credit spring seminar. Out of this need that had grown with the program, Ronen added a fall course on research and paper writing. Like the business-oriented course mentioned above, Ronen offered an early version of the course at the outset of Stage V. He ran this first iteration of the course as an independent study with a handful of students and focused on writing and publishing papers for the research that he and the students had conducted while in East Africa during the previous summer. Ronen built student research into the program to meet a number of needs that he perceived over time. First, it provided a way to further validate the program, because of published research’s status as the
currency of academic legitimacy. Second, it helped refute faculty critics who questioned the rigor and intellectual basis of the program. Third, it created materials that students new to the program used to understand the ventures that they joined midway in development.

**Summary.** In the prolific fourth stage of the curriculum’s development, the program gained traction through increased student recruitment efforts and course offerings, and validation within the university. Exposure by the university’s leadership and global programs office garnered more legitimacy for SEE. The media-driven campaigns targeting alumni donations and global engagement increased notoriety for the program and further stoked professional jealousy among some faculty members in SEE’s department. Additionally, Ronen’s introduction of a student research component parsimoniously addressed several needs for the program but also contributed to the malign perspective of its detractors. Thus, as the program grew, it lost the protection that an amorphous form affords. That is, at its earliest stages the curriculum wasn’t enough of anything to draw opposition. As it solidified, it attracted opposition even as it grew in capacity to attract more resources. This fourth stage concluded after summer fieldwork with 35 students from engineering and non-engineering majors, who iterated the Kesi and Sawaza ventures.

In closing, SEE’s high-profile exposure in this stage marked an “inflection point” in the curriculum’s development that Ronen identified in one of our interviews (and which others corroborated). It carried weight in the administrative decision to provide the
program with more stable support. Hence, the fourth stage concluded on the cusp of discussions that led to the program’s formalization.

**Stage V. Program Formalization and Expansion**

The program’s fifth stage, formalization and expansion, extended over the next academic year and a half. Based on my interviews with Ronen, this stage seemed poised to continue past the conclusion of my study period. During this stage, SEE shed its designation as an initiative and became an officially recognized program with Ronen as its director. As part of the arrangement, Ronen’s position moved officially from the consulting unit to the academic department housing SEE. Two notable dynamics marked Ronen’s relationships with departmental faculty colleagues. First, becoming an acknowledged program “changed the game” with oppositional faculty members in the department. Their interference became less concerning to Ronen, though it slowed the approval process required to make the SEE courses permanent offerings. Second, Louis’ involvement in the program waned as his curricular goals and change strategies continued to clash with Ronen’s. A handful of developments also affected the programming. First, Ronen launched or laid the groundwork for new collaborations or supportive relationships. Second, he used the lessons learned from the Kesi project to start new ventures for student teams to advance. Third, he began to present findings on the program assessment. Fourth, Ronen worked to institutionalize the program more deeply by producing research papers, instructional videos, and documentation on the program’s operations.
Administration agreed to formalize the program. In the fall, in the midst of SEE’s high-profile exposure, the department head, Edwin, spoke with the dean of the college of engineering about giving SEE more resources and moving Ronen’s position to his academic unit. The dean readily agreed that it met two of his three conditions. First, in his words, it had “somebody with a real passion to advance it” and, second, “it fit very well strategically with what we think is important.” He expressed concern about the third condition, which was about “the resources that are available” to sustain it over time. A tight pool for funds resulted from the university’s decade-long policy of reducing annual budgets across the board by one to two percent. The dean stressed that the two minors in the department sustained only because of partial endowments: “With the budget cuts and everything else, we couldn’t do them out of general funds.”

A senior development officer, Robert, offered to the dean his prediction that at some point a high-dollar donor would endow SEE. Sufficiently confident in this prospect, the dean agreed to permanently convert Ronen’s consulting position to a faculty position, with a cut in pay. With the conversion of Ronen’s entire position, Edwin “made it very clear to the dean, ‘You are moving this chunk of money that represents Ronen…and for that chunk of money which is not a huge amount…we can do the program every year.’” He argued this plainly to the dean, because for the other similarly scaled programs in his department,

Every year I have to go hat in hand to the dean to pay for the costs that I’ve incurred [for the other programs] and he grumbles and groans…[though] he
always eventually comes through. But I kind of view like, I shouldn’t have to do that.

Through this understanding with the dean, Edwin put SEE on a surer financial path albeit a barebones one with growth supported by funds Ronen or the development office raised.

With the administration’s agreement to formalize the program, Ronen met with the department head to discuss details. Edwin offered Ronen $5,000 for the program’s operating budget—a welcome though insufficient amount that Ronen supplemented through various strategies. Discussed more in Chapter 6, his strategies included putting in exorbitant hours, forming collaborations, tapping networks to access small pots of funds (e.g., to support student travel), seeking faculty grants, and conducting student competitions with cash awards.

**Decided program’s leadership structure.** During the initial launch of SEE’s website in Stage II, Ronen named Louis as a co-director of the program. This provided fodder for opponents, along with their earlier discussed politicization of the word “program.” Over the dozen years he worked to advance service-learning in engineering, Louis gained a reputation for being less than savvy and persuasive. Though his work provided an opening for Ronen’s initial curricular efforts, his involvement with SEE created in Ronen’s words “historical” and “baggage issues.” Louis described a relationship with an associate dean, with whom in the past he kept “pushing” his curricular goals. In response, “It got to the point where his veins were sticking out in his neck, yelling and screaming me at least on two occasions, maybe three, that nobody cares about this [service-learning in engineering]. Nobody ever will.” In short, he
communicated his passion for service-learning in an ineffective manner that tended to alienated faculty and administrative colleagues. Nonetheless, Louis created or was part of service-learning activities in the college of engineering. In the early 2000s, as mentioned previously, several engineering faculty members came together after recognizing a mutual interest in community oriented efforts. They sought a way to acknowledge and reward these learning experiences and landed on a certificate in community engineering.

When Edwin, the department head, sought to formalize SEE, he suggested that Ronen be named the director while Louis direct the certificate in a separate but related effort. He reasoned with Louis along two lines. First, on bureaucratic grounds, similarly scaled programs in the department had one director. It was important, he suggested, for SEE to be structured similarly to enhance legitimacy. In Edwin’s words, SEE had to be structured in a “parallel” manner to be more readily “accepted as a program,” because “if it walks like a duck and quacks like a duck, it is a duck.” Second, on political grounds, Edwin reminded Louis of the bridges he had burned and said, “In order to get the program on very good footing and politically accepted and all those kinds of things, it requires a [Ronen] there. And I could not see it happening without a [Ronen] there.” By “a Ronen” he clarified it meant someone who created a program “that really resonates with people”; was “hyperkinetic” about forming win-win arrangements with colleagues; and whom was “always spoken about highly.”

Though Louis initially found it difficult to accept that someone else would be named director of a service-learning inspired program—something he had pursued for many years—he said, “After about 10 seconds, I thought that’s the best thing that could
happen.” Louis said of Ronen, “He is socially intelligent.” By contrast, Louis said, “I don’t even look at the people. I just start waving my arms and talking.” Though Louis assented to the arrangement—“to his credit,” in Edwin’s words—his role in SEE diminished over time owing to curricular goals that clashed with Ronen’s. With the logistics and leadership settled, the dean announced the program’s formalization.

**Competition dynamics evolved.** Once the message from the dean circulated about SEE’s status as a program, Ronen felt another inflection point had been reached in the curriculum’s development. Prior to the announcement, Ronen said of his departmental naysayers, “I used to have to think about how they’re going to react, how they’re going to jeopardize the work.” At this early stage, he had to unflaggingly “manage people and their perceptions.” The positive aspect of this early stage was that “initially they could not [jeopardize the work]. At best they were pissed about it but there wasn’t much they could do about it, because it wasn’t a formal thing.” The program’s tentative form made it, in a sense, harder to challenge. A graduate student who volunteered his time for SEE suggested to me that when curricular efforts are not yet solidified, “they’re able to float freely; they’re much easier to navigate through [obstacles].” Once SEE was formalized, however, this volunteer noted that the competition for resources and recognition became explicit. At this point, Ronen said the “cat and mouse game” started with other program directors who regularly tried to “one up” SEE. They also competed for intellectual and curricular territory as discussed in Chapter 5. Ronen called the game “really irritating” though he admitted to playing it to some extent even as it detracted from his focus on scaling up the program. Owing to the
program’s formalization, Ronen said, “in some ways some challenges have gone away” but other challenges developed. Ronen perceived new sources of competition beyond his department and worked with limited information and resources to minimize their potential negative effects on SEE.

**Developed more collaborations and supportive relationships.** In the semester prior to my study, Ronen worked with a career services director, Katherine, to advance and get approval for a collaboration with the international affairs school. Like the bioengineering students in Julian’s lab who worked on SEE ventures, Ronen worked to create a “win-win” so that international affairs students who participated in SEE’s spring courses and summer fieldwork could use SEE to complete a capstone requirement for their degree. The half dozen graduate students from international affairs who participated in SEE during my study period added their perspective to the interdisciplinary student venture teams comprised of first-year undergraduates through doctoral students. Katherine said she worked strategically to champion the collaboration at faculty meetings, and by the time of my study, she said the collaboration “became something a little bit more permanent for us, so it’s part of the academic fabric here.”

Also in my study period, Ronen solidified a limited-scope collaboration with the law school. A clinical professor there, Alan, learned about SEE through Katherine and an associate dean. New to the university, he felt encouraged by these administrators who spoke highly of the program. Initially he expected to do an independent study with a few students. However, after drafting a modest plan and presenting it, “The deans of the law school basically said, ‘Ok, it’s a clinic.’ And, you know, I think there are a lot of reasons
for that. Number one, experiential programs are an important part of marketing the law school.” With this direction set, Alan listed an international clinic in the course catalog and began recruiting while also continuing conversations with Ronen. They discussed how to best integrate the law students without creating undue friction between students who wanted to charge ahead and law student who focused on detecting and managing risk.

The win-win arrangement entailed the law students delving into legal questions that the ventures faced during implementation in their East African context. Ronen especially wanted the law students to produce papers that the rest of the SEE students could digest while developing or refining ventures. As with SEE’s other collaborations, Alan appreciated that the program provided a real-world context and handled logistics. For the collaboration to continue in the future, he said that the clinic had to be an immediate success. This was because procedurally professors were only allowed to offer a trial course once: “When I take this in less than a year’s time to the entire faculty for approval as a permanent course, I need to have a success story.”

In terms of cultivating supportive relationships, Ronen worked with the university’s honors college to gain more opportunities to pitch SEE to honors students. In conversation with career services and student programming officers, he delineated a synergy between the resources the college provided to students pursuing their thesis project and SEE’s perennial challenge of helping students secure funds for summer travel. Indeed, more than a dozen of the 50 students conducting fieldwork for the program in during my study period were members of the honors college. SEE had a
reputation for requiring more work from students than the credit hours suggested, and the kind of students who thrived in this elective experience tended to be, in Ronen’s words, “self-selected.” The most successful students were willing to work hard on multifaceted problems situated in an ambiguous context.
Chapter 5. Academic Program as Start-Up:

Delineating Boundaries, Competition, and Customers

This chapter opens with a description of the institutional environment as it related to efforts to innovate around the curriculum. After providing this context for Ronen’s curricular effort, I delineate how his program possessed three important defining characteristics of an organization (or in this case an organization-like entity), namely boundaries, competition, and customers or their equivalent (Aldrich & Ruef, 2009).

Institutional Structure and Culture

In this section, I draw on interview data to sketch the salient features of the administrative structure, policies, and cultures of the university and the college of engineering to familiarize the reader with the environment in which Ronen developed his program. This characterization provides an emic view of the institution at the university, college, and departmental levels. Rather than attempt a comprehensive rendering, I focus on how structure and culture affected faculty members’ motives and actions, especially in relation to curriculum innovation. This section reveals that informants viewed curriculum innovation on a spectrum from adjusting current offerings to introducing experimental courses to founding new programs. I use curriculum innovation broadly to encompass curriculum entrepreneurship. I consider curriculum entrepreneurship to describe a more specific pattern of action that I detail in subsequent sections that explore SEE’s development.

University culture, policies, and practices. Land-grant institutional values have underpinned this university since its founding in the mid-1800s. With a core focus on
agricultural sciences and engineering, over time the university’s leadership expanded its offerings to include a panoply of programs housed in a dozen colleges. A research focus developed from the university’s early interest in applied science and eventually expanded to include nearly a dozen interdisciplinary research centers. At the time of my study, the university ranked in the nation’s top 25 higher education institutions for research expenditures, with engineering accounting for the largest share among all the colleges. The university enrolled a hefty number of graduate students who helped sustain the research mission of the institution. At the same time, it educated more than eight times that number of undergraduates who subsequently joined a loyal alumni network. The university aspired to be student-centered, but its academic departments struggled to fully enact this value. The prevailing structure and culture treated cutting-edge research and undergraduate education as competing institutional logics (Gumport, 2000). Reward structures tilted faculty members’ focus towards research, even as senior administrators lauded faculty members who managed to deeply engage undergraduates despite weak structural support for this work.

**Strategic priorities.** The content of the university’s strategic plan, and in turn the strategic plans of the colleges, palpably influenced decisions and activities across the institution. “Anything you do now,” one support staff informant said, is evaluated by the question, “Does it meet the strategic plan?” Study informants found the plan’s focus on global engagement, interdisciplinarity, diversity, and ethics particularly salient. Chief among these, the strategic priority of global engagement motivated faculty and administrators. Even with the economic downturn in the late 2000s, the vice provost
spearheading global initiatives believed that the university leadership would not back off
the strategic focus on global education, which had already inculcated the strategic
direction of colleges across the institution. The academic leadership council, made up of
all the university’s deans, spearheaded an initiative to further this global focus and
signaled strongly to faculty the value of such engagement. With regard to engineering
specifically, the vice provost said, “Even for the uninitiated, you can’t refer to exciting,
cutting-edge engineering without engaging globally: ‘What are these people doing?’
‘They’re doing science on a global scale.’” Curriculum innovations consonant with the
university’s strategic priorities gained much needed leverage to build collaborative
relationships in the absence of structural or cultural support.

**Financial practices.** At the university, students in the classroom did not equate to
dollars for a program. Evelyn, an associate dean for academic programs in the college of
engineering, explained the benefits and drawbacks of this practice: “So the positive is that
in times when you may see downturns in enrollments, for one reason or another, you’re
somewhat protected.” The drawback is “in times when you have more students than you
know what to do with, then it’s more difficult.” This practice of dissociating course
enrollments from funding made it difficult for colleges to fund popular courses,
initiatives, or programs. This challenge was amplified by an annual practice of reducing
budgets across the board by one to two percent. The central administration
euphemistically termed this “budget recycling” and used the funds it collected to invest in
select strategic initiatives. This practice had been in place for more than a dozen years
when I conducted my research. Maurice, another associate dean in engineering observed,
“We write a big check [to the university] every year, and that money’s got to come from somewhere. Frankly after more than a decade of recycling discretionary funds, those discretionary funds are pretty much gone.” Together, these financial practices and historical reductions in state funding for the university elevated the importance of donor support. University administrators followed a pattern of providing initial funding to initiatives and programs they believed corporate or alumni donors would eventually step forward to fund.

Another financial practice, also established in the mid-1990s, encouraged multidisciplinary research by splitting the credit for grants according to faculty members’ appointments. This practice inadvertently aided curriculum innovation by removing conflicts and jockeying around credit since each department funding faculty salaries received a cut of grant funding. The director of a multidisciplinary center said of this practice, “It’s very small but it takes away any need for competition” and “after 10, 15 years of doing this, there’s just a culture around here that promotes multidisciplinary research. And it extends into other areas [like undergraduate education].”

In sum, financial practices at the university typically worked against curriculum innovations, since popularity among students did not translate into increased funding. Likewise, administrators, even when supportive, had little discretionary funds available owing to years of budget recycling. On the other hand, innovative faculty members enjoyed an institutional environment amenable to cross-campus collaboration and outside funding.
**Faculty culture.** Congeniality or at least a veneer of it, characterized the faculty culture. The director of the business school’s entrepreneurship center, Steven, who regularly interacted with faculty members and administrators from across campus to encourage curriculum innovation, characterized the university’s culture as, “Here it’s, ‘Don’t make waves, keep everybody happy, don’t cause trouble, be congenial, don’t step on toes.’” He contrasted this with the culture at other institutions, where faculty operate in a “fight to the death, creative conflict kind of environment” and “don’t go along to get along.” While there were surely exceptions to this norm, the depiction appeared accurate. As the university, like many others, struggled through a deep economic recession in the mid-2000s, academic program closures, and other challenges, a strong central administration and weak faculty governance system muted the faculty voice. Steven noted that faculty at the university did not “tend to agitate” and were very much “at the whims of administrators.” As an illustration, he recounted an instance when a university committee comprised of a dozen top administrators and senior faculty imposed an academic program review process with deadlines and data demands that few programs could meet in short order. It then produced recommendations that required deep cuts to streamline academic offerings across the colleges, and the recommendations met little organized faculty resistance. Steven said the committee “laid waste to a number of programs,” yet few faculty members banded together to challenge the administration.

**Reward structure for faculty.** As it does in most research universities, the university’s faculty reward system heavily favored grant writing, research, and publication. None of the university’s dozen colleges appeared to incentivize the creation
of new classes or programs, and several deans explicitly admonished pre-tenure faculty members from starting curricular initiatives out of a concern that faculty members who spent time on such efforts would fail to achieve promotion and tenure. Once they achieved tenure, faculty members at the university had leverage over their pursuits. This likely mitigated against significant curriculum innovation by creating norms around faculty work; by the time they achieved tenure, faculty were already deeply invested in the research and publication activities by which they and others measured faculty careers. A tenured professor in the business school, Pierre, shared: “I’ve reached the stage where I really can’t afford to do anything else except my research, unfortunately. That’s the way I’m measured, and that’s what my identity has become.” The admonition against an early focus on curriculum innovation may have also resulted in fewer immersive curricular efforts as most faculty members at the post-tenure mark had passed a life stage amenable to engaging themselves and thus their students in field work and extended domestic or international study experiences. Several faculty informants with international experience echoed the sentiment that over the years, family obligations and diminished energy levels curbed their motivation to spend summers abroad with students.

**Support for curriculum innovation.** The heavy focus on research and publication translated to very little structural support for faculty members who started curricular initiatives or programs. A member of the teaching center observed that the university was “pretty traditional” and that “change comes slow here.” A member of a task force on student engagement commissioned by the vice president of undergraduate education said of curriculum innovation, “It’s all personal initiatives, somebody who decided that this is
the thing they were going to spend their time on and made it work…So it’s very catch-as-catch-can.” A tenured professor described the upside and downside to this lack of strong structural support:

It’s not even that it’s unfriendly. It’s just there’s no real established infrastructure to get [curriculum innovation] done…I would say the nice thing about the university is that they pretty much let you alone. So as a faculty member, if you want to do these crazy things and you find somebody else to do them with, there are really few roadblocks to doing that. But again, there’s little infrastructure to help you do it, so it’s just a challenge.

Other faculty members pointed out that the lack of systemic support put pressure on innovating faculty members to sustain their personal motivation and stamina. It also made ad hoc administrative support critical to any individual efforts to innovate around the curriculum. In sum, the lack of infrastructure for curriculum innovation left an opening for faculty members willing to forge their own way and build support from others.

*Influence of external recognition and funding.* Tight budgets precluded substantial university support for individual faculty efforts, whether research- or curriculum-focused. At the university, as at so many other institutions, the paradigm of academic capitalism (Slaughter & Rhoades, 2004) demanded that faculty members act (in the words of a director running a program similar to SEE at another institution) as though they “own a small business” with “responsibility for going out and getting funding” to support their work. Among the few external organizations that funded curriculum
innovation in engineering education, Innovation Central provided competitive grants to faculty members developing new curricular models to engage students in technology development for societal benefit. Beyond the funds that external organizations provided, faculty members earned external recognition that validated their efforts to the academic community. A grant officer at Innovation Central contended that for faculty members trying something new, especially when they didn’t have tenure, “getting support from external funders…is a way to mitigate that risk and help elevate the status of the initiative.” Further, “It’s not always about the money but it’s about the fact that it’s been vetted…and received some external stamp of approval.” It was important, she said, “to have some other entity give credence to the approach,” especially when faculty were “doing something that’s not mainstream.” The staff at Innovation Central acknowledged their organization’s role in encouraging innovation around the curriculum, since universities “tend to be pretty resistant to change” owing to strong academic traditions.

**College of engineering culture, policies, and practices.** At the time of the study, the college of engineering housed a dozen academic departments; employed 250 tenure line and 50 non-tenure line professors; educated 10,000 undergraduate and 1,500 graduate students; and expended more than $100 million annually in research. Professors in other colleges, for example, the business school, focused on what Steven termed “journal research” valued for print in a handful of highly ranked publications: “If it’s not there, it doesn’t count. It’s very focused. Going out and doing anything new here is not something that any junior faculty member would ever do or should every do. It would be foolish.” Such journals often privilege studies that advance theory over those with
practical implications. By contrast, the professors in engineering engaged more
frequently in applied or industry-focused research. The disciplinary focus on real-world
application seemed to support a more open stance to faculty-initiated curriculum
innovation, which typically involved making adjustments to existing courses or offering
new courses. Julian, the bioengineering faculty member, said,

The environment here seems to be pretty supportive of [curriculum innovation]. I
mean, you can’t do it too much at the expense of other things. You can’t just drop
everything and say, “I don’t care about NIH funding anymore.” That doesn’t pay
off too well. That could be a problem. But as long as those things [research and
funding] don’t suffer, we’re pretty open.

The college’s dean said that while the engineering faculty was “very research
intensive,” the college rewarded professors “taking new research ideas” and “putting
them into the curriculum,” or “taking some new ways of doing things and giving students
better experiences.” The dean credited educational trends as a source of encouragement
for curriculum innovation around issues like global engagement and ethics. Similarly, he
highlighted the importance of faculty: “The key is to have faculty members who are
committed to innovating the curriculum, and doing something different that they think is
valuable…We try to, basically, help facilitate what they want to do.” More than lip
service, the college dedicated resources to help faculty members assess and improve
courses, including experimental offerings. These resources included funding and
assistance from staff with expertise in curriculum development. All curriculum
innovations were evaluated through a model developed in the mid-1990s, which specified
the attributes the college wanted all undergraduates to possess. Among these, the college’s administrators sought at the time of the study to update the “globally aware” attribute to “globally engaged.” As with the rest of the university community, global engagement by students and faculty had grown in strategic importance.

**Departmental environment.** The academic department that housed SEE also housed the college-wide minor programs in entrepreneurship and leadership founded in the late 1990s and early 2000s. For the leadership minor, an advisory board comprised of senior administrators and faculty in the college assembled and tasked a committee to develop a minor that built professional skills and engaged undergraduates in creative inquiry. The entrepreneurship minor was spearheaded by a few enthusiastic faculty members who built on individual faculty members’ course offerings. The entrepreneurship minor’s director said of its founding:

> We said, “Let’s convert these courses into something that’s sustainable,” because you can put courses on the books but if they’re not part of a program or you can’t count them as tech electives or something; they’re just going to go nowhere. So it was really fortunate the college stepped up and said, “We’ll put money behind making this a real minor.”

Though the two minors enjoyed healthy student interest, their expansion was curtailed by the university’s practice of disconnecting student enrollment and budget allocations. The department head, Edwin, said, “From 2000 to today, there’s 50% higher enrollment in engineering. Well, what do you think our budgets are? Fifty percent higher? They’re like 20% lower than they were in 2000.” Edwin illustrated difficulties generated for the
minors (and for SEE) owing to these practices: “I just had four students in my office today asking why a certain class is not being offered in the spring. And I said, ‘Well, I’m not given any money to do that.’ … I think the students don’t understand this disconnect between [funding and] popular classes.” Likewise, he said that while there was sufficient interest to offer two sections of an entrepreneurship course, he had no funds available to support it. Maintenance of the minors depended on Edwin approaching the dean every year, along with modest endowments that, for example, covered one of the directors’ positions. Expanding the minors in any way, therefore, depended heavily upon the directors’ ability to attract outside dollars. The dynamics between these minors and SEE are described in the following sections.

In conclusion, the institution’s culture, policies, and practices at the university, college, and departmental levels influenced faculty-initiated curriculum innovation. While a number of institutional factors discouraged faculty from pursuing curriculum innovation, the university also contained enabling factors that faculty members like Ronen exploited while developing the SEE program.

In the remainder of this chapter, I discuss how boundaries, competition, and customers pertained to Ronen’s curricular effort. As described in the literature (Aldrich and Ruef, 2009; Davidsson, 2008), these three elements help define an entrepreneurial organization or organization-like entity. Boundaries demarcate such an entity, providing it with a distinctive identity and presence in its environment. The establishment and maintenance of boundaries are a fundamental organizational function (Aldrich and Ruef, 2009). In the following discussion, I explore how the perception, formalization, and
legitimacy of boundaries affected SEE as it developed in a startup-like fashion within the institutional environment described above.

**Contested Program Boundaries**

In the resource-constrained environment of the university, the leaders of existing programs (akin to market incumbents) and their allies contested Ronen’s individual effort to establish a new program (akin to a startup). Opposition came primarily from departmental colleagues, who vied for limited discretionary funding and distinctive branding around institutional strategic priorities. Ronen said that needlessly and “fundamentally, departments mean competition.” Given limited resources, SEE faced competition for scarce, coveted resources like funding and recognition. As a first line of attack, incumbent program leaders in Ronen’s department opposed the very existence of Ronen’s curricular effort. They wanted to prevent SEE from joining their ranks as well-established programs with stature that made it easier to attract resources from the department, college, university, and outside funders or donors. Ronen said:

> You'll always have the naysayers [for curriculum innovation], no matter where you are. And I can imagine myself in a similar boat if somebody else was trying to do something…[similar while] I’m trying to grow and establish this program. If I see something as a direct threat, I’m also going to be on the defensive.

**Perception of boundaries.** From Ronen’s earliest curricular efforts in Stage I, he sought to define “what he was about.” He underwent this process through collaborations with others interested in service-learning. Although a related interest, he decided early on that service-learning was “absolutely unacceptable terminology” to describe his efforts,
because he was “all about market-centric approaches” to tackling socioeconomically rooted issues in the developing world. While developing SEE, Ronen prioritized community outcomes. Student outcomes, he reasoned, developed while pursuing the program’s focal goal of creating lasting change in communities. He contrasted his social entrepreneurial approach with service-learning quite intentionally. Service-learning, in his view, favored student outcomes at the expense of real-word impact. Some of the service-learning oriented faculty members whom I interviewed felt it was improper to engage directly in solution seeking. Rather, when travelling to a developing country they designed observation-based and service-oriented learning experiences for the students. Other service-oriented faculty members adopted an approach of delivering short-term solutions, for instance, building a well. This contrasted, for example, with developing a business to fund the ongoing maintenance of the well. Though Ronen acknowledged service-learning approaches as “totally valid,” he wanted to differentiate his curricular effort. It took time for others to appreciate the “economic sustainability piece,” he said. In addition to the ongoing challenge of distinguishing from service-learning, Ronen found that others, especially administrators and faculty outside his home department, conflated his efforts with those of the leadership or entrepreneurship minors:

Do outsiders understand the difference between the programs? No, they don’t. It’s still put in the same bucket of “doing something in Africa” and “developing soft skills.” So I think that is still an open challenge. It’s changing but very gradually.

2 “Soft skills” is a colloquial term often used in engineering education to refer to professional skills like communication and team work.
In addition to these ways that the boundaries of Ronen’s curricular effort became skewed perceptually, his conversations with faculty colleagues interested in similar issues sometimes led to an obscuring of differences. In general, Ronen said, “people have the habit of…meet[ing] with you once and then they’ll tell everybody, ‘Oh, we are working on this stuff.’” With the possibility of (but no substantial discussion or agreement reached on) collaboration, Ronen suggested that such colleagues perceptually co-opted his efforts for their own gain. For example, during my study period, the entrepreneurship minor included stories about SEE on its webpage—so much so that Ronen said, “more than half their stories on that website was stuff that I was doing” and “that confus[ed] people.” In another instance, Ronen said that Martin, a program director from a school outside of engineering, told others about “all these cool projects [that SEE worked on in one country] but then he’d recruit people into his program [that traveled to a different country]. But all he was doing was talking to us.” In response to these various forms of perceptual co-opting, Ronen said that he learned to be “very specific” about his relationship with others so that they could not make “one-and-the-same, we’re in everything together statements—no. Because then that means people are going to have a perception that places my program with their program, and that’s unacceptable to me.”

In sum, two factors contributed to blurred boundaries of Ronen’s program. The first was a lack of appreciation of what made the SEE effort distinct. The core idea of the new field of social entrepreneurship—using business to maximize social benefit—easily got lost on a wider audience better acquainted with mature, adjacent fields like international development and service-learning. The second factor was the attempt by
other faculty members to co-opt SEE’s work by lumping it with their own in conversations and marketing efforts. This obfuscation hurt Ronen’s student recruitment and branding efforts. Even as Ronen overcame or contained other challenges, he wrestled over the years with how slowly perceptions changed within the university about SEE’s purpose and distinctiveness.

**Formalization of boundaries.** Ronen’s opponents within the department fought to prevent SEE from becoming a formalized program. Midway through Stage III, curricular model coalescence, Ronen received permission from the department head to call SEE a program. He published a website that included the word “program” and faced an immediate backlash that forced him to remove it. Until Stage V, during which the administration formalized the program, Ronen managed his language carefully, only referring to SEE as an initiative. Despite his political sensitivity, for example, in interviews with outside supporters during which he emphasized that SEE was an initiative, writers occasionally referred to it as a program. Keen to police the language used to refer to SEE, some faculty members went to the department head on these occasions. Edwin recalled one instance in which they came to him “highly upset” and he replied, “Just calm down a little bit. You know Ronen’s not the one saying we have a program.” In addition to approaching the department head, Ronen reported that a small group of concerned faculty wrote to one of the college’s associate deans complaining each time they saw “program” used to describe SEE: “They’d send an email saying, ‘Well, see, they’re calling it a program again,’” even though hapless writers were to blame.
Owing to its early successes attracting student prize money and outside grants, SEE drew opposition from departmental colleagues who felt that it captured resources at a level outsized for its short history and informal status. This encouraged competition, which I discuss below. Connected to their competitive stance, they expected that SEE would undergo a formal process of academic review and codification prior to being deemed a program. This was largely because many of them, e.g., directors of the minors or their predecessors, underwent this process to establish their programs. The leadership minor’s director, James, likened Ronen to an entrepreneur who “plays fast and loose with rules.” By contrast, he said, “I feel that I am at a university, and I at least have to go through the minimum motions to attach academic and scholarly rigor to what I do.”

By having a non-traditional structure that was neither a minor nor a certificate, SEE bypassed the approval process required for these programs. Furthermore, it was not clear just what constituted a program in the college. Other programs, such as the college’s offerings for women, consisted of a series of non-credit-bearing activities but bore the title of a “program.” Other programs, like those for study abroad, granted course credit. Considering SEE similar to such programs, the administration (including the department head, associate deans, and dean) did not require SEE to undergo a peer feedback and approval process. Edwin said that to declare something a program, the dean wanted to see “there’s some initiatives around that. There’s a person, a director, and that kind of stuff.” Evelyn said that in contrast to the minors and certificates, Ronen had an advantage when he was first working with SEE. He didn’t have to be bothered with curricular details. They were doing really great work; they were impacting
communities; students were getting an excellent education. All of those things were happening but without formal acknowledgement, certification, review of what the curriculum was.

Despite the efforts of its opponents, SEE became formalized once the dean agreed to make it a program and sent an email sharing this decision.

**Legitimacy.** As just discussed, administrators did not expect or require faculty review for SEE to become a program; rather the dean’s approval sufficed. Evelyn, the associate dean, said, “Almost every program starts with something smaller and then eventually ends up the way it is. There is a transition.” She described this transition as involving “a painful process” during which a program director engaged in a back-and-forth with the curriculum committee to provide “more information, greater clarity, more specifics.” She expected the vetting process to commence a year or so after SEE became a formalized program. This would be an important step because it endorsed a curricular effort as “a legitimate level of academic activity.” Near the conclusion of my study period, Ronen submitted the paperwork for all of the program’s experimental course offerings to be scrutinized in a committee approval process, with the goal of making the courses permanent. However, SEE had not yet completed the sort of academic review process valued by his faculty peers. Therefore, during the study period, the program’s legitimacy remained in question, especially among oppositional faculty members.

Underscoring this sentiment, the leadership minor’s director, James, said:
I don’t know what SEE is really about. There is not a curriculum so to speak [sic]. It is not a minor. It just became a program this year and it was an initiative before, so it’s hard to say what it is.

Another two facets of the challenges to legitimacy that Ronen’s opponents put forward pertained, first, to the early developmental stage of social entrepreneurship as an academic field and, second, to the fact that Ronen did not have a doctorate. Touching on these briefly, Pierre, the business school faculty member supportive of Ronen’s work, said new ideas like social entrepreneurship have “a sting of illegitimacy” because “they are hybrid mongrels. They are neither fish nor fowl. And therefore they don’t have pedigree. So people tend to say, ‘It’s illegitimate.’ And therefore, it doesn’t have a place.” In line with this perspective, James searched the scholarly literature on social entrepreneurship and concluded from his reading that the domain was wholly “undefined.” He chaffed at Ronen asserting what the field meant for SEE and said, “We are in a university, and we are supposed to be scholarly. And we are supposed to keep asking questions.” He attacked the program’s legitimacy on scholarly grounds and suggested that Ronen lacked credentials and advocated for rather than engaged in a scholarly inquiry on the meaning of social entrepreneurship: “Maybe that’s why they call a PhD a doctor of philosophy, because it is about asking questions…I think Ronen feels the domain is very firmly defined, or it is defined for him.” For his part, Ronen said that there was no “uniform definition” for social entrepreneurship. “But guess what? There’s no uniform definition for [leadership or entrepreneurship.] Why does there have to be a definition for any of these?”
In sum, opponents of the program questioned its legitimacy by complaining that Ronen did not welcome attacks on social entrepreneurship as an academic domain and therefore lacked the scholarly mindset expected of faculty members in the department. This cunning if somewhat convoluted approach stemmed from competition and what several informants from various backgrounds independently noted as “professional jealousy.” Edwin said, “It doesn’t matter what you’re talking about…that [professional jealousy] exists.” He elaborated that this resentment stemmed largely from the ability of individual faculty members (like Ronen) to effectively promote themselves and their programs. This mattered because “if we don’t promote ourselves, we don’t get funding. We don’t get students.” Several departmental colleagues reluctantly recognized Ronen’s effectiveness at advancing SEE in word and deed. Ronen said, “We’ve made a lot of progress and gotten a lot of recognition, a lot of money, a lot of research papers, more than most of the other entities like this. And there’s an element of professional jealousy there, honestly.”

**Boundaries and competition.** With formalization, SEE became a startup-like entity with boundaries that its director, participants, and supporters defended against misperception and detraction. Ronen said, “That’s where having an official program, whatever that means really, silences that set of people” around the question of whether the curriculum should even exist. The appeased “set of people” included departmental faculty members with tangential or non-overlapping turf interests, along with an associate dean who monitored the process by which academic initiatives became programs. With the former, “it’s kind of moved from constantly managing to more of a ‘let’s just coexist
or let it alone kind of a thing.’” With the latter, “it’s like, alright, now we’re past that set of issues, so we’re on to the next set of issues” like making permanent the program’s experimental course listings. Opposition to the program’s existence, or boundedness, gave way more squarely to competition. Ronen said:

   It’s not as bad as earlier. But in some ways, it is worse. It’s a mixed bag. In some ways it is worse because initially they could not [jeopardize the work]. At best they were pissed about it but there wasn’t much they could do about it, because it wasn’t a formal thing. And now that it is a formal thing, it becomes this “cat and mouse” game.

No longer informal and at the fringes, the program moved closer to the academic mainstream where programs, as organization-like entities, competed for resources ranging from departmental funds to student enrollments to outside recognition and so forth. In the next section, I discuss a second defining element of entrepreneurial organizations: competition.

**Competition from Inside and Outside of the Department**

   Competition flourished within SEE’s home department in the college of engineering, and extended to other pockets of the university. Considering first the competitive landscape within SEE’s department, Ronen said, “Within the department there’s always competition, and there’s always ‘who’s doing more stuff’ kind of issues. Just competition. Competition for scarce resources. And it’s not just about resources. It’s also about social capital, and trust, and egos.” The complex dynamics that Ronen experienced within SEE’s department stemmed in part from how his program started as a
bottom-up effort that encroached upon incumbent programs that developed in a more top-down manner.

**Bottom-up versus top-down program development.** One of SEE’s main competitors within the department was a leadership minor, which originated in the late-1990s when many engineering colleges across the U.S. were establishing similar programs. The leadership minor began as a small initiative encouraged by administrators interested in developing learning experiences that would build engineering students’ skills in creativity, leadership, and the like. After a promising start, the dean of the college created a taskforce to determine whether it should be expanded. In the words of Jonathan, an assistant dean: with “intentional leadership” and a “clear interest by the college’s administration” the effort became a minor serving the entire college. An endowment partially covered the cost of running the minor, along with soft money (i.e., non-tuition dollars) that the department head secured annually from the college’s discretionary funds. In the early 2000s, the college’s development officers detected notable interest in entrepreneurship among potential alumni donors. Concurrently, several entrepreneurs on a board serving the college wanted to see entrepreneurship education expanded. These factors, along with a few enthusiastic professors who already offered entrepreneurship courses, contributed to the dean’s decision to establish an entrepreneurship minor. The minor’s director, Anne, said, “You can put courses on the books but if they’re not part of a program or you can’t count them as electives they’re just going to go nowhere.” Like the leadership minor, an endowment covered part of its
operating expenses, along with corporate sponsorships and discretionary funds controlled by the dean.

Hence, both of the programs with which SEE competed most directly in the department had 10 to 15 years of history at the time of my study and had developed with early-stage support from the administration. Jonathan said, “If you look at the minors…there was clearly an interest by the college administration in making those happen. SEE was, I think, much more of a grassroots [effort].” SEE also contrasted with the minors in that it won administrative support only after building support in a bottom-up manner. Ronen said, “My strategy has always been more of a bottom-up strategy. Because I could only go up.” I discuss this process in greater detail in Chapter 6.

**Competitive versus complementary program positioning.** The culture of academic capitalism that pervaded the university encouraged turf wars as individual faculty members strove to create and defend distinctive branding around their research and teaching agendas. Maurice, an engineering associate dean, said, “The university’s extremely territorial. It’s your project, your research. Folks walking up to you, trying to take your credit, you know, that’s a big deal around here.” The directors of the minors avoided a turf war by positioning their programs as complementary to one another. James offered an analogy to explain how he related the subjects taught in the two minors. In his words, entrepreneurship entails “marshalling resources to make an idea happen,” e.g., to build a boat to cross the ocean, while leadership “starts a bit later” on an enterprise’s timeline when “you become a captain…and take that ship out across the sea.” This complementary positioning encouraged the directors’ cooperation in two ways. First, it
helped them work together to jointly offer a course required by both minors, through an arrangement favored by administrators concerned with operating two minors with limited resources. Second, it led to an agreement between the directors to use the same messaging to counsel students deciding between the minors. In James’ words, the basic script said,

Listen, if you are interested in getting out of school and starting your own business…then the entrepreneurship minor is for you. If you are interested in…working for a large enterprise…and moving quickly up the leadership ladder, then the leadership program is for you.

By contrast, the minor directors positioned Ronen’s effort as competitive with their own from the outset. Over time, the entrepreneurship minor’s director, Anne, developed a complementary view of SEE, while the leadership minor’s director, James, held a competitive view throughout the study period. Ronen’s said the directors interpreted his program as “encroaching.” He maintained that any encroachment by his program was not so much “into other people’s space” as “into what other people think should be their space.” Absent a program like SEE, which focused squarely on creating implementable solutions to socially rooted issues in developing countries, it was easy for the minors’ directors to make territorial claims to, first, global engagement in the developing world; second, practice-based experience; and third, social entrepreneurship.

**Competition for territory.** From the outset of Ronen’s efforts and through the period of my study, the director of the leadership minor, James, maintained a competitive
stance. Territorial issues factored heavily into his perspective. In particular, he saw SEE’s focus as duplicative:

I wonder if this is redundant with what I am doing. I never attached the word “social entrepreneurship” to any of the activities I had been engaged in even though I had students involved in…socially relevant projects with partners in the developing world…since way before the SEE program ever existed.

For his part, Ronen saw the leadership program’s extension into developing country communities as superfluous to the minor’s central purpose. The program originally engaged students in experiences in the US and other developed markets in Europe. He said of the leadership minor,

So, you do all these things in [developing countries], you know, global engagement, and that’s so cool, but how does this tie with leadership and how does this tie back to producing the next set of CEOs? Sure, there are some connections, but within certain limits.

The strong mutual interest in engaging students in projects and ventures in the developing world, combined with other issues discussed in this section, deadlocked James and Ronen in a competitive relationship that was palpable to administrators, faculty colleagues, and some students enrolled in both programs. The option of creating a complementary relationship by sequencing the programs was not an option because both directors wanted to engage upper-division students. For students in the leadership minor, Ronen said, “by the time they’re done, they’ve graduated.”
In the early years of Ronen’s efforts, he worried that the entrepreneurship minor’s director, Anne, viewed his work as encroaching on the minor’s turf, owing to its interest in entrepreneurship and global engagement. In Ronen’s view SEE did not, in fact, impinge on the territory most strongly emphasized in the entrepreneurship minor, namely high-tech entrepreneurship serving developed markets. Finer gradations in defining territory helped to more accurately delineate the respective turf of the minor and his program. Of the entrepreneurship minor, Ronen said,

They want to be able to say that their program caters to everybody: the US, and Africa, and Latin America. Are they actually doing it? They are not. But they want to be able to say that. And when something else comes around that’s completely focused on that, then that becomes a territory war. But that was never their territory actually to begin with…Do you see any ventures? Not really. Sure, you can have three exercises [in a course], but three exercises is not really doing it.

Early in his relationship with the entrepreneurship minor’s director, Ronen experienced frustration with what he perceived as potential game playing. Not long before SEE’s formalization, Anne convened bi-weekly meetings among faculty colleagues to discuss how to create an entrepreneurship-focused collaboration with counterparts in another college. SEE already worked with faculty members in that college, and Ronen approached these meetings warily because within the department, “People will not talk, and when they talk, it’s all about trying to pry information, and trying to say, ‘How are we competing?’” In response to Anne’s suggestion to establish a collaboration between
engineering and this other college, Ronen said, “Well, listen, we’ve been doing that for years. And we work on all kinds of projects with [that college].”

Ronen’s wariness grew when Anne developed a course for students in the lower division of the engineering school that she described in language synonymous with how Ronen described SEE. Ronen’s uncertainty about Anne’s intentions intensified when the latter initiated conversations with the university’s provost about developing a university-wide minor in entrepreneurship with multiple tracks. Ronen feared that Anne’s interest in teaching a new social entrepreneurial course and working with the same collaborators in other colleges indicated an intention to “claim” social entrepreneurship. In his thoughts, Ronen questioned the director: “I mean, what are you trying to do here?” He wondered about her intentions because, “You just never know, because, I mean, [potentially] this is all just power play.”

Given the stature that both minors’ directors had developed over time, Ronen said, “We don’t have the kind of power that they do. And that’s a fact. There’s no question about it.” Consequently, he took some comfort in the reputation and support he had built in a relatively short time, and the fact that the promotion and tenure system did not encourage the level of student engagement that a program like his demanded: “It all comes down to…at the end of the day, how many faculty are really going to be working with so many kids to do all these things?”

Over time, Anne’s intentions crystallized in a manner that created support rather than competition for SEE. The course for lower-division students became an opportunity for students to become familiar with the subjects covered in more depth in the SEE
program. Furthermore, Ronen said that Anne wanted the university-wide minor (which she became the director of) to highlight how different varieties of entrepreneurship “are complementary to each other.” SEE’s courses became the social entrepreneurship track of the university-wide minor, and this moment represented “a really interesting kind of turning point where a concern [i.e., a possible turf war] actually became a positive thing.”

**Competition and the theory-to-practice debate.** Within the department, where the directors of the competing programs positioned themselves in the theory-to-practice debate had an impact on student experience and subsequent enrollments. The programs competed for students, because enrollments helped ensure their continued operation. While all three programs heavily engaged students in experiential learning, Ronen positioned his program most strongly on the practice side of the theory-to-practice debate. In the words of an alumna who participated in the leadership minor, James taught what he knew and experienced: “With what he does, he experiences for himself first. He kind of practices it, masters it. And then he believes in teaching that to the students.” For James, she said, “it has to be a safe environment for the students.” By contrast, Ronen often told his students how much he loved working with the “chaos” that accompanied efforts to bring together university students and developing country community members to solve real-world problems. When pushed by a faculty colleague on how much textbook knowledge the students in his program learned, Ronen summarized his reply for me. He agreed that students needed to have pertinent background knowledge. Yet, he said,

The world has changed, and people are looking for just-in-time information to solve a problem. I mean, yeah, you have all this scholarship, but
practically…there’s this concept of “optimal ignorance,” and it’s like, what is it that you do not need to know to get something done?

As a consequence of their relative positions on the theory-to-practice continuum, the minors felt “more structured” and at the same time more “stagnant” than SEE, in the words of Casey. She elaborated that in the minor programs “you do a little bit of work in a lot of areas... Like, you take the class this semester, you work on a project, and then it ends. And then there’s just no follow-through afterwards.” She contrasted this with SEE, which emphasized “the continuation of the work.” In SEE courses, “you’re actually doing something, seeing the application of it.” Pete, an alumnus who participated in both the leadership minor and SEE said that for the former, “the projects tend to be smaller in scope, not as deliverable, and give you that global mindset, but it’s more about how you lead the projects.” The latter, by contrast, focused on “designing for a local context, understanding a local context. It’s much more focused on larger problems and larger projects.” Though students developed leadership skills while participating in SEE, he said, it placed the focus on creating sustainable solutions to problems faced in specific developing country communities.

The success that SEE achieved with attracting students came partly from a competitive advantage that Ronen developed after evaluating the minor’s approach to student engagement. The competitive pressure James began to experience while recruiting students came, he believed, from lessons Ronen had learned from him. Another alumnus of both programs, Marco, shared his understanding of how James felt about Ronen. Speaking extemporaneously from his understanding of James’ perspective: “It’s
like, ‘You are taking my experiences and developing a program that’s getting a lot more publicity and a lot more money. More than half of your students are covered [for international travel] through some budget or the other.’” This competitive dynamic was analogous to a startup exploiting the relative weaknesses of an incumbent organization in a market. SEE tapped into growing student desire to contribute directly to lasting solutions to socioeconomically rooted problems, as opposed to completing projects of more limited scope.

**Competition for financial resources.** SEE and the two minors competed for access to financial resources from the university, donors, and granting agencies. In terms of securing funds from the college of engineering, Ronen said that competition among the elective programs had no clear benefit: “The stakes here are access to more finances, but those finances aren’t defined, so it’s not that we are like, ‘Whoever does better will get $10,000 from the dean.’ No.” Just as the financial benefit of competing for university funds remained undefined, Ronen said of potential donor funds:

> Money is a perception, right? That *someday*, we will [for example] compete with entrepreneurship on having an endowed director position. But are we actually competing for that? No, we are not. Because the donors are going to putting their money into what they’re most passionate about.

With these statements, Ronen conveyed his sense that competition for funding was largely indirect. He continued saying, “At the same time, if there was no SEE, they are more likely to put money into [the other programs].” In terms of grants, Ronen was constrained from applying for awards from certain agencies without a doctorate-holding
colleague to serve as principal investigator. That said, an officer of Innovation Central, an advocate for engineering curriculum innovation, noted that it supported “a large number” of faculty members who did not hold a doctorate or tenure-line position. Naming well-regarded faculty members from various institutions, including Ronen, she said, “none of these folks have PhDs but they are working within the university to create new programs about things that they’re passionate about, and have experience they want to share with their students.”

In sum, the programs often experienced competition for funding as an ambiguous or indirect process, i.e., one program gaining or losing funds did not necessarily result in lost or gained funds for the other programs. Nonetheless, a general sense pervaded that more elective programs translated into greater challenges for securing funds. Consequently, financial resources remained an ongoing concern for the elective programs occupying the same competitive landscape within the department.

**Competition outside the department.** Ronen believed the competitive landscape outside the department was different than that within it: “As soon as I go outside engineering, I’m not competing anymore.” He explained that faculty members working in other departments “realize they’re not really competing [with me] either.” He attributed this to the absence of the “power relations within departments that don’t exist as soon as you go outside.” It also came from a relative freedom from scrutiny: “I don’t have to prove who I am once I go outside engineering….They say, ‘Oh, you’re an engineer,’ and then we move on.” In comparison, within engineering, “you get into, ‘Oh, but what do you study?’ ‘Do study this or that?’ ‘You don’t have a PhD, so you can’t do research’
kind of issues.” These statements indicated the relative ease Ronen experienced when collaborating with faculty members outside of his home department.

The exception to this dynamic stemmed from the university’s strategic goal of increasing students’ global engagement. Early in my study period, Ronen commented on this competition: “Sometimes in the global arena, people doing international stuff, you are trying to recruit the same set of students across colleges. Then there’s a little bit. But then you realize it’s such a big university that there is no competition.” Prior to my study period, the global programs office highlighted SEE in a campaign to raise the stature of this priority among the faculty. The vice provost selected SEE for the video feature because it helped other “faculty to know that this is actually doable.” As more faculty grew to appreciate this strategic priority, particularly its funding and recognition potential, Ronen experienced increasing competition. More colleges across the university implemented their own elective global programs, and this, in Ronen’s words, put pressure on colleges to “try to fill them up with students so they can operate those programs and not run a loss.” In an anecdote describing the increased competition, Ronen said a faculty advisor for a non-engineering student refused to sign off on her involvement in SEE and steered her instead towards a program offered by the student’s assigned college.

Just as the two minors in the department sought a complementary relationship with one another, Ronen attempted to reduce competition with other globally oriented programs through positioning. The most salient competition from a program outside of Ronen’s department engaged lower-division students in service-learning in a developing country context. Ronen said he preferred that a portion of his students come to SEE after
participating in such a program. It created a pipeline for students to gain experience that could help prepare them to “take our work to the next level.” He argued that this positioning created a “situation where we’re not competing anymore.” The programs coordinated to some degree through online materials and student referrals. At the same time, the outside program competed with SEE when it recruited engineering students to work on the technical aspects of their service-learning projects. Hence, these programs engaged in what those in business term “coopetition.” Ronen described this arrangement when he said, “Yes, that’s a very healthy thing. Most companies compete and collaborate at the same time.”

Having explored how SEE possessed the organizational characteristics of boundaries and competition, I next discuss how it attracted the engineering dean’s support in a role equivalent to that of a customer.

**Administrator as Customer Equivalent**

Mid-level administrators within the college of engineering appreciated the balance of tact and passion that Ronen used while developing the program, and likewise valued how well the program aligned with the college’s strategic goals. Along with the recognition that SEE earned from sources internal and external to the university, the influence of these administrators informed the dean’s decision to support the program. In concise terms, the dean served in a role akin to a singular, high-value customer, who first vetted the program and then agreed to a non-binding, long-term contract. So long as the program continued to generate the value that the administration expected, the dean continued to support the director’s salary and a modest operating budget.
Early administrator support. The earliest administrator to support Ronen’s curricular effort was Vernon, the director of the consulting unit where Ronen worked on consulting projects for government and corporate clients. A few years into his employment, Ronen approached Vernon with his interest in volunteering and traveling with a student group. Ronen said of Vernon, “Initially, he was like, ‘Yeah, this is good, but you still have to keep getting [consulting] projects and bringing in money.’ And I said, ‘Ok, I’ll keep doing it.’” Following his experience working with the student group, Ronen increasingly dedicated his time to working with students. Eventually, Ronen stopped consulting, though his official position remained in the consulting unit for several more years. As he explained: “So it wasn’t like going from 0 to 1. It was a very gradual shift from zero to a hundred percent.” Ronen acknowledged that if Vernon refused his requests to shift the focus of his work, “that would have been a serious problem, absolutely.” In Ronen’s words, the director continued to support him, because “I was a lost cause. But he really liked what I was doing, and so he just let me do it. And he figured that if he doesn’t let me do it…I’m probably going to leave.” Vernon, who had already served the university for more than two decades at the time, said of his motivation,

I really never concerned myself with, “What does it mean for me or what does it mean for the [consulting unit]?” It was, “Is it the right thing to do? Is it in the best interest of the university, and will it help him [Ronen] grow?” And, that was the reward. You know, there was no monetary reward.

Therefore, the first administrator to support Ronen’s curricular effort acted as a
sponsor who appreciated how the initiative served the college’s (and the wider university’s) strategic goal of strengthening student engagement. Vernon also valued the opportunity to support someone he viewed as a mentee: “As long as it made sense, he had my support.” Moreover, he provided both tangible and intangible encouragement to Ronen and said, “This is what you can do, here are some of the constraints, here’s the money that’s available to you.” As the director of an income-generating unit, Vernon had “some flexibility once our income requirements were met.” From the excess funds his unit earned, he made a small amount of funding available to Ronen to help him travel to social entrepreneurship and engineering education conferences and the like.

**Value delivered to the dean.** With the ad hoc support that the consulting unit director provided Ronen, the SEE program grew notably and attracted recognition from more administrators when, for example, it won a national student competition. Administrators found captivating the story of one student who spoke with passion about the program in media coverage and in-person presentations. They appreciated too that the student asked how he could donate all of the prize money to the program rather than keep it for himself. Persuaded by anecdotes like these and their positive interactions with Ronen, supportive administrators spoke favorably about the program with colleagues. Their advocacy led to the program’s feature in both internally and externally focused university campaigns. With a strong preliminary record of success engaging students in globally minded, practiced-based learning, Ronen developed SEE as far as he could without official support from the college’s leadership and an academic department to
house the program. Maurice, an associate dean, said, “In the hierarchy of what gets people’s attention in the dean’s office, things that impact students are at the very top.”

The question always emerged, however, whether the dean could and would commit the necessary resources for efforts that enhanced student learning. In SEE’s case, the dean said,

We got to a point where we had to make a decision: Are we really going to run with this or not run with it? And we made the decision: Yes, we think it’s a very valuable experience for our students. It’s a direction that we want to go in the future.

The dean explained further that the program delivered value through Ronen, whom he described as a “very committed,” “very successful,” and “very passionate” individual who headed a curriculum that aligned well with the college’s strategic plan. The dean said, “Our college has a very strong strategic planning history,” and while working to implement a plan,

sometimes you can have things that you really want to get done, but nobody’s passionate about them, and then it’s pretty hard to get ’em done. Or you have people that are really passionate about something, but you say, “Well, that’s not really going to fit within what we need to be doing.”

The dean appreciated that “there was a good meshing of our overall strategic goals” with a curricular effort that developed “from the bottom-up.” He felt that SEE was “sufficiently strategic that it should be supported and it should be encouraged.”

The dean’s assessment that the program “fits well within our ideas [of how] we
want to educate students” was based on the fact that SEE helped the college meet its strategic goal of increasing students’ global engagement. In Ronen’s words, the college was wrestling with how to engage “the vast majority” of students rather than “the select few” in globally oriented experiences. SEE’s curricular model fostered global perspective among students through a combination of travel and non-travel-based experiences. This curricular model aligned with the college’s interests because, as Robert, the director of development, said, it wasn’t about whether the college could get “600 students on a plane.” Rather, “you can have 600 kids work on a project, where you send ten of ‘em [abroad to do the necessary fieldwork].”

Ronen’s work with SEE to implement this model helped secure the dean’s support. In the short term, Ronen had already begun to engage sizable numbers of students in non-travel-based global experiences. Within the college, Ronen worked with Julian to engage the two-thirds of bioengineering lab students who did not elect to travel with SEE. Specifically, their spring lab work took on greater realism and meaning knowing that a third of the students planned to travel in the summer to field test the medical devices that all of the lab students had developed together. In addition, Ronen let the students know that after several summers iterating the designs, he hoped to find a company or organization that would manufacture the best among the students’ open-source designs and use them to improve the lives of individuals in developing country communities.

**Influence of the department head.** Evelyn, an associate dean of the college noted the importance of administrator backing for faculty members pursuing curriculum
innovations, saying, “close communication and support of the department head—*that* helps to facilitate it,” because, among other things, the department head can “communicate it to the dean.” In this case, the head of the department that later became SEE’s academic home was an early advocate of Ronen’s curricular effort. The collaborative relationship that Ronen formed with Louis, a long-time faculty member in the department, helped acquaint the department head, Edwin, with SEE. As part of the collaboration, the department listed SEE’s experimental course offerings, even while Ronen’s salary continued to be supported by Vernon.

As the program took shape, Edwin became increasingly invested in the program’s growth and sustainability. He said that while the department operated “in a constricted [budgetary] environment, you still try to do good things [i.e., programs] with high visibility.” He reasoned with the dean that “for one measly little position you get much more bang and visibility.” In addition to speaking directly with the dean about the program, Edwin arranged for Ronen to speak to the college’s academic council, which included all of the department heads. In preparing for this presentation, Ronen crafted his message “very, very strategically” with input from a handful of advisors, because the dean valued the department heads’ opinions. Ronen wanted the department heads to say to the dean, essentially, “Hey, this is something that cuts across departments, so we want to support it.” Attendees responded positively to the presentation, and one of them told Ronen afterwards, “I’ve never seen a single person clap, ever, in this academic council meeting.” Thus, Edwin’s backing proved instrumental in building support for the program and its formalization by the dean.
Influen
ces of budgetary constraints. The dean made the decision to formalize SEE and move it to an academic department within an environment of budgetary constraints. Maurice, the associate dean, said, “These days with tight budgets you have to decide what you’re going to invest in, and make smart decisions.” He elaborated, “I think we recognize that [the college] can’t just keep doing what we’re doing. We have to continually worry about being at the forefront” and support “timely, important things.”

Given the challenge of spreading sufficient resources across the college’s programs, Maurice said, “If there hadn’t been strong support, [the request to formalize the program] would have been the natural time to say, ‘Well, I’m sorry, we just can’t support this.’” In Edwin’s words, the heightened sensitivity of the college’s faculty to budget decisions meant that the administration had to present SEE as “already well-established, and we were just codifying things...Because in this budgetary climate, you don’t want to be, ‘Oh, we’re shutting down over there, but here we’re building another program.’” Thus, the decision by the dean to support the program happened in a difficult budgetary climate that resulted from the university’s longstanding practice of budget recycling and an economic downturn.

In making the decision to support SEE, the dean heavily weighed the likelihood of the program attracting substantial outside dollars. Ronen said the college’s director of development, Robert, was “like one of those godfather figures” who was “a phenomenal supporter.” He met on a frequent basis with the college’s assistant and associate deans. Ronen paraphrased Robert’s message: “‘Hey, this is a signature program, and we have to support it, [because] it’s very likely to land an endowment.’” The dean became convinced
by the argument that Ronen’s position would attract an endowment and free up funds for other needs. So, in Ronen’s words, “It’s all business. It’s all money.” Robert said, “I was a bit of an advocate for the program with the dean. Simply because I thought for sure that what he’s doing would resonate with donors.” In the year before my study, i.e., prior to the dean’s decision to support SEE, Robert invited Ronen and some of his students to a dinner for the university’s top donors. Likewise, he invited Ronen to do a presentation for all of the college’s development staff so they could talk to donors about the program. At the time of my study, the development office had helped secure small amounts of money for the program, while Ronen continued to win awards and secure grants.

In conclusion, the director of the consulting unit who initially employed Ronen provided critical early support for the curricular effort. This support bought time for Ronen while he built up the program and sought customer support. In essence, to borrow a term from the startup world, Vernon’s support provided Ronen with the “runway” of time and money required to launch SEE. The dean of the college of engineering served as a high-value customer who entered a non-binding, long-term contract. In exchange for practice-based education that developed students’ global perspective, the dean provided financial support for the director’s salary and a modest operating budget. Securing the dean’s support entailed a great deal of upfront persuasion by influencers like the director of development, some of the assistant and associate deans, and the head of the department that became SEE’s academic home. As I detailed in an earlier section, endorsement by the university president and the vice provost for global programs also informed the dean’s decision. Cumulatively, Ronen said the work of numerous “champions” created a
scenario in which the dean almost seemed to have “no option” but to extend his support to the program. The dean’s support continued year to year, and depended on the program’s success. Edwin felt confident that the director’s position would remain in place for a new hire if and when Ronen chose to leave the university. Nonetheless, he said of the program that if at any point “it’s not successful or if it atrophies, then those resources would be used for something else innovative and new.”

In sum, as a startup-like entity operating in a higher education institutional environment, SEE displayed three key organizational characteristics: boundaries, competition, and customers (Aldrich & Ruef, 2009). Next I discuss student engagement in the program, as students served in different roles at different points of their engagement in SEE.

**Students’ Engagement in the Program**

“Students are of ultimate importance,” declared Pete, an alumnus who participated in SEE, because ultimately “the point of the program is to teach students.” This statement reflected an aspect of the two mutually reinforcing objectives to which Ronen dedicated his efforts: teaching and social entrepreneurship as a means of doing good in the world. Ronen applied an entrepreneurial outlook to both teaching (discussed here) and the program’s development (discussed in Chapter 6).

Ronen engaged students in the creation of solutions that addressed what some in design-centered fields have termed “wicked problems” (Rittel & Webber, 1973; Conklin, 2006; Kolko, 2012). Issues like poverty are “wicked” in that they resist resolution owing to the complex intertwining of social and technical concerns. In doing so, he used an
instructional approach that entailed some lecture and a great deal of scaffolding for students whom he asked to engage with ambiguous problems like those engineers often encounter in their professional work. Specifically, the program centered on student engagement in venture teams. Ronen used the word “venture” rather than “project,” because he challenged students to develop both the technical and business aspects of a solution concurrently. In line with a social entrepreneurial perspective, he taught that the technical and business aspects were equally important to creating lasting impact for a community. Ronen treated the mission of the ventures very seriously. Ideally, student teams working on a venture year-over-year would develop it to the point that a local partner could bring it to market. In this way, the ventures’ purpose was as much about educating students as it was about positively affecting communities in the developing world.

Ronen explained to prospective participants the intended real-world impact of the ventures and the work of previous years’ teams. Students entered the program excited to work on implementable solutions to real-world problems. Not every student, however, signed up with an accurate understanding of the demands of the experience, chiefly the time commitment. The misalignment may have been due to a shift in perspective: Ronen’s recruitment efforts reflected an initial understanding of students as customers to whom he had to sell the program and who exchanged their credit hours for SEE’s educational experience. Once engaged in the program, however, students who continued to view themselves primarily as customers (rather than partners in a venture) experienced frustration. On the other hand, those participants who adapted to an employee-like role on
the venture teams developed a deep sense of dedication to and personal responsibility for the ventures’ success.

To provide an appreciation of the educational experience, I first describe how Ronen interacted with students and how they experienced the program through an employee-like role on the venture teams. Following this, I elaborate on how students filled a customer-like role during the program’s recruitment process.

**Students’ interactions with the director.** Students who participated in programs like SEE, from an associate dean’s perspective, “desire in their education to make connections with subject matter to application. Not that none of our other students do, but I think this is a very strong driver for them.” An alumnus who participated in SEE for several years, Ryan, seemed to agree: “Once you get into one of these courses and it’s really something you’re passionate about, you’re like, ‘How do I design this to meet a need, not just to get a minimum grade?’” He observed that students displayed “different degrees of involvement,” but of those who engaged strongly with the SEE program, he said with a laugh, “I wouldn’t say the crazy side—but yeah, they’re on the crazy side. They’re people who really want to do it. Just because of the time commitment you put into it, it’s not something you do for a grade.” Casey, a participant in her third year with SEE, suggested that the program provided the opportunity to “figure things out” and added, “that leads to better learning for me.”

Students noted that some professors at the university were disinterested in or unskilled at engaging students. They contrasted this with how Ronen interacted with them. Samantha, a graduate student participant, said, “For whatever faults he has, I think
he’s a really effective teacher…really dynamic, and really involved. And he gets his students excited and involved, which is really kind of rare.” Ronen asked students to take on a high level of personal responsibility when working in the venture teams to “champion” a specific aspect of the venture’s development, either individually or in sub-teams. A staff member with the university’s teaching center who helped conduct an assessment of the program said of Ronen’s relationship with students, “He energizes them, but also…challenges them to think above and beyond, you know, and out of the box.” In the focus groups she conducted, like in my interviews, she conveyed that students universally said, “This is more work than I thought for a one or two credit course.” The level of involvement that the program required meant for students, in a repeat participant’s words, “If you’re not at least half as passionate as him, if you’re just taking it for a class, you’re going to be miserable. You really have to want to do it.” Ronen’s energy motivated students even as the pressures of running a program like SEE with limited resources pulled him in many directions. Chad, a lower-division student, said,

He’s everywhere all the time, like [running] all over the place, and it definitely motivates you to keep up and do your part, because you see how much he’s doing. At the same time, it’s sort of like he’s always going rapid speed and doing his own thing. So it’s hard to keep up sometimes.

On several occasions, students recounted to me how they emailed Ronen in early morning hours after a long night of studies and received a reply from him within minutes. They expected their peers to keep hours like that, but when they saw a professor
maintaining a similarly intense schedule, they said it heightened their respect and motivation. One meeting I attended began on a Sunday night and ended after two in the morning, with students preparing for a national conference at which they presented their venture. The students said they were unwilling to put in this level of effort for most professors, but met with Ronen and their teams outside of section hours, often on short notice. Along with feeling motivated by their close working relationship with Ronen, the students I interviewed felt the effects of the myriad pressures that he handled as the founder of a program with limited resources. Ronen took responsibility for the ventures, the education of the students, and the logistics of running the program. According to one student, Madison, who participated for multiple years:

He always expects the best from every student. I noticed last semester that when he didn’t get that, he became frustrated pretty quickly, which is partly because he did spread himself so thin. I think he just didn’t have the time and energy, so he’d get frustrated more easily, and it would come off on the students.

Thus, students generally voiced how motivating they found their relationship with Ronen, while noting how his thinly-spread attention created moments of frustration that I discuss next.

**Students’ employee-like role for the ventures.** Students felt challenged and often frustrated by the open-ended direction Ronen provided. A graduate student participant, Sylvia, said, “He always jokes that he makes things up as he goes along which, granted, there is no blueprint for him” but “all the learning that has to take place along the way slows down the progress” of the students’ work and the ventures’
development. A lower division student, Seth, and a teammate of his were tasked by Ronen with designing a technical aspect of one of the ventures. Ronen gave them multiple, open-ended option for how to approach its design. Seth said the project required “thinking about a project in so many different ways,” and he was accustomed to professors saying in his science courses, “Here’s what we know, and this is how we find out what we don’t know. And if we don’t [use] these methods to find out what we don’t know, then we won’t ever know.” In Seth’s words, this “habit” of approaching problems partly explained why he had a hard time “adjusting” to the design process in which Ronen expected students to engage.

Madison said that Ronen provided a “scaffold” for the venture teams’ work. “He’s very good at seeing the big picture and all the different avenues that students could go down,” but this led to frustration particularly for first-time participants, because he’d tell them, for example, “go figure out something to do for marketing.” When students came back with ideas, Madison said “he would just tear it apart. And students didn’t really realize that’s just kind of how he is.” She characterized Ronen’s way of working with students on the ventures’ development in language that resembles a common employer trope:

At some point it’s like, ‘Okay, stop telling me what you don’t want, and start telling me what you want.’ Sometimes it just gets to a point where he’s like, ‘No, no, no, no.’ And it’s like, ‘Fine, just tell me what you want.’ And he doesn’t know what he wants. But he knows what he doesn’t want.

Students shaped the ventures most strongly when they met Ronen’s standards or
succeeded in convincing him of some approach. Another long-time participant in the program, Casey, turned the director’s first name into a verb, i.e., “[Ronen]ize.” She used the example of a time she put ten hours of work into a task, and Ronen responded, “No, you need to redo 95 percent of that. This five percent is good. Go with that.” She elaborated,

It just takes some time to figure out how to [Ronen]ize things, [that is,] how to get things to the level of his standards. And some people just don’t want to put the time in to get it to that point. And it’s really frustrating ‘cause he’ll just keep sending back the same thing over and over again [for the students to improve].

In Madison’s words, Ronen wanted students to “defend what you’ve done. And he wants to know you’ve thought through this solution so much…and you’re going to convince him.” Some students, especially those who saw the venture teams as part of just another class, chaffed at the level of effort Ronen expected. “They get into situations where they can’t defend [their work] because they just threw it together.” A career services director in one of the colleges shared an impression from her conversations with students: “If you weren’t comfortable with a certain degree of ambiguity in a class, it might be frustrating for you.” She observed, “There’s some people who want to know: ‘Here’s the syllabus. I’m going to come in, and if I do this, this, and this, I’m going to get this grade, and I have ultimate control over my destiny.’” Sylvia was one such student who wanted the program to require a more straightforward effort: “There were always things that weren’t in the syllabus that had to be completed.” For example, “I have two finals in the morning, and I really don’t need to be getting an email [from Ronen] at midnight saying, ‘I need
Another student, Karine, countered this point in our interview:

“This [venture teamwork] is kind of like the real world. And you can’t have everything according to a syllabus decided beforehand. So, if students can’t deal with it, they will in a few years” in the workplace. Pete held a similar view:

Ronen is very intense, so you have to be the right kind of person to be able to deal with that. But I think it’s also an extremely valuable thing to learn, because I don’t know many professional careers…that wouldn’t involve doing [consuming work] like that.

Ronen trusted students who developed a strong sense of responsibility for the success of the ventures. Samantha said Ronen had to be cautious about trusting students, because “he has a lot invested in these projects, and students don’t necessarily” have the same stake in them. Pete said Ronen often encountered students who would insist to him, “‘This is a good idea,’ and [Ronen would] say, ‘Yeah, go do that,’ and then nothing [would] happen, or [the students would] go in a different direction.” This made it “hard to sometimes trust the students to really follow through.” For students who proved their dedication, the workload often approached twenty hours a week during the spring semester. An upper-division participant, Amira, shared: “I quit my job. Not even kidding. It was simply that I did not have the time. It’s not that I was taking other super extreme classes. It’s okay. I’m still happy. I don’t regret any of it.”

**Students’ research assistant role.** Over time, Ronen developed research as an integral part of the program for reasons discussed in greater detail in Chapter 6. Among these reasons pertaining directly to student experience, Ronen said a lot of students were
“looking for research experiences” and especially “looking for different research experiences” outside of the lab. He designed the program’s research component in a way that engaged students, most of whom were undergraduates, in a role similar to that of a graduate research assistant. He required students who planned to travel for summer fieldwork on the ventures to work in small groups on research projects that had received human subjects approval, and he expected the students to publish in peer-reviewed journals. He likewise expected students to present their work, and often sent students to academic conferences generally attended by faculty and graduate students.

Ronen developed both technical and social science-oriented research projects in conjunction with the students. Sometimes, he observed, students helped conceptualize the projects when “they came across something,” for example, while testing their venture in the field, “and said, ‘Oh wow, this doesn’t work this way [that we expected].’” Ronen would often reply, “Okay, well let’s study it more systematically.” Typically, however, Ronen said research projects were his idea or “things that emerged, like, here are five things we need to look into deeper” to better understand the community contexts for which the ventures were being developed. Students who sustained their involvement in SEE over multiple years often led the conceptualization of a research project, particularly if they planned on using it for their honors thesis. Otherwise, Ronen shared that first-time undergraduate participants “have no clue what they’re getting into” and needed his guidance on topics to research and how to frame and conduct the studies.

Casey reflected that the rigorous expectations that Ronen placed upon students to produce quality research and publications (often with Ronen serving as an active co-
author) were challenging for most students to meet. This was due in no small measure to the limited opportunities for engineering students to hone their writing skills, let alone for the purpose of producing scholarly work. Some students, Casey shared, “want to do their publications really well and just don’t have the capacity to do that” and got “really, really frustrated when [Ronen] sends drafts back to them, just like, redo this, redo that.” For other students who “just don’t want to put the time in” to produce a publishable manuscript, Casey described the process as “definitely like a parent dragging their child to church.” She added that Ronen “knows that in the long run they’ll thank him” for the valuable experience.

Most of the students I spoke with expressed a combination of frustration and excitement about their research projects. Frustrations ran the gamut from dealing with the IRB-approval process, framing the study clearly, identifying appropriate data collection methods and instruments, collecting data in an unfamiliar country, and writing up the research. Some of these frustrations were rooted in Ronen’s continued effort to gain mastery over the research process. He grew to appreciate the value of academic research, which was not emphasized in his own master’s program, as he worked on innovative projects with students. The success of the solar project that he led over multiple years with the student group drove home the value of research, when he realized he had “nothing to show for it” except for a lone conference paper. Although many engineering undergraduates whom I interviewed for this study had experience doing lab research, those experiences were mixed and the quality of the experience appeared to depend on the students’ perceptions of their interactions with the research advisor. Alicia, an upper-
division student, reflected on such an experience: “I was in an empty lab, and it was kind of creepy.” Casey was frustrated by a previous experience during which the advisor simply instructed her to do a mundane task over and over without providing context. In contrast to some of the students’ lab research experiences, SEE stirred a degree of excitement among students interested to carry their research projects forward. For example, Amira, an upper-division engineering student, was working on a research project that probed community members’ understandings. She said, “I really love this project. I’m really excited, because I’ve never really done something like this before, and in a completely different country.”

In sum, Ronen treated SEE’s undergraduate students very much like a doctoral advisor might treat her graduate research assistants. He did so primarily because it served the program’s interest in furthering the ventures while engaging students in the most impact-oriented learning experience possible. That is to say, just as Ronen wanted the students’ work on the ventures to yield real change in the world, he wanted their research to have an equally real impact on scholarly and practitioner communities.

**Students’ customer-like role during the recruitment process.** SEE’s director and supporters worked persistently to recruit students, because as Ryan said of the program, “If the students weren’t there, it wouldn’t exist.” As such, along with administrative support, student involvement served as the lifeblood of the program. From the dean’s perspective, the program’s value resided in engaging and teaching students, and it served that need only to the degree that students willingly exchanged their credit hours for the educational experience. Enrollments demonstrated the program’s value to
students as well as its educational and revenue-production value to administrators. In addition to competing for student numbers, elective programs in overlapping territory competed for student quality. The directors sought to enroll enthusiastic and diligent students, since so much of their practice-based curricula demanded these qualities. The qualities of the students that a program attracted mattered. Ronen explained,

"from my perspective, it all comes down to access to students—access to the right set of students. And that’s where I see everybody is competing, no matter what. I mean, it’s a knowledge economy, and we can only do what [the] students we get access to can do."

An honors college staff member who advised students travelling for their thesis research said of Ronen’s interest in honors students:

"The final work product of what the students do [in SEE] is supposed to improve things for people in [East Africa], right? To the extent that we send more competent students, we get better outcomes for people in [those countries]. So it goes beyond the usual, you know, almost selfish instructor desire to have better students rather than worse students."

The challenges around recruitment increased over time. At the outset of this study, Ronen told me, “I’m concerned about people trying to set up parallel programs, because frankly, while the market is not saturated, it’s still kind of close to that.” At the study’s close, he said increased competition from colleges setting up their own global programs was making recruitment “harder and harder.”
During my study period, Ronen’s goal was to enroll 15 to 20 students in each of the six venture team sections, and he experienced variable success. Some sections reached this goal while others only attracted a half-dozen students. One student on a team with lower enrollment believed that this happened “not because [the venture’s] not a good idea. It’s just because it’s not as easy to market [as other ventures in the program].” Sylvia said, “Ronen is…very invested in these ventures, and they are successful because the students become invested also. And so he can be passionate about it all he wants, but if nobody was participating, that would’ve been the end of that.” She gave an example of a venture that students worked on over the previous year receiving “minimal interest” for the following year. Marketability and student interest levels, therefore, heavily determined whether or not a venture continued.

Hence, SEE received feedback from the students who worked in teams to develop ventures and then launch them in communities through local partners. The appeal of each venture to students determined whether it continued. On an annual basis since the program’s inception, newly constituted student teams—comprised primarily of first-time participants and a small number of returning students—iterated on previous years’ work. One of SEE’s first ventures, Sawaza, attracted robust numbers of students each year, because it appealed to those interested in health and medicine. This venture gave Ronen much needed traction early in his curricular efforts. Some of the newer ventures he offered to students thrived while others failed to attract sufficient student numbers in subsequent years. Students self-selected into the venture teams and enrolled in
corresponding sections. During my study period, the program offered a half dozen
ventures with teams travelling each summer to roughly the same number of countries.

**Value of the program to students.** SEE offered educational value to students
through the opportunity to participate in practice-based learning experiences that created
long-term benefit in local communities. Ronen gave students multiple, flexible paths for
engaging in the program. Though he provided students with suggestions for how to
sequence and complete the program’s courses, he emphasized the value that students
created for the academic community, for developing world communities, and for
themselves personally and professionally. Ronen did not want SEE to make students go
through the motions to finish a program: “What’s more important from my perspective is
that students are engaged in multiple and ideally all of the SEE courses and build a
portfolio of accomplishment through the projects, through the research papers, and stuff
like that.”

Moderately invested, first-time participants appreciated the opportunity to travel
abroad and to get a break from rote coursework. Chad, a freshman, told me that he had
considered dropping out of engineering because he “was just really bored with classes”
and found that SEE “was definitely a good way to stay interested.” Karine, a senior, said,
“Most of my courses are in basic sciences. You have to struggle to memorize every last
detail to get into the top 10 percent, and there’s no flexibility at all. So this is a really nice
change from that.” Both repeat and heavily invested first-time participants appreciated
the opportunity to put their knowledge into practice. Mariam, a repeat participant in her
senior year shared that she had taken part in a few practice-based learning opportunities
over the years, yet SEE had “definitely been my first helpful practical experience in engineering.” Alicia, a junior who became heavily invested in a venture’s work as a first-time participant during the study period, said,

Pretty much my entire life has been sitting in a classroom…but this actually allowed me to feel like a scientist for once, and go do some experimentation, and work on a project that started out as a vague idea at first….Just the entire process, I think, will be really helpful for me in the future, because being an engineer, we’re going to be given projects that are first an idea and then we have to conceptualize everything and figure out the details. So, now I know what challenges there are in the whole concept of developing a project over several months.

Beyond the personal educational benefit, SEE offered students a way to do meaningful work with lasting effect in communities. Chad said the program was a “sustainable kind of thing” that he contrasted with travel-based experiences that seemed more “like a hit-and-run kind of thing” through which students “go help people for a week and then you leave.” Madison articulated to me how SEE differed from more superficial opportunities:

You come out with something real, especially if you travel and you get to implement it, and you see that something that you’ve been working on all semester is really affecting people’s lives: that is powerful. And that’s not something you get in any other engineering class here.
She gave the example of her venture team traveling and working over the summer in an East African community. The team worked from early morning until late into the night almost every day, “but it wasn’t because [Ronen] was telling us to anymore. It was because we saw what we needed to do, and we wanted [the venture] to be successful.”

**How the program reached students.** The elective programs across the university had to contend with students’ degree requirements, including notoriously rigid requirements in engineering. The programs likewise faced competition for the limited elective courses that a student could use to meet degree requirements. Ronen knew he could only influence students’ choices by making the benefits of the program clear. “You’ve got to sell,” he said, because “most students don’t know about [the program].”

Ronen learned over time how to distill the nuances of the program’s structure and purpose to deliver a clear message to potential students. From early successes with Sawaza, he honed a message that tapped into a growing interest among students (and larger society) in a social entrepreneurial approach to poverty-related issues. Additionally, Ronen observed alumni of the program who pursued careers that allowed them to continue work on social entrepreneurial efforts, whether through graduate studies or in the corporate world. This encouraged him to articulate the program’s benefit for students’ professional life. Madison paraphrased how Ronen shared this message: “You know, you guys have done the [technical work] a hundred times, and you’re good at it just like every other [student]. Now you’ve learned how to apply it in a really productive way, and that’s really valuable.” This value, he said, benefited the participants even if they pursued an unrelated career.
Programs like SEE relied upon numerous channels to recruit student participants. One channel for student recruitment came from students speaking one-on-one with their peers. Sawaza, the first venture that Ronen and his students worked on as part of SEE, attracted students largely by word of mouth. Lucy, an alumna who participated in this early effort said that after the student team won $10,000 in a competition, they gained enthusiasm and confidence, and began reaching out to their peers. This helped the program grow organically. Lucy emphasized the importance of this one-on-one recruitment among friends, saying, “Unless you’re really friends with someone and they sit with you…and talk to you about what they did and capture your attention, it’s difficult to get across to people, because it’s a unique program.” Several students told me that they signed up because a friend (or a friend of a friend) said, “You should do this,” else they would not have heard about it.

Ronen tapped into the power of student peer recruiting by asking current participants to attend and share their perspectives at information sessions targeting their specific major or program. Since SEE encouraged multidisciplinary teamwork, recruitment efforts happened in diverse corners of the university. Katherine, a career services administrator, said of an information session in her college, “You create, literally, this pipeline” when current students speak to their peers, because “students listen to students more than they’ll listen to [others].” Sylvia said Ronen anticipated that when SEE students committed to speaking at an information session, they would ask their likeminded friends to attend and potentially sign up for the courses. Marco, an alumnus who had participated in SEE’s for several years, said that the information sessions tended
to have very low attendance, but the students who showed up often proved to be “really great students who were really interested.”

The effectiveness of one-to-one discussions in the recruitment process extended beyond students. Career services staff provided another channel for reaching prospective participants. In an interview with me, Ronen rattled off the names of staff members in different colleges across the university as examples of individuals who “totally believe in what we are doing…and keep sending students to us.” These staff members typically had a director role of some kind but did not hold faculty appointments, though many of them also taught on occasion. Some interfaced with industry partners to better understand their expectations of graduates, while others advised students applying for fellowships or internships. The director of the university fellowship office, Karen, said of SEE:

There’s definitely a group of people who…if we get wind of something like this, and it’s working and it’s well run, we just push it as hard as we can. And, we’re sort of at the level of, you know, not really important administrators…And so that’s one of the strengths that there is this group that’s completely under the radar, but we all talk to each other all the time. We all help each other out all the time. We’ll go to just about any lengths to facilitate our students working with the right people.

Members of this informal group, Karen continued, “work with undergraduates enough that we can get the buzz going in student populations” and “promote like crazy” opportunities like SEE that give students valued experience. In her work, Karen met one-on-one with about 500 students from across the university each year, and estimated that
she spoke about SEE to more than a third of them. In her words, “Their usual reaction is, ‘Wow, I didn’t know something like that existed.’ Almost uniformly.”

In addition, the program reached students though a variety of other channels. This included face-to-face channels such as study abroad and student activity fairs, classroom and student club presentations, career development seminars, and meetings of the engineering programs for women and multicultural students. It also included print and digital channels, i.e., social media posts, listserv announcements, and flyers.

**How the program converted student interest into enrollment.** SEE only succeeded in enrolling a student if it could align program participation with a student’s particular finances, schedule, and degree requirements. Over time Ronen realized the importance of identifying sources of funding for summer travel. Securing travel assistance for students mattered for maintaining enrollments, because without it many would not travel to conduct summer research and fieldwork. Ronen marveled at the number of small discretionary sources of funding that faculty and administrators controlled, and administrative assistants were instrumental in helping him identify and advocate for student travel assistance. In his interview with me, Martin, the director of a program that competed with SEE, also spoke about the underappreciated role of administrative assistants. He said that “their value has not been reinforced or rewarded,” although they interfaced extensively with students, faculty, and administrators, and knew how to navigate the system to get things done. In line with this assessment, the administrative assistants whom I approached for an interview turned down my request, because they did not see what they could offer.
Ronen valued the recruitment of diverse students, i.e., women and students of color. He aligned SEE with the message that engineering solves problems facing people and society, and regularly enrolled women in equal or greater proportion to men. During the study period, he worked to understand why the program enrolled fewer students of color than hoped. With the support of the engineering assistant dean for diversity, Sabine, he conducted an informal focus group and learned that funding for student travel was a primary consideration. Sabine said, “If you are asking for more diverse populations to travel, you really have to have more money. Statistically they’re more likely not to have the money to go.” In the summer of my study period, six of the three dozen students who travelled were students of color, a small improvement from the previous year thanks to increased financial support that Sabine and Ronen secured from corporate sponsors and other sources. Sabine traveled with a student team for a few summers, in large part because she knew that students of color “statistically put more credibility in spoken word than in written material” and respond to hearing, “I know [what you’re] going to do. I know because I did it.”

In the matter of scheduling and degree requirements, academic advisors’ relative flexibility illustrated another way that low-level decisions influenced the program and its ability to recruit participants. For instance, several students had to forgo their ongoing involvement with the program because of their need to prioritize requirements for their major. Advisors frequently told students who approached them about fitting SEE into their academic plan that it was “too complicated.” However, one upper-division student shared that her advisor appreciated SEE’s value and waived a required calculus course
because of a scheduling conflict. To lower the barriers to student participation owing to degree requirements, Ronen approached department heads within the college of engineering about recognizing SEE courses as engineering electives for the majors they offered. With programs located outside of engineering, he co-created ways for SEE experiences to help students meet certain degree requirements, for example, counting for a capstone project, internship, or clinic. I discuss several of these collaborations in Chapter 6.

In summary, students played an indispensable role in the program’s growth, operation, and sustainability. Ronen wanted to “rethink” the way students were taught. Students should not, he felt, engage in educational experiences “just for the sake of learning.” Rather, he wanted to integrate the process of creating real-world impact with learning. In pursing these aims, students filled an employee-like role on the venture teams at the heart of the program, along with a research assistant kind of role. SEE’s other course offerings, developed by Ronen over time, prepared students for the team work and helped them publish on it. Pierre, a business professor who occasionally lent SEE some of his expertise by consulting with venture teams, said, “If you think about entrepreneurship education as a process rather than content, then you really create, and you have to manage the process…Ronen does a good job, you know, in managing the process.” Most of the frustrations expressed to me by students reflected the program’s growing pangs and Ronen’s well-appreciated need to develop it further.
Conclusion

Institutional culture, policies, and practices expressed at the university, college, and departmental levels affected how faculty members engaged in curriculum innovation. At the university level, the institution’s founding land-grant values and interest in applied sciences expanded over time into a research focus. As one of the nation’s top research institutions, its faculty reward system favored research production over undergraduate student engagement. Nonetheless, senior administrators advanced a student-centered vision, which proved difficult to fully realize given the pressures of traditional research agendas and weak structural support for this work. Faculty who ventured into curriculum innovation could not count on colleagues to rally with them against administrative decisions to cut programs. Those not on the tenure line were expected to carry out their teaching duties as efficiently as possible, while those on the tenure line were admonished to focus on research and publication. Once tenured, the flexibility they had to pursue curriculum innovation often went unexploited because of continued pressures to maintain research activities and life-stage considerations that lessened their availability for student engagement.

Consequently, curriculum innovation often took the form of personal initiatives that required individual faculty members to seek ad hoc support from their networks and administrative contacts. Financial practices at the university did not link student popularity and program support, nor did they leave administrators with plentiful discretionary funds owing to years of budget recycling by the central administration. The university had a strong tradition of strategic planning, and for an initiative to receive
support it had to align with priorities in the university’s strategic plan, such as global engagement. Additionally, administrators expected faculty members to secure outside funding and recognition and, in keeping with the paradigm of academic capitalism, run their programs like small businesses.

At the college level, engineering’s focus on real-world application made it relatively amenable to curriculum innovation. The administration encouraged faculty members to make connections between their research and teaching, and to improve course offerings with support from staff versed in curriculum development. At the department level, elective programs serving students across the college stretched the department head’s discretionary funds and relied on outside dollars for expansion. The university, in sum, contained a mixture of enabling and inhibiting factors that shaped faculty members’ curricular initiatives.

Within this environment, Ronen created the SEE program as a startup-like entity that possessed the defining characteristics of organization-like entities, namely, boundaries, competition, and customers.

Concerning boundaries, Ronen contended with misperceptions about what distinguished SEE from related efforts. Constituents often failed to appreciate the difference between service-learning and social entrepreneurship, and between SEE and other elective programs whose directors sometimes perceptually co-opted Ronen’s efforts for their own gain. This confusion harmed SEE’s efforts to recruit students and establish a distinct brand. In addition, faculty members within the department that eventually housed SEE opposed Ronen’s efforts to define it as more than a bundle of activities. They
wanted to prevent SEE’s formalization, because as a program it gained the stature needed to attract resources that might otherwise flow to their programs. At this stage, their opposition centered on contesting SEE’s boundaries. Every time anyone called SEE “a program” rather than “an initiative,” they complained to the administration and voiced their expectation that SEE be subjected to a faculty review process prior to its formalization. However, SEE’s non-traditional structure exempted it from this review, since the administration did not use set criteria to define a program and allowed a variety of efforts to use this appellation. Once formalized by the dean, SEE faced challenges to its legitimacy as a curricular program. These challenges stemmed from faculty colleagues who continued to insist upon a formal review process, question social entrepreneurship as an academic domain, and voice skepticism about Ronen’s scholarly mindset. Professional jealousy tinged these concerns, since SEE achieved what many viewed as disproportionate success in attracting recognition and financial resources given its status as a young, non-traditional program. SEE’s formalization solidified its boundaries. This silenced some opponents with tangential or non-overlapping turf, and turned other opponents into competitors who vied for resources.

Regarding competition within its home academic unit, SEE encroached on the turf and resources claimed by incumbent programs that had formed in a more top-down manner. These two minors had broad appeal across the college and avoided a turf war by positioning their programs as complementary to one another, for instance, by agreeing to use the same script to counsel students deciding which minor to pursue. By contrast, both minors’ directors initially viewed SEE as competing in spheres like global engagement.
Whereas the entrepreneurship minor’s director adopted a complementary stance during my study period, overlapping turf interests with the leadership minor proved impossible to parse. In addition, Ronen competed with the minors’ offerings by tapping into students’ desire to contribute directly to lasting solutions. Though the programs did not compete directly for financial support, a general sense pervaded that more elective programs translated into greater challenges for securing funds. Ronen found faculty members more willing to collaborate outside his home department, owing to the relative lack of power dynamics. He did, however, experience increased competition for students from the growing number of global programs being initiated in various colleges.

The college of engineering’s dean served in a customer role for SEE, because he was the individual who ultimately decided to give it an academic home and funding for the director’s position along with a modest operating budget. He provided this support in large part because SEE helped the college meet its strategic priority to engage students globally. The dean was also swayed by SEE’s early record of success engaging students and earning recognition from the university’s president; influencers like the department head and development director who advocated for SEE; and the argument that SEE would eventually attract an endowment.

When viewing SEE as a startup-like entity, students filled dual roles in its operation. First, they served as customers to whom Ronen had to sell the program and secure their enrollment. Once engaged in the program, Ronen shifted his perspective on students and treated them more like employees and research assistants who worked in teams under his direction to develop the ventures. For some students who preferred a
straightforward learning experience, this shift was not a welcome one. On the other hand, many of the students who adapted became deeply involved and cited SEE as among their most impactful experiences at the university.
Chapter 6. Faculty Member as Curriculum Entrepreneur:
Analyzing Interpersonal and Creational Tools

In the previous chapter, I presented evidence of how the SEE program could be analyzed as a startup-like entity that operated in an institutional environment and was defined by particular boundaries, sources of competition, and customers. In this chapter, I examine how Ronen exercised individual agency to overcome resource constraints and develop the curriculum, just as any founder might for a startup. While the program’s continuation depended on financial, cultural, and structural forces beyond the control of any one faculty member, this chapter takes an analytical approach to examine how Ronen’s actions helped him garner needed resources and overcome obstacles or work around them. Those individuals with whom he interacted likewise used their agency to help or impede the program. After discussing how the university’s institutional environment was sufficiently ambiguous and thus conducive to entrepreneurial efforts, I describe how Ronen used entrepreneurial tools to advance the SEE program.

Environmental Ambiguity and Bottom-Up Curricular Efforts

Entrepreneurship often occurs in resource-constrained or -contended environments that have a notable degree of ambiguity or uncertainty (Davidsson, 2008; McMullen & Shepherd, 2006). My earlier discussion of institutional structure and culture provided support for such a characterization, notably its loosely coupled structure (Kezar, 2001; Weick, 1979) and competing institutional logics (Scott, 2008; Gumport, 2000) like the pervasive academic capitalist logic (Slaughter & Rhoades, 2004). The university’s institutional environment seemed ambiguous with regard to curricular efforts driven by
individual faculty members. As a senior faculty member who regularly supported Ronen’s efforts said, there were “few roadblocks” but also “little infrastructure to help you out.” This meant that faculty members initiating curricular efforts had to “make it up as they go.” Competing logics girded the theory-to-practice debate: some of Ronen’s colleagues criticized the program for not being academic enough while others applauded it for engaging students deeply in practice. The director of the university’s innovation center said that the “different tones” created by the market “whistle” and the academic “school bell” often clashed and contributed to ambiguity around faculty priorities. Study informants frequently invoked entrepreneurial and business language to describe SEE and other elective programs, revealing the influence of the academic capitalist logic. Ronen likened the elective programs to “companies” that competed and/or collaborated. Piecing the language he used together, these “companies” needed to find “a good business model” to keep things tractable and “sell” themselves to potential customers, collaborators, and supporters. In the sense of securing resources for the program, Ronen said on more than one occasion in our interviews, with some dismay, “It’s all business.” One engineering support staff member reflected a common perspective I heard in interviews: “It comes down to numbers, so you have to sell it. Everything is marketing and branding now.” Many informants shared a consonant view of Ronen that another staff member articulated, saying that he was both “a good marketer [who can] go up and sell what he’s doing” and “an incredible salesperson…[who communicates] with great effectiveness.”
Ambiguity about the university’s support for curriculum innovation also resulted from the differing priorities it asked faculty members to pursue. Those in tenure-line positions in engineering (and other fields) focused on research and large grants to support their laboratories. One faculty member described it as “a very traditional model…that focuses on efficiency and large sources of funding” and discourages working with undergraduate students because that is “really inefficient.” Despite these pressures, some of the faculty members with whom Ronen collaborated had tenure and therefore didn’t “really need to care” about what others thought about their curricular efforts, though they often felt pressure to downplay it. By contrast, non-tenure-line faculty and instructors (who may or may not have had a doctorate) focused on teaching and student engagement in a climate of increased enrollments and diminished resources. Only some non-tenure-line faculty engaged in curriculum innovation, but their freedom from traditional research demands made this a possibility. The director positions for the minors housed in the same department as SEE, for example, were not tenure-line appointments.

Consonant with the environmental ambiguity surrounding bottom-up curriculum change, Ronen’s lack of a doctoral degree (and tenure-line position) served as both a liability and an asset. On the liability side, Steven, the director of the business school’s entrepreneurship center, said that it created “an issue in terms of…how he’s perceived by some of his colleagues.” Pierre, a tenured business faculty member who provided occasional support to SEE, said:

There’s a status and power issue in a university…And it’s a huge power difference: “I know something and you don’t know something.” There’s very
little humility in our profession, unfortunately. So, what that means is that there’s…an intellectual status issue: “I have a PhD.”

Moreover, Pierre said that this preoccupation with status “gets complicated with many other issues,” including a sense of entitlement to intellectual turf, even in the absence of substantial research or curricular effort. The status differential created uncertainty for Ronen in his efforts to develop the program. At various points, he expressed worry about the intentions of faculty members with doctorates and/or greater seniority who could try to wrest ownership of the turf he occupied and sought to keep differentiated from their related interests. Along the same line, the possibility of substantial outside support for the program could, as Steven suggested, jeopardize a director who did not hold a doctorate. For an endowed position, he said that “at some schools, you gotta have certain credentials, or they just…[give you] the axe, because they’re snotty about degrees.”

On the asset side of the ledger, several supportive faculty colleagues argued that the fact that Ronen did not have a doctoral degree meant that he could take “unfettered” action to develop the program and, “to some degree, move below the radar because he wasn’t worth paying attention to [during his initial curricular efforts].” In comparison, “the job of junior faculty is to get tenure, and [they’re] not going to get it by doing programs.” Junior faculty who put effort into developing new curricula committed what many interviewees perceived as “career suicide” by taking time away from their research and publication efforts. Moreover, since Ronen had not been socialized into traditional academic priorities and practices around teaching, he approached SEE’s development with a great deal of creativity (for example, in deciding collaborations and integrating
curricular components). An emeritus professor commented on the constraining effect of promotion and tenure concerns on curriculum innovation: “Perhaps he would not have been nearly so innovative had he had his PhD. So it may be that there’s an advantage to [not holding a PhD].”

Ronen’s life stage also positively affected his ability to put substantial energy into developing SEE. Faculty members who endured the tenure process finally achieved “the luxury” of doing what they wished, including curriculum innovation. However, by the time they reached this stage, many had family obligations and less motivation to undertake substantial travel, especially to more taxing locations in the developing world. Ryan, an alumnus of SEE, said, “You don’t have many professors who are willing to take two or three months of their summer to travel overseas and be away from family.” The director of a competing elective program who had a doctorate, Martin, explained his hesitation about committing to the tenure process:

By then, I might not have the energy to pick myself up and go to [a developing country] for three months. I won’t be able to bring the same kind of energy to the students that I’m able to bring now, or I can’t do the same sort of things because, I mean, life is just different 10 years down the road.

**Ronen’s Motivation and Individual Agency**

Ronen’s motivation to create a curricular program began with his dissatisfaction consulting on projects that served narrow industry interests. Though initially attracted to work in the high-tech sector, volunteering with the student group uncovered a deeply held interest in working for the betterment of wider society and engaging young people in this
effort. Specifically, the experience jogged Ronen memory of an assignment he was given as a child to figure out how to provide necessities like housing to all the people in his hometown. It helped him realize that this “frame of mind” had always been with him. An alumnus who worked closely with Ronen from the outset of his efforts, Marco, said of the volunteer experience: “That experience really changed his perspective on engineering in general.” Marco recollected a conversation that Ronen shared with him repeatedly over the years they worked together. Ronen would say, “You know, we talk about innovation, and innovation ends up being $10 million dollars, and just an overabundance of resources.” The stories Ronen shared with Marco from his time in East Africa contributed to a fresh perspective: “Well, this is real innovation. What we do in the Western world is not innovation. That’s research.”

Ronen said that over time he realized that a lot of community engaged programs “want to focus on real-world problems, but very few actually focus on real-world solutions.” He elaborated, saying that these programs “all bring in real-world problems. Students come up with a solution, but there’s never due diligence on that solution to see if that’s actually realistic.” By contrast, Ronen developed SEE in a way that engaged students in action, so that they could appreciate whether or not their proposals were “actually realistic and actually implementable.” This focus on realistically and positively impacting communities necessitated a multidisciplinary approach. To draw together multidisciplinary perspectives on socioeconomically rooted problems, Ronen had to reach out to others at the university to attract resources that they controlled, including time, funding, and access to students. He said, “I have this and this and this [going on],
and I love this. I thrive on chaos and on this multidisciplinary [work], you know, go[ing] from one crazy thing to another.”

To develop the program from what various informants described as a “disadvantaged position,” that is, from a low-status position in the hierarchy of academic appointments, Ronen took an entrepreneurial approach. He exercised his individual agency as any founder might to build a startup. He worked in a bottom-up manner because, as he shared with a chuckle, “I could only go bottom-up.” Steven said of Ronen’s effort: “He essentially created a whole program from scratch…which is, you know, good on him. And it really is the best way, here, to get things done. Because if you ask, the answer is no.”

In creating the program, Ronen employed a number of entrepreneurial tools discussed in the literature, such as storytelling, networking, and improvisation. In the remainder of this chapter, I describe how Ronen used these entrepreneurial tools to advance SEE’s development. Robert, the director of development in the college, said that a lot of faculty members approached him with “an idea” that they’ve had for years and were just “kicking around.” They wanted “somebody else to run with it” in terms of securing necessary resources. By contrast, Robert said that Ronen enthusiastically “articulate[d] a vision” and took action to make it a reality. At first, “he was just kind of doodling around the edges [of the college], trying to make it work, and looking at some opportunities he had and some connections he had.” Unlike the other faculty to whom Robert alluded, Ronen “committed his time and energy to make [his curricular effort] work,” and “he intentionally put this program together.”
Entrepreneurial Passion

Well-regulated entrepreneurial passion sustained Ronen, like any entrepreneur, in the face of “setbacks, impediments, or failures” (Cardon et al., 2009, p. 528; Cardon et al., 2012; Cardon & Kirk, 2013) and mobilized those with whom he interacted. Had he expressed too little passion, others would have likely withheld their support. Conversely, too much expressiveness would have turned others off or created a disingenuous impression, especially among faculty colleagues who valued intellectual objectivity. In general, Ronen regulated his entrepreneurial passion to great effect though he occasionally engaged in overexpression. The informants for my study universally remarked on Ronen’s passion and work ethic in positive terms.

Administrators, faculty colleagues, and students commented in different ways how SEE was “not just a program to him. He loves this stuff. It’s almost like his life’s work.” One faculty colleague captured the sustaining role of entrepreneurial passion for Ronen, saying, “You know, he’s passionate. He’s very driven by that. He has passion. And he doesn’t get down. He doesn’t seem to let things drag him down, which is hard.” Another professor said of the kind of program Ronen was developing: “That’s not easy to continue doing over time…The good news is he’s very enthusiastic.” Yet another faculty colleague said,

I don’t think it would have happened if someone else had come up with the idea, but didn’t have the energy and the enthusiasm and the vision that Ronen had. It wouldn’t have taken off nearly as well as it has.
Ronen’s energy was salient to all of the informants with whom I spoke, regardless of their level of support or opposition. One career services director, Katherine, said, “I sit in awe and in admiration of [Ronen] and what he’s doing, and how he’s engaging, and just the energy that he has in doing it.” With a chuckle, she elaborated: “[He’s] so energized and so pumped that I’m just like, ‘Oh, can’t even sit still!’ He has that much energy. Which is commendable.” A faculty member with whom Ronen collaborated shared her impression that he was a “crazy doer” who seemed to “just makes things happen, I swear, out of the sheer force of will.” Vernon, the director of the consulting unit, referred to him “as the energizer bunny on steroids, because I don’t know how he does as much as he does.” Edwin, the head of the department housing SEE, said, “He’s hyperkinetic. I mean, he’s constantly in motion doing lots of things.”

**Passion motivated others to lend their support to the program.** Ronen’s passion motivated others, who often responded by lending their support to the program. In terms of inspiring potential faculty supporters and collaborators, one tenured faculty member who served as the director of a multidisciplinary research center, Darren, said that participating in a program like SEE involved “a very definite trade off,” because the hours spent on it meant less time to write proposals and advance other goals valued by the university, which was “a fairly high-powered research institution.” For this reason, Darren said that Ronen had to “find people who get really excited about it,” because tenure-line faculty in particular “can’t do these programs instead of doing something else. It’s always on top of [other work].” Uniformly, supporters and collaborators said that
their involvement with SEE helped them act upon personal or professional values that they otherwise had limited options to enact.

Ronen also motivated administrators and staff from across the university and at peer institutions. To give one example from the university, Narcisse, a librarian in the college of engineering described a meeting that she had set up with Ronen and her boss, an associate dean. The meeting’s purpose was to discuss the possibility of showcasing SEE in a new library initiative that would increase the program’s visibility in the university community and beyond. Narcisse said she just “sat back” and let Ronen and one of his faculty collaborators talk. “They just wowed [the associate dean] with the passion…and importance of the [program].” She added, “And that’s what was needed, because I’ve been arguing it from my point of view, but I think [the associate dean] got to see how very serious [it is]” by speaking face-to-face with Ronen. To give one example from a peer institution, the director of a program with similar aims as SEE said of Ronen: “He is absolutely persistent. He doesn’t give up. He has incredible energy. He stays in the community [focused upon by the program’s ventures] for a long time. And that’s one thing that…we also want to emulate.”

In terms of inspiring students, Madison, a student who participated in SEE for several years, said that she had previously worked with Louis, the engineering faculty member interested in service-learning. She commented that though students found Louis’ practice-based curriculum interesting, it didn’t “go as far as [it] could go.” This was due in part to his overregulation of entrepreneurial passion, that is, the “suppression of one or more internal feeling states and a lack of response spontaneity and novelty” (Cardon
et al., 2009, p. 518). This lack of expressiveness failed to attract high levels of student effort. Madison said the success of a practice-based curriculum involved students [being] a hundred percent into it. And a lot of times as a student, you’re involved in so many things. So unless you have that leader pulling you and pushing you, it’s hard to [commit], because you have a lot of other commitments. Madison said she shifted to working with Ronen because “the passion and the drive was there” and she appreciated how he “really dives deeper into projects” and involves students in creating ventures that are actually “going to happen” and create sustainable change in communities. She said that a social entrepreneurial approach meant “you really can’t do it halfway; you really have to be all in.” Whereas a service approach might entail, for example, digging a well and then moving on, a social entrepreneurial solution considers how to maintain the well and deliver maximum value to the community over the long term. Sylvia, a graduate student participant, commented on how Ronen’s passion energized students: “He’s very invested in these ventures, and they are successful because the students become invested also.” Madison shared a similar sentiment with me: “He has this passion that he spreads to the people he works with, and people pick up on that and can really…[help] make a lot of things happen.”

**Underregulated passion.** On occasion Ronen underregulated his passion, that is, he showed “an inability to optimally control or balance internal feeling states and g[ave] way to impulsive responses” (Cardon et al., 2009, p. 518). Sometimes in pushing students to do work that could help advance the ventures, he came across as “blunt,” in one student’s words. Following such exchanges, students unaccustomed to Ronen’s
“intensity” felt discouraged and in some cases demotivated. A first-time undergraduate participant, Mona, said, “He always expects a lot out of people.” She continued in a bemused tone, “It’s pretty annoying, because it’s exhausting to everyone around him.” Another undergraduate student, Amira, had formed a close working relationship with Ronen. She shared with dry humor: “He has his moments, but he’s really sweet. For the most part. Until he calls me at 3:00am asking me if I’ve done my research proposal. Then he’s not so sweet.” Similarly, a faculty collaborator who had difficulty sleeping started to receive calls from Ronen around 3:00am. This collaborator asked, “‘What, are you doing, [Ronen]?’ and he said, ‘Well, you said you didn’t sleep.’”

In concluding this description of how entrepreneurial passion mattered to the case, I note that some oppositional faculty members interpreted Ronen’s entrepreneurial passion as insincere. This perception was inextricably tied to a number of currents in traditional academic culture as well as competitive concerns. In Edwin’s words, some of faculty members “may ascribe impure motivations behind what he is doing,” because in their mind “nobody can do the things he does unless he’s not being thorough” or is doing it for “personal gain and this and that.” Aside from occasionally underregulating his passion, Ronen used this entrepreneurial tool well. It helped him advance SEE under challenging conditions of resource scarcity. It likewise helped him convince others to use the resources at their disposal to assist him in sustaining and developing the program.

**Hustle**

Ronen’s entrepreneurial passion motivated SEE’s supporters and collaborators. Along with compelling face-to-face interactions, he inspired people with the vigor of his
efforts. An East African faculty collaborator said that Ronen had “a sense that one has to hustle in order to get things done. And [he] knows how to hustle in the best possible way.” Hustle is “a willingness to do more with less by working harder” (Powell & Baker, 2011, p. 7). Ronen regularly put in—by his and others’ accounts—16 to 20 hour days to meet the needs of the program and continue its expansion. The excessive hours he devoted could eventually be replaced by additional resources, for example, another dedicated faculty line. Archetypical descriptions of startup founders mention their ubiquitous need to hustle at the outset of their efforts. Marco, an alumnus who participated in SEE from its earliest days, likened Ronen to a startup founder: “You talk to the owner of any startup, and they’ll tell you that there’s no sleep. There’s no doing anything else.”

Informants of various backgrounds marveled at the sheer number of hours Ronen dedicated to running the program, saying, for instance, “I don’t know how he pulls it off. I think the man just doesn’t sleep.” And, “He’s here [on campus] till midnight every single night. He’s here too every single weekend.” Along with the “insane hours” he kept, he was known to be “an idea man” whose “brain just cranks things out” at what seems like “300 miles per hour.” This mental quickness served him well in keeping up with everything that launching a program like SEE demanded. He seemed able to “handle ten things at once.”

Notwithstanding how much Ronen accomplished by hustling and how well he sustained his intense schedule, several informants noted that he seemed overextended and “spread a little too thin.” Students with whom Ronen worked closely said that “he has
like five hundred things going on, and he does a little bit for each,” and “he gives the attention he can, because he’s devoted to each of those little projects.” Students recognized that the diffusion of Ronen’s attention meant that he did not have sufficient time to focus intently on all the things he needed to do for the program. Speaking about how this had an effect on the ventures’ development, Casey said, “Some of the things we’re doing [for the ventures] should be prioritized and more attention should be paid to them, but he literally doesn’t have the time to do that.” It also meant that when Ronen worked with students, they sometimes felt that, “even when he’s here, you know, he’s like 20 percent here.” A first-time participant said that during venture team section meetings, it “would be a little frustrating, because you’d be talking and you’d look up, and he wouldn’t be looking at you. You could tell his mind was somewhere else.” She added, “But that’s the type of person you’d need to run something like [SEE]. They need to be constantly thinking of everything at one time...It’s good and bad, is what I’m saying.”

In spite of how thinly spread Ronen sometimes seemed, informants almost uniformly found him highly responsive. For example, Katherine, a career services director, said that Ronen was “willing to pick up the phone and to respond. Or if he’s not there, to get back [quickly].” Similarly, students felt that Ronen promptly responded to their requests for clarification when they got stuck on an assignment. He often came up with feedback that helped push their thinking forward. As one student shared with me, to save time and handle the communication load that came with working closely with dozens of students at the same time, Ronen suggested that students type their questions
for him in the email subject line, “because then he doesn’t even have to read the body [of the email].”

In absence of greater resources around status, funding, and personnel, Ronen used hustle to compete with more senior faculty members. He reflected on the fact that in practical terms, most professors can only dedicate a “pretty small” amount of time to curricular efforts. An intensely practice-based curriculum like SEE required a lot of logistical effort, a lot of networking in the US and the developing world, and a lot of time spent working with students. Ronen said, “I console myself, like, ‘Alright, how much time do these [other professors] actually have to spend on [doing things like] getting these ventures off the ground, and working with students, and etcetera, etcetera?’”

Furthermore, he realized that “at the end of the day” he only owed the department one course that wasn’t part of the SEE program. “So that also gives me privilege that, you know, others don’t have. So it becomes somewhat harder for [other faculty members] to do more stuff,” that is, developing curricula that would compete with SEE.

Uniformly, informants attributed SEE’s success to Ronen’s ability to consistently hustle year after year. Many also shared their concern that Ronen might “burn out” one day. One student suggested that “we’re getting to that limit to what Ronen can do.” Others simply stated, “one person can spend only so many hours awake” and “he can only do so much.” A supportive faculty member said, “I don’t know how long he’d be able to sustain it” without “build[ing] more internal support for it, because I just can’t see him doing [this level of intensity] forever.” Narcisse, the engineering librarian, reflected:
As a person that used to work 80-hour weeks routinely, you can only do that for so long, and you’re going to burn out. So that would be the bad. I’m afraid he’s going to burn out. The good is his passion for this, his knowledge, his interdisciplinary outlook, and his commitment to his students.

**Improvisation**

Improvisation is the “construct[ion] of a novel course of action” (Hmieleski & Corbett, 2006, p. 47) under “conditions of high uncertainty” (Baker et al., 2003, p. 256). When confronting an unfamiliar problem with resource constraints, an extemporaneous solution is often “the most reasonable course of action” (Hmieleski & Corbett, 2006, p. 47). Ronen used improvisation in two ways. First, he embraced it as an intentional part of the instructional process. He wanted students to become comfortable using this entrepreneurial tool, along with others, while working on the ventures. Second, Ronen used it to develop SEE’s curricular content and make pedagogical choices. For most of SEE’s credit-bearing courses, he sought over time to reduce how much improvisation he used week-to-week in teaching students, but for courses that centered on students’ venture team work, Ronen continually employed improvisation to deal with the fluidity of the teams’ progress. SEE’s design work required more pedagogical improvisation, because Ronen was not shepherding students through, for example, a bridge building challenge that he had seen hundreds of students complete in the past. Rather, the students were working on ventures that were entirely new to them and to their instructor.

**Improvisation as part of the instructional process.** While Ronen expected robust validation at later stages, he encouraged students to improvise by making SWAGs
(“smart wild-ass guesses”) in the early iterations of their assigned work to advance the ventures. In classes and venture team meetings, Ronen familiarized students with the range of socioeconomic and technical challenges of working with communities in the developing world. Rather than simplify the variables, Ronen expected students to grapple with the challenges of working in a real-world context. This stemmed from SEE’s goal of creating and launching ventures into communities with local partners. One venture, for example, was tasked with designing a device for a fraction of its current market price. Ronen explained that “from an educational standpoint, constraints spark innovation.”

When students knew they were not designing just any version of the device, but one that costs a tenth of a standard design, “that’s when they’re really working closely in team, learning from each other, connecting concepts, and coming up with innovative ways to make it happen.” The solutions they produced were often radically different while successfully benchmarking with more expensive designs. Chad, a lower-division student, said:

I didn’t really know what I was doing and I was like, “Alright, well [Ronen] doesn’t really know what he’s doing either, so we’ll make it up and we’ll find something good.” So I was like, “I’m not doing it wrong at least.”

Chad continued, saying he appreciated the freedom to take the design in the direction he and his partner wanted, but that he had to push through moments in which he thought, “I have no idea what to do.” Though the learning curve was steep for students, Ronen wanted students to consider established methodologies rather than randomly
trying to “hack” something together. Ronen said, “I’m trying to encourage the students to
do something more research-driven” because he wanted their solutions to display “rigor.”

The challenge Ronen laid before students meant that they often hit roadblocks. He said that as the educator, “talking to a student team, if you just don’t see it working out, then you change course. So you’re kind of making all that stuff up only when you’re talking to them, right? So that’s extremely, extremely fluid.” Indeed, “making stuff up” is a colloquial definition of improvisation. In response to Ronen’s critiques, students often complained, “Well, we didn’t know what you’re thinking.” He recollected his frequent reply with amusement: “Honestly, I don’t know what I’m thinking either.” Marco recollected that Ronen often said to him, “Whatever [we work on], it’s as unknown to me as it is to the students. They don’t want to believe me when I tell them this.” Along the same line, Marco remembered Ronen saying to the students: “Guys, when you ask me questions, I really don’t know the answers to them.” And the students would say with sarcastic disbelief, “Yeah, sure.” Marco shared with me, “No, he actually does not know the answers to them.” This improvisational approach was reasonable to Marco, since “some of the largest companies in the world…survived on SWAGs.” Since this approach worked for these organizations during their startup phase, Marco asked rhetorically, what precluded it from working for SEE’s ventures? Ryan, another alumnus, said that although it frustrated many students, he personally enjoyed using this tool to develop the ventures: “It was fun to see where the improvisation was going to go.”

**Improvisation in developing curricular content and deciding pedagogy.**

While developing the program, Ronen used improvisation to develop curricular content
and decide pedagogy. Through his regular attendance at conferences and student competitions, he learned about the curricular content and pedagogical choices made by fellow faculty who taught social entrepreneurship in engineering contexts. Ronen said, “I’ve looked at what…others teach, and I actually don’t like it at all, like the theories at [a certain] workshop…I just can’t imagine [applying] those things in this context.” Rather, he favored an approach built upon experience, or what he said was an “emic” approach: “A lot of it is just what I think needs to be in there, based on some of the problems we’ve faced in the past.” Marco said that though Ronen read a fair amount of academic literature and popular writing on subjects like venture development, “He’s good at sharing knowledge that’s gained from experience, as opposed to knowledge that’s gained from books.” Marco gave his impression of how Ronen viewed this second-hand knowledge: “It’s just kind of like, ‘Yeah, sure, I read that, but I would much rather go with my live experiences in the field.’”

With knowledge gained through experience, for example, Ronen presented in the spring seminar “a good overview of all the different kinds of things” the students needed to take into account while working on venture development. The concepts were “provided in a just-in-time manner” so that as students encountered certain types of questions about their ventures, they learned some practical and conceptual background knowledge to help them design for a real-world context. Concepts included design principles for affordability and developing country contexts, along with ethical concerns and strategies to navigate them responsibly. Ronen said, “I know it’s not perfect, but I don’t know a better way to do it.”
Through reflection on the students’ progress week-to-week and semester-to-semester, Ronen made frequent course adjustments. For half of SEE’s courses, he sought to codify the material and its sequence. This included the spring seminar, which he had worked to “finesse” over the previous three years. At the time of my study, he felt confident that “the content is certainly right,” but he wanted to “find different pedagogies” for some lessons. For example, he asked students to develop a brief pitch to convincingly share their ventures with potential funders and international partners. He said, “I’d love to do some workshop on [it], but I don’t know how to do it right or fit it in.” Even while seeking to codify as much as possible, Ronen said the content of the curriculum was “very fluid.” Early in the spring semester of my study period, for instance, he had “already changed quite a few things [in the courses], depending on how things were going.” Improvisation led to workable arrangements (Miner et al., 2001), and Ronen used it to create curricular content and pedagogy. He believed that investing more time into predetermining the courses’ exact content and schedule was of questionable value given the fluidity of the venture development process, around which the entire program revolved.

In addition, through improvisation, design and action converge, so that solutions, in this case, about what and how to teach, are executed in an extemporaneous manner (Hmieleski & Corbett, 2006). This quality of improvisation served Ronen well, since his time was severely pressed by the multiplicity of concerns involved in running the program. Nonetheless, Ronen’s extensive use of improvisation had drawbacks. For example, the venture team meetings were plagued by confusion among students about
individual responsibilities week-to-week, since so much was decided in the moment. Ronen said, “I’m good at the ideation, and I’m good at the execution, too,” but with regard to ensuring each student knew how to accomplish his or her individual tasks, he admitted, “I’m not good at follow up.” He also acknowledged, “And my memory isn’t that good either, so then we kind of start from scratch again” when neither he nor the students kept track of what was decided during class meetings. In instances like those, “they’ll get lost, and that just leads to more frustration for everybody.” Ronen spent time thinking about ways to mitigate some of these issues, for example, by assigning a student to capture the decisions made during each meeting and send notes to the class “so there’s a very clear understanding of who’s doing what.”

While much of my discussion of entrepreneurial tools in this chapter focuses on Ronen’s efforts to build and institutionalize the SEE program, some were also evident in his delivery of the curriculum. He used improvisation intentionally, incorporating it into SEE’s instructional process, as “a sensible approach” (Baker et al., 2003, p. 256) to handling the unknowns of developing an elective program in a resource-constrained environment.

**Storytelling**

Ronen attracted resources to SEE through the stories he thoughtfully framed and delivered. Well-crafted stories help others “perceive the credibility of the story line and the storyteller” (Lounsbury & Glynn, 2001, p. 553). They also “generate interest and commitment, thereby motivating audience members to act in a manner consistent with the author’s intended outcomes” (Martens et al., 2007, p. 1117). Robert, the development
director, said that Ronen balanced passion and deference when speaking about SEE and had learned over time how to “pitch” the program. For an elective program, for which “there’s very diminished resources for program money, it becomes even more important.” Though his comment referred to securing financial resources, Ronen’s adept storytelling helped him secure other kinds of resources as well, including student enrollments and collaborations with other faculty members. For the archetypical startup founder, pitching is a quintessential tool used to convince others to invest their resources.

When Ronen began his curricular efforts with the volunteer opportunity, the language he wanted to use to describe his approach was not yet well articulated. His first faculty collaborator, Louis, embraced a service-learning model, and so Ronen accepted this framing for the first stage in SEE’s development. With experience, Ronen revised the story he shared, and by the third stage of the curriculum’s development he had shifted strongly away from a narrative espoused by others, which reflected a charity-based perspective. Rather, he used his emergent understanding of how to work effectively with community partners in developing countries to say to members of the university: “Okay, this is what it’s like, and this is what we need to do.” After learning how to “tell a good story” with “some good photos,” Ronen targeted much of his early storytelling towards students. The revised narrative helped rapidly increase the number of students working with him from just a handful to several dozen. In addressing the university audience beyond students, Louis said Ronen “elevated the discussion from ‘the hole in the ground making methane’ [conversation] to a social entrepreneurial [one].” This shift allowed
Ronen to “capture the imagination” of administrators and faculty members from outside the department.

In addition to refining SEE’s story over time, Ronen came up with memorable names for new ventures and some of the student teams’ work. For example, a first-time participant recollected that on the first day of designing a new medical device, Ronen said, “We need a name for this beast” and on the spot came up with a catchy name that combined the team members’ first names. Cumulatively, these small details added flavor that enlivened Ronen’s storytelling and, in this instance, engaged students.

**Storytelling to gain access to resources.** Earlier I recounted Ronen’s initial disappointment when his students were given primary recognition for an award-winning venture that he had conceptualized. Through interactions with colleagues, he realized that others understood his role but appreciated the student-focused narrative. He said to them, “Okay, I’m new to this, I didn’t know everybody [already] knows that.” After this realization, when colleagues repeated it, he’d say, “Yep, good story. Let’s go for it.”

Taking it one step further, Ronen said that “depending on whom I’m talking to and how [the program’s] being pitched, sometimes it helps to just say that, ‘Oh, this was just conceived by students, and we’re just helping them’ and all that b-s.”

As he gained greater appreciation for the power of crafting stories, Ronen honed how he presented SEE to different audiences and tailored the story depending on the audience. He explained,

I do change the pitch. I mean, if you’re talking to students it’s different; faculty is different; administrators are different. Well, I mean, not a whole lot. The content
doesn’t change. The relevance changes, like “How is this relevant to them?” is what I change. But the content—the projects we’re working on, how we do it—is exactly the same no matter who’s listening.

When speaking with potential faculty and staff collaborators one-on-one, Ronen used a yellow notepad to illustrate SEE’s curricular model. He showed me the notepad he was currently using, thumbed through pages and pages of the same hand-drawn diagrams, and said,

There are two other pads I consumed before this, just explaining [SEE’s] model when I go meet with people to tell them, “This is what we’re trying to do here. Here are the ventures. Here’s how it works. Would you be interested in participating?” As simple as that.

This low-tech approach reflected Ronen’s sensitivity to academic culture, which valued transparency in how conclusions are reached and processes made plain. A slick, polished presentation would have likely turned off the listener in this context. After sharing SEE’s curricular model and providing an overview of the student ventures, he shared “who else is on board, because then they’re like, ‘Oh, if that person’s on board, I should be a part of [it] too.’” Ronen explained that this was a “classic business thing...[to] go and tell person A, ‘Hey, person B [is] on board and person C might be on board.’ Then you get both on board. It’s so silly but that’s the way it is.”

Ronen also used storytelling in his efforts to access resources controlled by administrators and alumni donors. When speaking with administrators, Ronen
emphasized their strategic priorities and framed SEE accordingly. For example, he spoke to them about how SEE addressed goals mentioned in the colleges’ strategic plans:

Some of the common threads include global awareness and engagement; multidisciplinary teamwork; public scholarship; innovation; entrepreneurship.

That’s exactly where [SEE’s curricular] model comes in.

For administrators in engineering especially, he focused on how SEE offered a way to meet the goal of taking “some of these global experiences from the select few to the vast majority” of students through the addition of non-travel-based options. Ronen carefully crafted his presentation to the college’s academic council, which concluded with a rare round of applause: “So I did that very, very strategically” after getting input from a half dozen advisors. Support from the department heads sitting on the council helped convince the dean to formalize SEE.

Although Ronen only occasionally interacted with alumni donors, for example, at a fundraiser dinner hosted by the university’s president, he worked to shape the story that development officers shared with their contacts through a presentation that Robert invited him to give at a staff meeting. Robert said that SEE “in particular provides that ‘do-good while doing-well’ type of opportunity for the students…[who] get a chance to actually do something [practice-based].” He spelled out the framing of SEE’s story that resonated with alumni donors:

It has a very strong free-market enterprise component to it. And, as you would guess, many engineering donors are a bit more conservative…so when you couple the humanitarian component with the free-market entrepreneurship piece, it
resonates with a certain cohort of the alumni. It really makes it an attractive program to present [to them].

Allowing for two versions of the same story. Many administrative, faculty, and staff informants attested to Ronen’s sensitivity and savvy when dealing with politically laden situations, for instance, when multiple interests jockeyed for priority. In forming collaborations within the university and abroad, Ronen tried to allow for two versions of the same story and create “win-win” arrangements. A collaboration between one of SEE’s ventures and an international partner organization illustrated this well. Ronen said of the partner organization:

They took our [venture], they ran with it, they hired all the people we were working with to build it, and they said, “Oh yeah, we are collaborating with [the University]” when that looked good for them to say it to get access to money. But they never said, “Okay, we borrowed this [venture] from [SEE],” or “[SEE] piloted this.”

Ronen said in response to this version of the story, “Sure, that’s perfectly fine,” because “it’s better for them if they just say they came up with it and they’re doing it.” He speculated that “95 percent of people don’t understand how these things work” and that they would view the discrepancy between SEE’s and the partnering organization’s versions of the story as evidence of untruthfulness. In response to this perspective, Ronen asserted, “Nobody’s lying. That’s just the way things work.” His easy acceptance of the story told by international partners stemmed from SEE’s stated goal for the ventures. Ronen said that “at the end of the day, if [the venture] survives, that’s all we want.” It
also reflected reality in a meaningful sense. An East African professor supportive of SEE’s efforts shared with me that “it’s fundamentally important for us to be involved in [developing] solutions—not to be handed a solution.” He continued, saying that if any products or services were “brought over [to our country] finished, they’re not really helping us.”

Ronen’s collaborations with faculty, which I discuss shortly, occasionally made it hard for two versions of the same story to comfortably coexist. Ideally, Ronen wanted to emphasize his lead role in SEE’s activities, while allowing collaborators to frame their involvement in SEE in the way most beneficial for them. However, the question of authorship on research papers sometimes generated friction owing to the traditional academic rewards that came with first authorship. Tensions over authorship strained or, in the case of an early collaboration, significantly eroded the relationship.

In summary, Ronen used storytelling in three particularly salient ways. First, he subdued his ego and allowed others to repeat a compelling student-centric origin story that understated his role. As Martin, the director of an elective program, said, “Ronen could’ve made [SEE] an ego thing, and he has not.” Instead, Ronen learned the value of occasionally using this story to advance the interests of the program. Second, Ronen used storytelling to attract additional resources, including faculty collaborations and administrative support. Over time, he refined the way he shared SEE’s story by incorporating visuals and tailoring it to audiences’ specific interests. When speaking one-on-one with potential faculty collaborators, he hand-sketched the curricular model for them, in keeping with the no-frills transparency often preferred in faculty culture. When
speaking in other forums targeting students, for example, he peppered his digital presentation with full-screen photographs of SEE’s activities. Third, Ronen allowed two versions of the same story to coexist: one that he told to SEE’s audience and others that his collaborators told to their audiences. He did this because SEE’s focus on practice required a pragmatic perspective on how to advance the program’s intended outcomes for students and communities. In conclusion, storytelling suffused Ronen’s daily efforts to advance the program.

**Bricolage**

“He just made it work, which is very, if you think about it, it’s really inspiring because that means there’s potential that you can go into any [setting] and really make…what you want to do [happen there].” These words of a staff member captured in broad strokes Ronen’s use of bricolage. Through bricolage, Ronen considered environmental constraints not as deterministic but rather conditions to be negotiated. He had what Baker and Nelson (2005) called “a bias toward action” (p. 334) and “tolerance for ambiguity and messiness and setbacks” (p. 356). In laymen’s terms, bricolage is the creative use of the material at hand to build a workable solution, for example, fashioning a vehicle from junkyard scraps. In academic terms, bricolage is “making do by applying combinations of the resources at hand to new problems and opportunities” (p. 333). It entails the use of resources that are readily accessible, undervalued, or underutilized. Ronen’s network and one-on-one interactions contributed to the resources at his disposal, and his contacts themselves often served as at-hand resources. In this section, I identify these at-hand resources and then provide three examples of how Ronen ‘made do’ with
them to expand student engagement; to gain entry to an academic department; and to form a curricular component. In each account, I address the following: How were these at-hand resources undervalued or underutilized by other faculty members? and, How did Ronen use new resource arrangements to advance SEE’s development?

**Expanding student engagement through network bricolage.** Ronen engaged extensively in network bricolage by developing contacts who “are themselves the resources at hand” or the “direct conduits” to resources (Baker, 2007, p. 704). A necessary precursor to network bricolage is networking, which Ronen used to gain additional contacts and generate “a repertoire of heterogeneous resources” that did not necessarily have a “clear intention and purpose” (Duymedjian & Ruling, 2010, p. 140). Only once he perceived a need or opportunity for SEE did he engage in bricolage to “dialogue” with his at-hand resources (Baker & Nelson, 2005, p. 336).

**Networking.** Ronen developed a broad network while nurturing numerous deep connections over time. Edwin, the department head, said of Ronen: “He’s made himself known” and “probably engages with more [people in other] colleges than anyone else I know….Whenever I meet somebody who knows him, he’s always spoken about highly, which is not true of every faculty member.” A supportive senior faculty member called Ronen a “connector” and a “network builder” because he often introduced colleagues with mutual interests. She said, “I’m constantly expanding my circle of contacts and bringing him into contact with people that I work with, and he does the same thing for me.”
Ronen broadened his network in several ways. For one, he participated in panels, presentations, and events hosted by a wide range of entities from across the institution and beyond. At these events, several of which I observed, faculty and staff attendees became excited by what Ronen was doing and spontaneously offered their support. For instance, after a joint presentation with one of his students, hosted by the research center that had funded the student’s summer travel, I watched a third of the audience hand Ronen their business cards while explaining their academic interests or university role. Ronen told me that this was a common reaction and he only had the bandwidth to follow up with about a fourth of the interest he received. Ronen also joined networks comprised of colleagues from across the institution (and beyond, at regional and national association gatherings). Some of these networks formed around committees or consortia that convened faculty and staff members interested in specific areas like global engagement or service-learning. Other networks were “completely informal,” “grassroots,” and “under the radar,” in the words of career services staff members who, as I discussed earlier, “care[d] deeply about this kind of educational opportunity for undergraduates.”

Ronen tapped into varied, often intersecting networks that had evolved over time. Informants noted that some of the networks started in the mid-1990s while others developed later. Evelyn, an engineering associate dean, recollected that in the nineties Louis had worked “solo” on service-learning in engineering. She said, “He was a one-man show. There might have been others who were out there, but they weren’t really well connected.” As I discuss later in the chapter, Louis struggled to advance his curricular
goals, in part because he lacked a supportive network. Evelyn described the growth of an informal network concerned with student engagement at the university:

Once you get a certain number [of likeminded colleagues], then you have these linkages. And even if somebody doesn’t know about it, they quickly find somebody who does, and then it sort of grows. So I think [one of the] institutional things that we have going for us is that the network is now reasonably strong and connected, so that anybody coming into [the University] as a faculty member would be able to find this network and connect.

Ronen’s faculty colleagues shared with me how these formal and informal networks provided “moral support.” A tenured professor who offered occasional support to SEE said that the dominant institutional culture favored traditional research and discouraged his curricular efforts to engage students globally:

At a place like [the University]…it’s very easy just to say, “Oh heck with it. I’ll do the easy stuff.” I can write grants for doing things here in the States and that kind of stuff, and not worry about it too much.

He said the networks provided him with encouragement and strengthened his resilience:

“And so it’s just nice to have other people around who are trying to get [likeminded curricular efforts] done.” Oscar, the faculty collaborator from the tourism department, said he had “colleagues across campus who cared about these things, and so we just pat each other on the back and we support each other, and we create our own institution within the institution.” By “institution within the institution” he meant that informal
networks channeled collegial support for faculty who valued student engagement more highly than colleagues who favored the institution’s dominant research culture.

Katherine, a career services director, likened Ronen and his personal network to “the spider with its web,” because the spider “keeps growing” its web and “can catch” more and more resources through it. At the same time, she said, the spider web requires maintenance just as Ronen needed to regularly interact with supporters and collaborators in his network. He routinely engaged supportive faculty and staff members through short-term opportunities to interact with SEE. For example, he invited supportive contacts to serve as panel experts who critiqued his students’ progress on the ventures. Ronen also contributed to the networks he joined in several ways, for instance, by doing presentations, organizing efforts to more widely share a formal network’s mission, hosting regional conferences, and arranging dinners to bring like-minded colleagues together. In sum, Ronen built a broad and deep network like those of successful entrepreneurs who “emerge from positions that are connected to diverse information sources, as well as from positions benefiting from a reliable set of strong ties” (Aldrich & Ruef, 2009, pp. 71-72).

**Using network bricolage to form cross-campus collaborations.** The following example brings attention to Ronen’s use of his contacts as resources or as connections to resources. As these contacts offered resources to Ronen, he likewise approached them one-on-one to see what win-win collaborations they might create together. Marco, an alumnus of SEE, said that Ronen’s efforts were bolstered by likeminded colleagues: “There were professors in other departments who were trying to do something similar in
their own little way.” He reported that once publicity about Ronen’s students winning a national competition appeared, these professors said, essentially, “Hey, they’re doing it [engaging students].” Energized by Ronen’s willingness to take action (and ability to get compelling results), they started to reach out and help him access resources. In terms of reaching back, Ronen said, “if there’s even one email, I go after it” by following up, especially “if I have a really vested interest in it.” At the same time, he discovered that not everyone who reached out was as eager as they initially appeared. He noted, “They’re like, ‘Yes, I want to do it.’ But then you go on and realize they don’t really want it.” As a result, Ronen had to invest significant time to filter the interest he received in SEE.

Anne, the entrepreneurship minor’s director, said of Ronen: “He’s really, really good at developing networks,” and “he’s probably one of the best people at building and using networks to get to resources.” She elaborated, saying, “The people he works with know he does good work, and then they’ll say [to him], ‘Hey, have you talked to this person?’ and, you know, ‘There’s another opportunity over here.’” These “champions,” which Ronen mentioned repeatedly to me, shared information about SEE with others and made introductions. He gave the example of Karen, the university fellowship office director, who “talks about [SEE] to faculty, gets more interest, cross-pollinates, and connects people.” She served “on all these little committees” across the university, “and when the committees meet up, they need stuff to talk about so [she mentions SEE].” Ronen regularly approached network contacts to explore the possibility of forming a collaboration that would expand SEE’s curricular scope and student engagement. A staff
member well acquainted with SEE through the assessment work she did on the program shared her understanding of how Ronen actively sought to develop collaborations:

I think that’s the entrepreneurial mindset: to go in [to meetings] and look for opportunities. We can think about the entrepreneur who’s thinking about opportunities for developing a new product or service or whatnot. But in [Ronen’s] case, he’s got it in his head that he’s looking for opportunities [to collaborate]. What he’s looking for is maybe different than the traditional entrepreneur. But he’s got that mindset. Whereas a lot of people don’t go looking for those opportunities.

While cross-campus collaborations were not unusual at the university, many faculty members viewed them as a nice-to-have rather than a need-to-have. By contrast, Ronen used cross-campus collaborations in a very integrated manner. Financial constraints, along with a competitive environment within the department housing SEE (and to some degree the wider college of engineering), made cross-campus collaboration a necessity for Ronen. Receptive colleagues also tended to be in other colleges and, as Marco said, “One consistent trend I’ve seen is that anytime there was a professor that was interested in working with us, they always managed to figure out a loophole in the system, to get the thing going.”

In seemingly countless informal discussions and formal presentations, Ronen shared his model for integrating other faculty members’ course projects and students in SEE. The model was flexible rather than prescriptive so that Ronen and potential collaborators could piece together mutually beneficial arrangements. This creative
patchwork of existing resources exemplified the primary action involved in bricolage. In the context of meeting with potential collaborators, Ronen described his approach as one learned over time and focused on finding win-win connections:

When I went into this [curriculum development], I had no idea [how to form collaborations]. It was just figuring out exactly what would work among all the things I do, and finding that intersection. So that’s a knack that you get over time. And it’s really important. Because I know others who can go in with an agenda, and they’re either trying to sell that or they walk out of it. Yeah, and that just drives me nuts. Like, I’m trying to get something practical, tangible out of it, no matter how minor it is. Not out of a selfish perspective at all, but from a mutual benefit perspective. I think that’s important.

**Soured and unhelpful collaborations.** Despite earnest efforts to form lasting, workable collaborations, two of SEE’s initial collaborations soured over differences in perspective or expectations. Wasted time and the ongoing need to manage delicate relationships were salient concerns for Ronen, although he also viewed these setbacks as learning opportunities for future collaborations. A collaboration with a tenured communications faculty member, William, soured because, in Ronen’s words, “What it comes down to…[is] we have different philosophies and things we want out of it.” Ronen illustrated some of the friction with William, saying, “He’s like, ‘Oh well, let’s do another workshop.’ And I’m like, ‘I’m done with workshops, dude. Let’s do the real thing or not do anything, because workshops are a waste of time.’” William shared with me an instance that frustrated him. One summer he traveled with his students who were
involved in SEE. He had expected them “to do validation” of their concepts, “but before we could develop the instrument, before I knew it, [Ronen had them] working on innovation. I said, ‘What’s this now?’” Other issues, like the division of responsibility for the collaboration’s logistics, further eroded their relationship. Nonetheless, Ronen said he learned a lot from William about fieldwork and appreciated the work they did together.

During the time of my study, Ronen was grappling with what to do about two collaborations that had potential for funding but were limited in terms of the flexibility of the arrangement. Ronen wanted to engage the individuals involved in a co-creative process that would produce a win-win collaboration. In both cases, Ronen found the collaborations to be ultimately unhelpful to SEE’s advancement. In one of these cases, Ronen joined a multidisciplinary faculty team on a large grant. He had hoped to get about $10,000 to hire student assistants to work on the project and to handle some of the daily logistics that bogged him down. He also hoped to tie the project to one of SEE’s classes. To Ronen’s chagrin, he neither received any funding from the grant, nor succeeded in connecting the project with SEE, since the other faculty members took it in another direction. This instance of a failed collaboration (from the standpoint of its effect on SEE’s development) underlined the fact that the university’s environment contained a great deal of uncertainty and the payoff of any specific relationship or arrangement could not be guaranteed. Ronen said it was a challenge avoiding “time sinks” and “knowing when things are just going around in circles and when there’ll be payoffs.” He explained: “The payoff can be direct or indirect, so money is one, but also being able to make some good connections that can pay off in other ways.”
**Lasting and promising collaborations.** By the time of my study, Ronen had formed a half dozen other collaborations with fellow faculty that were functioning well or off to a promising start. One long-term, mutually beneficial collaboration (which I described in Chapter 4) involved a tenured faculty member, Julian, who taught an upper-level engineering design course. Julian had been searching for a real-world problem for a student capstone project. He and Ronen met when the administrative assistant in the dean’s office assumed that the two, who had separately requested meetings, intended to be part of one meeting. Ronen said, “So we ended up being there at the same time, by mistake, and then we started talking, and we realized there were so many commonalities.” He added with a laugh: “The dean didn’t give money to either of us, but she said, ‘Boy, you guys should work together.’”

Another collaboration linked Alan, a clinical faculty member at the law school, to SEE. At the end of my study, Ronen and Alan were preparing to launch the collaboration. The newness of the collaboration allowed me insight into the heavy involvement of networks in the bricolage process. Alan had left a legal practice focused on corporate law that wasn’t “particularly fulfilling” and was looking for an opportunity “to do something that makes a positive difference in people’s lives instead of…a company’s bank account.” After joining the university, he had some informal conversations with Ronen, and they both agreed it would be interesting to look for ways to collaborate. Alan felt encouraged to draft a concept note after learning that both a law school dean and the director of career services were acquainted with Ronen and his work. Alan said of the latter colleague: “She was really instrumental…like a cheerleader but so much more. She
said, ‘You know you could do this, and this is going to be great, and I can hook you up with this person and that person.’”

Alan said that with the encouragement of “know[ing] that other people were interested in this…I threw myself into it.” The concept note “explain[ed] the [subject matter] linkages” and “the benefits of the law school being involved in [SEE] and how it might work, you know, the costs and benefits.” After the law school’s leadership expressed interest in meeting about the potential collaboration, the conversations between Alan and Ronen increased as they considered possibilities. To Alan’s surprise, at the meeting with the deans, they decided on the spot to make it a legal clinic:

To be honest, it wasn’t my idea to turn it into a clinic right away. I drew up a concept about getting law students involved with [SEE], figuring that we’d kind of take it slow, and try it as an independent study with a couple of people, see how things works, and see paths to develop it further.

Alan explained the deans’ reasoning: “Experiential programs are an important part of marketing the law school. So [they wanted] to get it up there to say, ‘Hey, this is something that we’re offering.’” In short, the deans “just felt like this is going to work, and we may as well take advantage of it, and put it out there. So they’re the ones who said, ‘Have at it, you’ve got a new clinic.’”

Alan knew that the clinic needed to be successful in its first year because administrative approval for experimental courses only lasted for one year. To become a permanent course, the faculty body had to approve it, which could be difficult because, he said, “frankly there’s a little bit of a rift between the clinical faculty, who are non-
tenure track, and the tenure track folks, the real scholars. And so...I need to have a success story.” Ronen and Alan both shared with me several possible ways the law students might work with the venture teams to enhance the underdeveloped legal aspect of the ventures. Alan said the bottom line for initial success was: “the students learn a lot and we have results that are demonstrable.” Through their discussions, Ronen and Alan agreed that the law students would enroll or participate in SEE’s spring seminar and venture team sections, summer travel and fieldwork, and fall course on publishing research. True to Ronen’s values, he discussed how fully he wanted to integrate the law students into the multidisciplinary venture teams: “I’m trying to say, ‘Well, I don’t like the word consultant. How about convert them to entrepreneurs, right?’ We don’t always want them on the sidelines, saying, ‘Hey, do this, do that.’ We want them to do it.”

The network contacts who made cross-campus collaborations possible served as at-hand resources for Ronen. He often reached out to, was approached by, or serendipitously met potential collaborators, with whom he sought to construct win-win arrangements. SEE’s limited resources and influence made cross-campus collaborations a necessity to Ronen in his effort to develop the program. Tenure-track faculty members often undervalued cross-campus curricular collaborations because of the rewards they reaped for focusing on traditional research agendas. There were, nonetheless, a number of tenure-track and clinical faculty members interested in engaging their students in learning opportunities like the one offered by SEE, provided that they did not have to undertake the heavy lifting required to develop and run such an intensely practice-based program. Although not all collaborations proved successful, Ronen continually considered all
available resources and often found ways to bring them together in a workable and mutually beneficial manner. Below, I share two other accounts that demonstrate ways in which Ronen used bricolage to develop the program.

**Gaining entry into an academic department through bricolage.** Ronen used a certificate that Louis had shepherded through the academic approval process as a resource to develop SEE. As I discussed earlier, Ronen invigorated Louis’s dozen-year effort to engage engineering students in service-learning. Robert, the director of development, observed that in his many years with the college, he had seen faculty members interested in curriculum innovation who had “really good vision and a passion,” but they didn’t “have the political skills to make it work.” He said, “Louis is one of those guys.” The latter had only managed to make fitful progress because of his brusque approach and the slow growth in faculty colleagues’ interest in service-learning.

Eventually, some engineering faculty members independently began to offer this variety of learning experience to their students. Once these individuals identified this common thread, they made a collective, administration-supported effort to create a service-learning certificate to bring visibility to these opportunities without demanding too much from students constrained by prescriptive course requirements. Very few students completed the certificate, and the involved faculty members had no apparent plans to increase its rigor or bolster interest. In this sense, the certificate was an underutilized resource that was at hand for Ronen thanks to his work with Louis, who served as the certificate’s coordinator.
When the administration was deciding whether to give SEE an academic home, Edwin, the department head, spoke with Ronen about the college’s financial constraints. In that climate, he said, it was nearly impossible to secure funding for a new program, let alone one spearheaded by someone without a doctoral degree. Ronen, Edwin, and Louis had a tense discussion, in which the latter agreed that the only way to sustain momentum was to propose that the certificate be restructured under SEE’s name. Ronen explained, “We’re not going to say we’re building a brand new certificate, we’re going to say, ‘Okay, we are restructuring this existing certificate and changing its name.’ It’s just easier to do…than starting from scratch.” Although reluctant, Louis allowed Ronen to symbolically transform the certificate into something of higher value for SEE’s development. This transformation of resources from lower to higher value (in relation to a startup’s development) is a form of bricolage. SEE also benefited from Louis’s affiliation, because as a doctorate-holding professor he added what James, the leadership minor’s director called “credibility.” Though Ronen was not the only faculty member in the department without a doctorate, the others with terminal master’s degrees were much more senior, and no one denied the boost to credibility that a doctorate degree imparted.

Initially, Ronen expected to follow through with the certificate restructuring. He felt it would help “make [SEE] somewhat more institutionalized.” Robert commented: “You can’t fully operate on the periphery and be successful. Early on, you can…but you want to become integrated” and associated with the normal “business of the college.” Administrators shared with me their expectation that the certificate would be reworked within a year or two after SEE’s formalization. Edwin explained that the purpose of the
generous timeline was to prevent Ronen from approaching the curricular committee multiple times while he tweaked the curriculum’s structure. He said, “Don’t change [the certificate] until you get it right; until you determine exactly what you want [it] to do.”

At the close of my study, Ronen expressed less commitment to restructuring the certificate. This was partly due to increased strain in his relationship with Louis, who maintained a strong sense of ownership of the certificate and clung to previous ways of doing things. Beyond interpersonal issues, Ronen revealed to me that he always saw the certificate as “more about the validation and legitimacy.” Unavoidable tension surrounded his desire to free SEE from structural concerns and the need to conform to institutional standards. Ronen disliked the “coursework mindset” that elective programs using a traditional structure, like a certificate or minor, appeared to embrace. In his view, directors of these programs seemed to focus on, “Okay, get the students through the courses.’ And I don’t think it helps a whole lot, because sure [students] can get through six courses, but what are they really taking away? I don’t know.” Though he disliked courses for these reasons, he could not escape the fact that credits were what students expected to receive in exchange for the kind of intense effort the program demanded of them.

Furthermore, Ronen placed intense focus on the impact that students’ practice-based work made on communities. This focus shaped his decisions about the curriculum’s structure and his expectations for student involvement. He eschewed prerequisites and enrolled every type of student, from first-year undergraduates to doctoral candidates (although the program focused on undergraduates). In addition,
Ronen minimized course sequencing, thereby allowing students to begin their involvement in either fall or spring semesters. Finally, Ronen did not care about having students ‘finish the program.’ Indeed, this concept was never mentioned by any of the informants when speaking about SEE. To maintain enrollments, Ronen developed courses that helped students grow practice-oriented skills like writing and research publication. Referring to SEE’s association with the certificate, namely, that SEE credits counted towards it, Ronen said, “I have never been a fan of pushing this certificate, and saying, ‘No, you must get this certificate.”’ As noted earlier, he thought it “more important….that students are engaged in multiple and ideally all of the SEE courses” with the goal of building “a portfolio of accomplishment through the projects, through the research papers,” and other and educational experiences.

During this period, Ronen used the service-learning certificate as a symbolic resource that increased SEE’s stature and conceptually wrapped it in a traditional form, just long enough to convince the college’s administration to give it an academic home and some funding. The opportunity to tie a newer effort to a preexisting program likewise helped quell protests by faculty members within the college who would have otherwise complained about a new program receiving administrative support while other initiatives were being cut. The certificate allowed him to work around what would have been insurmountable barriers related to financial constraints and traditional academic appointment procedures and standards. Though the resource at hand was not ideally suited to his needs, Ronen was able to transform it in a symbolic manner and use it in a workable way to advance SEE’s development.
Forming a curricular component through bricolage. Ronen further pulled together three additional at-hand resources—the institutional review board (IRB) office, the risk management office, and the undergraduate students enrolled in SEE courses—to create a curricular component that distinguished his program from the college’s other elective programs. Through the lessons learned from years of fieldwork and reflection on how to improve its impact on students and communities, Ronen determined that incorporating undergraduate research into the SEE curriculum would meet multiple needs of the program. Specifically, in the spring term, this component engaged students in venture teams and sub-teams to work on IRB-approved research projects that directly informed or disseminated the ventures’ progress. In the summer, the students carried out international field research and upon their return in the fall, those whose schedules allowed enrolled in a SEE course on research analysis and writing. Beyond the fall, Ronen worked with students to get their papers published in standard peer-reviewed journals.

Ronen developed this curricular component by connecting resources that faculty members often avoided (the IRB and risk management offices) or left untapped (undergraduates and their ability to do publishable research). Many faculty members avoided engaging with the former two resources because of concern that their research plans might be constrained or delayed. Despite funding incentives from programs like the National Science Foundation’s Research Experiences for Undergraduates (REU), such sentiments nonetheless discouraged many faculty from tapping the potential of undergraduates to do publishable research. The focus on graduate education, the lack of
time and other incentives to oversee undergraduates’ projects, and/or the belief that undergraduates could not contribute efficiently or effectively to high quality, publishable research efforts created significant barriers to undergraduates’ engagement in research (Webber, Nelson Laird, & BrckaLorenz, 2013; Eagan Jr., Sharkness, Hurtado, Mosqueda, & Chang, 2011).

Ronen did not immediately patch these resources together to form a research component for SEE’s curriculum. Owing to the practical focus of his master’s degree, Ronen said:

- I came to the whole publishing game late…My thought on publishing was, “Well, if you come up with something that’s going to change the world, you publish it.”
- Well that’s not true. There are small advances and some pieces here and there [you can contribute].

He recounted the successes of his initial volunteer effort working with students on the solar venture in East Africa. Although the team he led created a successful, long-term, functional system, he realized only after concluding his involvement that he didn’t “have anything tangible to show for it” and that publishing would have been the way to document his contributions and ensure he received due credit from peers and administrators. Over time, Ronen’s program participants began conducting informal research to help validate their ideas for the social ventures they were creating for the East African context. At this stage, the research was not publishable and lacked institutional sanction. It was also at this stage that Ronen realized the advantage of embracing the IRB approval process and risk management oversight:
You know, I’ve started to realize something and use it to my advantage. Everybody’s so afraid of risk management. Everybody’s afraid of IRB. But…these are entities and structures you have to work with. So instead of just avoiding them or bad mouthing them—it’s like everybody hates IRB—but let’s start looking at it from their perspective and let’s see how that actually enriches our process and our work. And then partner with them to make it happen.

Ronen and his students eventually partnered with IRB and risk management staff to produce papers on how to work with both entities to gain approval for international research in developing country contexts. These documents became resources for the university community and peers at other institutions whom Ronen met at regional and national conferences. Ronen also used them to help silence oppositional voices, like those of professors in the engineering school who insisted that undergraduates were incapable of producing quality, publishable work, or who insisted, like one departmental colleague, that securing approval for international research was “impossible.” Ronen told me about an email that essentially said, “I’m a full professor and I’ve never been able to get an international IRB.” In reply, Ronen offered: “Here, I have twelve of them [IRB approvals]. And I also have a paper on how to navigate and get IRB [for international research].”

For navigating risk management, Ronen ended up sitting down with a risk management officer and drawing up a brief document “that just explained how the risk management rules applied to people in all these different situations.” He did not anticipate writing this document from the outset of his contact with risk management,
which was made to help figure out how to handle the summer fieldwork as an official, university-affiliated experience. However, he converted what would normally be considered a time-burning activity into a valuable one. Of the document, Ronen said,

That’s been used by so many people across the university. I’ve sent it to people at almost every college trying to do something international and how risk management works. So this is actually helping them now, as a resource on risk management.

After engaging the IRB and risk management offices as resources rather than liabilities, Ronen established the fall course to help students through data analysis and paper writing, with a desired outcome of submitting manuscripts to peer-reviewed journals. Through this evolution in thinking about and engaging his at-hand resources, the program’s research output quality increased, and the students’ articles began to be accepted into peer-reviewed journals.

On the topic of engaging undergraduate students in publishable research, the department head noted that Ronen’s lack of a doctoral degree prevented him from pursuing large research grants or directly advising graduate students. While graduate students did participate in the program, Edwin said,

What resources does he have available to him? That’s undergraduate students. And if he can get them to do undergraduate research…[that’s the] best thing for a student-centered research university…If we’re a research university, students should be doing that.
Casey, an undergraduate student who had been part of the program for several years, commented that SEE’s student research component had greatly improved over time and was now so legitimate because of IRB. There’s just no comparison between our projects and some of the other engineering projects that are going on [through other programs], because no one else does that [gets IRB approval for undergraduate research] and you can’t publish with them.

The international exposure and rigor offered by the program attracted high-caliber students. Such students were in fierce demand, and by leveraging the IRB office, especially, Ronen was able to establish a track record of and pipeline for undergraduate engagement in quality research. This became its own magnet for ambitious students who flourished in the program and were more likely to stick with it. An upper-division student, Karine, valued the opportunity to publish and present her research findings: “It allows me to publish papers and go to conferences and build up my resume for med school if I want to do that.” She added that to her, this aspect was “definitely the biggest strength of the program.” Another student, Samantha, shared her experience and motivation around this curricular component:

Yeah with the people who stick around…we’ll all go off about our papers, how much time we take, and how ridiculous it is. But [we’ll] sort of refer to [Ronen] as like “Dad,” and it’s like after spending that much time with it you do love it. That’s why you’re here. And it just becomes something you’re so defensive of: “Well this is my project, and I have to stick with it.”
By bringing together three undervalued resources, Ronen crystalized a curricular component that distinguished SEE from its competitors. He borrowed a term from the startup and business worlds when he said SEE had a “competitive advantage” over other elective programs because none of these included a rigorous undergraduate research agenda. This attractive feature helped Ronen secure more and diverse resources, in particular, legitimacy, outside funding, and high achieving students: “[Research publications] give me something very, very tangible to show for myself, for the program, and also for the students…to show their rigor.” Furthermore, he said the goal of the research component was to show others that SEE generates a “rigorous body of knowledge and [is] not this touchy-feely, you know, ‘go hold hands and sing songs’ kind of a thing. So [research] brings the rigor back in [to the curriculum] and also showcases it as an intellectual thing.” While others avoided or minimized their engagement with these resources, Ronen reframed and arranged them to generate value for SEE. The research component created a record of the program’s practical and intellectual contributions. As such, its addition helped meet multiple needs and demonstrate the program’s worth to its participants and stakeholders, including students, faculty collaborators, administrators, and external funders.

**Bootstrapping**

To help cover under-resourced or unmet needs of the program, Ronen engaged in bootstrapping, which is “a set of processes through which entrepreneurs find resources, increase resource efficiency, and minimize explicit costs” (Patel et al., 2011, p. 421). The university was, in the words of a staff member, “a tough…resources constrained
environment.” According to Evelyn, an engineering associate dean, funding for all of the elective programs had “to come from a variety of sources” since they were not part of “mainstream” programming, namely, they were not degree programs. Evelyn explained that after “an initial investment” by the administration, they generally expected directors to find ways to “sustain” their programs with outside money. Recognizing this was not an easy feat, she added, “The challenge, of course, is that it’s ongoing. [The directors are] just constantly doing it, so that can be exhausting for [them].” Karen, the university fellowship office director, shared her perspective on the matter in blunt terms: “You know, everybody wants to support new programs. Nobody wants to support programs that continue to exist.” In this environment, Ronen ran SEE with one faculty appointment (his own); one course release from the six he was contracted to teach; and a $5,000 base operating budget provided by the college. Speaking of this budget, he said, “In all honesty, I had a $5,000 operating budget” even with “operations in all these different countries” for the student ventures.

Ronen experienced some success with securing additional financial support through sponsorships and grants. Companies provided relatively generous support to the leadership and entrepreneurship minors through sponsorships because they sought to recruit graduates of these programs. By contrast, Ronen said he only managed to secure a small amount (typically a few thousand dollars at a time) in corporate sponsorships, since many SEE participants entered graduate school immediately after graduation or came from disciplines outside of engineering. Ronen was more successful in obtaining grants. At the time of my study, Ronen had earned respectable but modest support from
foundation sources. In the early stages of SEE’s growth, Ronen pursued several grants on a whim. For example, he “picked up” on the dean saying at a luncheon with a granting agency’s director, “Why don’t we have a course on social entrepreneurship that focuses on all these issues?” Two days before applications for a course planning grant was due to the agency, Ronen “just totally winged it,” “whipped out a proposal,” and got the funding. “I said, ‘Alright, well now we’ll have a social entrepreneurship class.’” In a similar example, Ronen put together “a last-minute proposal” and was awarded a grant from the university’s teaching center to conduct a multi-year assessment of student learning. Ronen’s grant-getting activity, particularly early on, was less deliberate than that of tenure-line engineering faculty members. For one, SEE was not dependent upon grants for its continuation, although they did supplement his meager budget. Moreover, and especially in the early phases of curricular development, Ronen only became aware of grant opportunities at the last minute. As he began to work with tenured faculty colleagues he pursued these sources of funding more deliberately and with better planning.

Ronen used bootstrapping in two ways to meet the program’s needs. First, through bootstrapping, he identified funds from across campus and used an “imaginative and parsimonious” (Harrison et al., 2004, p. 308) strategy to generate financial support for student travel. Second, Ronen used non-monetary resources to keep students productive and safe while traveling abroad for summer fieldwork. This second instance of bootstrapping enabled him to partially meet the program’s needs “without there being a financial transaction” (Windborg & Landstrom, 2001, p. 237).
Bootstrapping to support student travel. Funding to support students’ travel for summer fieldwork remained a significant concern for Ronen, and he employed no less than five strategies to meet this resource need. First, he used his networks, like the one comprised of career services staff, to identify sources of funding for student research and travel. Second, he made personal appeals to administrative assistants in other colleges and asked them to facilitate a conversation with senior administrators who could provide non-routine support for students majoring in their college. Third, he worked with the honors college to increase the involvement of their students in the program, in part because the college had a sizable pool of funds for their students to complete thesis research whether domestically or in an international setting. The college agreed to designate SEE’s spring seminar an honors course, even though they had to make an exception because Ronen did not hold a doctorate. Fourth, Ronen applied the funds SEE students won in national competitions to support students’ travel through small, competitive awards. Fifth, he developed a SEE-sponsored student competition to raise awareness of the program, attract outside dollars, and, ultimately, use surplus funds to support student travel.

On the final point, Ronen said with a chuckle, “Yeah, I feel bad about this sometimes, but it’s business. It’s all business, you know.” The student competition, which Ronen developed with Oscar, a faculty member in tourism, asked students from across the university and other institutions to submit their ideas for addressing a problem well-suited to a social entrepreneurial solution. The competition provided value to SEE in several ways. Ronen used it to build name-recognition for SEE, recruit students, attract
some sponsorships, and provide funds for student travel from excess support not needed to run the competition. Regarding the latter, Ronen said, “My conscience is clear. I’m not getting a penny out of it. There’s a line in the brochure [for sponsors, which states] that… leftover proceeds will be used for other entrepreneurial activities.” He concluded his thoughts on raising funds for student travel in this manner: “I mean, what are my options, you know?”

**Bootstrapping to sustain summer fieldwork.** The demands on SEE’s limited funding created a challenge for sustaining and carrying out summer fieldwork by students in multiple countries. In addition to staggering the schedule of student teams’ travel so that he could be present, Ronen convinced faculty and staff colleagues to volunteer their time as chaperones. It proved difficult for colleagues to return each summer, since they often taught or otherwise were obligated by grants to conduct research in the summer. To compensate for sparse student supervision (in terms of chaperone-to-student ratio), Ronen used the students’ IRB-approved research projects to maximize the demands on their time and, by extension, safety while in the field. In addition to conducting field tests or pilots in their role on the larger venture teams, students were busy in the field conducting small group, IRB-approved research. Together, these demands on students ensured that they had very little downtime while abroad. While this strategy did indeed appear from my observations to reduce the need for chaperoning, it should be noted that its purpose was greater. That is, through their small-group research projects, students were required to engage in and think more deeply about the context of the larger venture teams’ work. Thus, they gained richer contextual knowledge that served the ventures’
development while also gathering data for research papers that would make scholarly contributions. Ronen said, “A lot of the research is on the social side, but that social side directly informs their design [for the ventures].”

An alumnus, Justin, who had participated in both SEE and another elective engineering program that travelled with students contrasted the two experiences. During the other program’s field experience, he said, “There were very few people that actually did anything. Only the ones who actually wanted to do something did something. The rest kind of wandered around and traveled and didn’t really have anything to show for what they did.” Their relative idleness, he said, sometimes led students into troubling or potentially dangerous situations. By contrast, Justin said of SEE’s fieldwork: “It’s like, everybody was hammered real hard on, ‘This is what you’re responsible for.’ So, everybody had a sense of ownership and stake in it. Everybody championed something.”

When I travelled with the students to East Africa, I saw firsthand that they retained a strong focus on the venture teamwork as well as their small group research projects. Every evening until after midnight, the students gathered with Ronen and three student leaders who were entrusted with greater responsibilities. In these nightly debriefs in the hotel’s open air, florescent-lit conference room, students huddled around a long conference table with their laptops and device prototypes to report on the day’s progress and make plans for the next day.

Making use of student leaders helped Ronen bootstrap his limited time resources while in the field. In the words of a first-time participant, the student leaders often acted as a “gateway to Ronen,” because his time to interact with each of several dozen students
was limited by the need to make advance arrangements with local partners for the
different ventures. Ronen said:

I know exactly what’s going on with the projects from the big picture, and that’s
where [the student leaders] are great. I get all the fine details from them on
everything that’s going on, even personal issues…But I wish I had more time to
spend with the students.

In conclusion, Ronen continually considered ways to meet SEE’s needs by
locating resources and maximizing their efficient use (Patel et al., 2011). Some needs,
like support for students’ travel, necessitated a focus on locating funding sources and
devising ways to obtain funds that could be used for this purpose. When corporate
sponsorships proved difficult to secure outright, Ronen created an imaginative student
competition that captured widespread attention and attracted a modest amount of
 corporate support. Ronen met other needs, like keeping students on task and safe while in
the field, through non-monetary means. While another faculty member might decline to
travel with students (or so many of them) unless more chaperones could be secured to
closely monitor students, Ronen leveraged the curriculum’s research component to
partially fill this need. Students developed a sense of ownership during the spring
semester, arrived in the field with multiple responsibilities, and maintained their focus
through daily debriefings and planning meetings. In this way, Ronen ensured that SEE’s
ventures made good progress while keeping students safe and on task.
Institutionalization

“Almost every program starts with something smaller and then eventually ends up the way it is. There is a transition.” With this statement, Evelyn referenced the institutionalization of academic programs like SEE. Shortly before my study commenced, the college of engineering’s dean formalized the program, giving it an academic home along with a faculty line and small operating budget. This development moved SEE beyond a nascent phase to a semi-institutionalized one. In this phase, the administration expected that Ronen would submit SEE to a curricular review process that he had not yet engaged. Evelyn continued: “The reality is that if you’re going to solidify something, you’re going to need to get through that process.” In line with this expectation, near the end of my study, Ronen had submitted the paperwork to make permanent SEE’s experimental course listings. Just as a founder endeavors to transform a startup into a self-sustaining company or organization, Ronen worked to institutionalize SEE by developing and routinizing it.

**Maintaining a non-traditional curriculum structure.** As I discussed earlier, the possible conversion of the service-learning certificate into one bearing SEE’s name was a factor influencing the dean’s decision to formalize SEE. Ronen, however, reevaluated the ongoing usefulness of following through with this approach. He viewed the decision about whether SEE should remain a program in its current form, take advantage of the existing certificate, or even push to become a minor as “a huge strategy question.” He perceived marked drawbacks to turning SEE into a certificate or a minor. Namely, he believed that taking on a traditional and more resource-intensive structure would invite
“constant fighting” and more “games” with the other elective programs in his department, saying, “I don’t see the point of having that competition.” Instead, he sought ‘the best of both worlds’ experienced by new initiatives and established programs. He leaned in the direction of maintaining SEE as a non-traditionally structured program bearing fewer credits than a certificate or a minor, by three and six credits respectively. By doing so, he could continue to benefit from SEE’s formal status as a college program while demanding fewer resources from the college, which was attractive to administrators. The department head indicated that the substantial resources that would be needed to run SEE as a minor, for example, would have to be completely fundraised from donors.

In addition, Ronen perceived that SEE’s non-conforming structure made it less threatening to the directors of the competing elective programs. Just as a founder uses a startup’s necessarily lean organization to navigate around established competitors with less nimble structures, Ronen consciously sought to leverage SEE’s structure by “pushing…to establish relationships with other minors,” that is, two newly formed university-wide minors in the pre-launch phase. Close to the end of my study, Ronen reached an agreement to count SEE as a track for one of the university-wide minors and expected that it would also be approved as a track for the other university-wide minor. This arrangement made not additional demands on SEE’s structure or resources, and allowed Ronen to maintain SEE’s autonomy while aligning it with more traditionally structured programs. He expressed unreserved enthusiasm for this arrangement, which created “a really cool win-win situation” for SEE to engage more students while avoiding
competition: “It means we’re not fighting with them [for enrollments]. We’re actually collaborating.”

**Reducing dependence on the founder.** Various informants, including students, faculty, and administrators, suggested that though SEE was becoming more institutionalized, it remained heavily dependent upon Ronen. They said, for instance, “Right now I would say the program’s built on, to some degree, an individual” and “a lot of it is resting on [his] back.” A staff member who assisted Ronen with program assessment said,

I don’t know if anyone else would put as much energy into it as he does. And so if he…wanted to move on to something else…I don’t think [his successor] would follow all of his strategy. But they probably would be successful, because he’s already built so much [and provided a] foundation.

Along similar lines, Marco said he knew of “very few people” who would run a program with “that level of breadth.” He observed that most of SEE’s faculty collaborators had “been professors for so long, [their focus] is pretty much all they teach. So it would be more difficult for them to step back from that” to work on projects as broad as Ronen’s. Marco continued, saying that Ronen’s “inexperience” positively affected his willingness to bring together such wide-ranging material. “He hadn’t been in one particular field or taught one particular subject for so long that that’s all he could teach or do or talk about.”

Regardless of a successor’s interests and capabilities, the program had been formalized and, according to Edwin, would maintain its faculty line and operating budget
even if Ronen left imminently. Marco said that if and when Ronen left, “I don’t think it’ll fall apart, but I don’t think it’ll stay the same” because every new program leader has “their own vision.” They could “take this up and run with it” because the format is set and “the process is well developed and validated, yet free enough to change.” Ronen said he was “absolutely interested in seeing [SEE] survive, because even from a selfish perspective, years down the road I can point back and say, ‘Hey guys, listen, I played a role in building that.’” Though he had no immediate plans to leave the university, family and salary considerations created some sense of urgency. Ronen said, “I took a substantial pay cut to take [this position] and I don’t know how sustainable that is.” His concerns about his salary were compounded by the fact that his nine-month appointment meant that he was unable to teach in the summer because SEE’s fieldwork demanded so much of his time. “I could actually make twice as much money outside [the university] very easily. You know, it’s hard to justify to your family.” Beyond personal concerns, Martin, the director of an elective program based outside of engineering, said that the question of compensation would affect SEE’s search for a successor:

Is there enough of an incentive for anyone else to [direct SEE]? Would they look at him and go, “Eh, I don’t know if I want to be stressed out that much.”…And there are [potential candidates] who might not have his passion, and who might then say, “Wait a minute, I can do this, or I can go get paid a lot more somewhere else.”

During my study period, Ronen took other steps to further SEE’s institutionalization. He said, “the immediate plan is to clean up and standardize
everything,” and “convert everything that is tacit into explicit [materials].” He had six
students on payroll to help him document SEE’s curricular materials and processes;
create a “data-driven website” that a successor could easily build upon; and develop
“how-to guides on everything” that a successor might need to know or share with
students. In the medium term, Ronen planned to “take all our class materials and put
them online as a resource to other entities” so they can understand the social
entrepreneurship “concepts we’re talking about and how we’re delivering them.” He
planned to give open access to all his curricular materials, personal and student
publications, and online videos (some professionally produced features and others short
student videos). Ronen’s more long-term plan was to “look for endowments, look for
larger funds, and find [ways to generate] revenue…so we can keep funding the students’
travel.”

In the early part of my study, the SEE program was becoming institutionalized,
but questions persisted about the program’s structure, specifically, whether Ronen would
continue to pursue a certificate designation or maintain a non-traditional form.
Serendipitously, during the latter half of the study period, two university-wide minors in
subjects relevant to SEE were forming. Both were interested in having SEE serve as an
elective track for students to pursue. These emergent opportunities steered Ronen’s
interest away from the certificate designation. Finally, informants universally agreed that
Ronen was “unique” in the ways he “thinks” and “attempts to train and teach.” As such,
young
conscious of this reality, worked to reduce the program’s dependence on him individually by streamlining, documenting, and sharing everything related to SEE and its operation.

**Other Examples of Curriculum Entrepreneurship**

Self-motivated faculty members helped initiate efforts that, with administrative support, grew into the college of engineering’s minor and certificate programs. The dean noted the importance of such individuals to a curricular initiative: “If you don’t have somebody who has a real passion for advancing it, you’re not going to go very far.” So long as they fit with the college’s strategic priorities and could secure sufficient resources from internal and external sources, the dean said there was room for initiatives “that bubble up” as well as “come down [from the administration].” Robert, the development director, observed that at the outset of each of the college’s elective programs, “there was a very entrepreneurial faculty member who [helped get] it going.” Timeliness, as well as the organizational savvy and skillfulness of these individuals (e.g., at motivating others and marshalling resources) helped drive the initiatives forward. At the same time, the minors and certificate program discussed in this study were all initiated with support and/or direction from the administration. Though the work of the minors’ initial directors did not rise to the level of entrepreneurial action demonstrated by Ronen, the importance of self-motivated faculty members in curriculum innovation was well understood and appreciated within the college.

While conducting this study, I met two faculty members who, like Ronen, engaged in their own curriculum entrepreneurship efforts. In brief accounts of the approaches taken by these two individuals, I show that curriculum entrepreneurship can
be pursued in different ways and to varying degrees of success. Both initiatives focused on service-learning within their respective fields. The first faculty member I discuss struggled to realize his curricular goals while the second successfully advanced an elective program he had directed from its first year. Their experiences provide useful comparisons and contrasts to Ronen’s efforts.

**Service-learning in the college of engineering.** As I discussed earlier, Ronen’s curricular efforts commenced following an invitation from an engineering professor to lead a project for the undergraduate students in a club he mentored. This faculty member, Louis, harbored curricular goals that stretched back to his earliest teaching years. He aspired to create a service-learning program that would engage undergraduate engineers in practice-based work to help what he called “marginalized” communities in the developing world. A service-oriented perspective fueled his personal motivation for pursuing this effort. An associate dean who was familiar with Louis and his interests since the early nineties said, “I always thought that what he was doing was admirable, and not something that every faculty member could do, in terms of the time it takes, the energy it takes, and the understanding that is needed.” Louis said that the founding of the leadership and entrepreneur minors in the college in the late 1990s and early 2000s “only lit the fire more” to establish a service-learning program.

The timeliness of service-learning in engineering remained questionable for the first decade of Louis’s efforts. During that time, one colleague recollected that he was “a one-man show,” and another said with a laugh, “[Louis] has been doing service-learning since dinosaurs walked the earth.” During this period he could offer only a few
opportunities to engage students through one-off assignments in the course sections he was assigned to teach. To expand these opportunities, Louis worked with students through extracurricular organizations. Over time, he secured grants and completed projects with his students in a half-dozen countries. “Looking back,” Louis said, “I probably could have been thrown out on my head for what we were doing.” He explained, “We had projects where we would just meet, and it was not embedded in the curriculum at all.” His efforts met resistance from the administration. According to Louis, an associate dean regularly called him into his office to say “he’s sick and tired of me,” and that he was receiving complaints from across the university “every morning” about how Louis’s service-learning efforts were “misrepresenting what the college of engineering is all about.” In response to those complaints, Louis said to the associate dean that he approached other faculty members and simply offered, “Here’s what we’re doing. Is there any way that you can envision your students participating in something like this?” But the work remained unpopular among administrators who reportedly told him that if he continued these efforts, he could not pursue a tenured position because “there’s no money in it; there’s no research potential.” Consequently, Louis said he lost “credibility” and ended up “pushing” for service-learning “from a politically disadvantaged position.”

Louis achieved “a little movement” here and there in terms of advancing his goal. Once other faculty members independently started to offer some variety of service-learning courses, however, the administration expressed support for their collective interest in forming a flexible certificate. Louis spearheaded the process of getting the
certificate approved by the academic council. This represented “a major leap forward,” along with the approval Louis received to offer an experimental course that a previous department head repeatedly denied. In addition, he led a course section each spring for one of SEE’s student venture teams starting in Stage III.

Robert called faculty members like Louis “bulls in china closets” because “they just alienate people, and while you can see the passion, it’s not sensitive to other issues. Being able to navigate the political landscape is important.” Edwin said, “Let’s just say he doesn’t always understand how a process has to happen, and he’s done a good job of pissing off some top people” through the way he expresses his “passion” and “singular vision.” Though Louis acknowledged the importance of “social intelligence and political sense” when expressing his passion, he claimed disinterest in building these skills: “I’m not politically adept and I don’t want to be;” “I’m not socially intelligent at all, I just blurt;” and “I don’t even look at people, I just start waving my arms and talking.” Though he acutely felt the effects of not having a strong command of interpersonal skills and organizational savvy, he disliked the concept of having to “maneuver” himself into “the best position.” For example, Louis recounted a time that he haphazardly mentioned a potential corporate sponsor’s interest in his work to a departmental colleague with similar, competing interests. The latter, who was acknowledged by Louis and others as having a charismatic personality, then went and convinced the sponsor to fund his initiative instead.

As with politics, Louis displayed limited savvy around the curriculum development process. He was resilient in the face of rejections of his request to offer
service-learning courses, which were met with the reply, “No, you can’t do that. You’re here just to teach and that’s all.” He realized, “I had to do it a different way…. It had to be student driven. I had to verify that there was interest and value in doing this” among the students, because “administrators listen to students.” His approach, however, tended to be reactive. For example, at one point he was working simultaneously on nine extracurricular projects with students. He pursued this “volume over quality” approach because of an administrator’s dismissive attitude towards service-learning in the field of engineering: “I was doing nine projects simply to grow the numbers, because of his statement that nobody cares about it.” At the time, Louis did not appreciate the value that research and publication on these projects might have delivered. “I said, ‘I’m not going to publish papers.’ How stupid. So that was that.” In another instance, Louis interacted with James, who had a competitive interest in engaging students in practice-based experiences in the developing world. Louis said that “for a year or two” he regularly visited James’ office to “just dump” and tell him “what we’re doing and how we’re doing it.” Louis summarized this interchange saying, “Basically our meetings consisted of him just sitting there writing down everything that we were doing.” Only after-the-fact did Louis recognize that James “was strategizing how to build his program and expand [it] into this sort of activity.”

Building a successful service-learning curriculum depended heavily on student engagement. From his students’ perspective, Louis overregulated his passion, meaning that although he was deeply committed to this work and made professional sacrifices to
advance his curricular goals, he came across as overly “laid back,” “casual,” and “never commit[ed] to anything.” One student said,

> We’d be sitting in class and we’d ask, “So when is this due by?” And he’d just be like, “So, what do you guys think?” And it’s like at some point you have to give us some direction, you have to give us some deadlines, you have to give us some push. And he’s not the kind of guy to do that.

In conclusion, Louis’s curriculum entrepreneurship efforts fell short of his ambitions. At the time of my study, he had already worked for a dozen years towards the goal of directing his own service-learning program. What he managed to accomplish, instead, was numerous extracurricular projects, a few years teaching an experimental course, and a position as coordinator of a service-learning certificate. He invited Ronen into his activities and provided an invaluable opening for the latter’s efforts. As such, he witnessed Ronen develop, in half the time he had put in, a curricular program formally recognized and supported by the college. Louis said, “I spent 12 years trying to develop a program” and “it’s almost embarrassing” to see Ronen “be named director” of a program so closely related to his own efforts. “But then, yeah, I was just tired.” This experience deflated Louis. Although he owed SEE two courses per their arrangement, he began to step away and, according to Ronen, no longer “want[ed] to be that involved or engaged and really do [the ventures].” The director of another elective program (whom I discuss next) articulated a critical difference between Louis and Ronen in their respective approaches to curriculum development:
[Louis] has not been able to take [his curricular efforts] to the next level. [He’s] still doing good stuff, still very sincere about it, but I think Ronen’s sincerity and personality have allowed him to create a space where people can come in and be valued and create those connections, versus, “This is the program, and you fit into the program, and the program defines the system.”

Louis reflected on the effect of his rigid approach. He acknowledged that he received criticism for not being “a team player” as he turned down offers to collaborate with colleagues in adjacent areas like sustainability and entrepreneurship. He responded by saying, “I felt that it was necessary to have an unswerving desire to focus on marginalized communities.” Though he understood that this perspective alienated others and added to his challenge of founding a curricular program, he remained inflexible.

**Service-learning in the earth sciences.** After earning his doctorate a few years prior to my study period, Martin questioned the value of the traditional academic path. He asked himself, “Why am I doing this? It’s going into a journal, it’s not going to have [real-world] impact.” Reflecting on how his family’s self-sufficient lifestyle influenced his values, Martin said, “I always had this in the back of my mind, this pull [to develop] knowledge through practice and through trial and error.” Consequently, he rejected pressure from his academic advisors to pursue a traditional postdoctoral position and instead took a postdoctoral position focused on student experience and learning in a university-wide center focused on sustainability. In this position, he directed a multidisciplinary study abroad program based in the earth sciences college from the first year it was offered. Though Martin did not build the program from the ground up, he
became responsible for its development from an early stage. The year prior to the program’s launch, a group of tenured faculty members conducted a pilot in West Africa and established the program’s basic structure. In taking the director position, Martin said he sacrificed financially but felt it was worthwhile for the time being, since he derived a lot of satisfaction from helping break down academic silos among faculty, working with students, and interacting with developing country communities. “It still stings when I get that check at the end of the month, but during the month I make up for it with the stuff I get to do that’s fun and exciting and different.” Regardless of the paycheck amount, Martin said, “I’m a workaholic.”

In his position as director, Martin had to communicate with a variety of constituents to maintain and grow the program. He offered, “That’s actually the fun part, being able to relate to these different audiences,” including faculty, students, and community leaders in West Africa. “You can have all this knowledge, but what makes sense to your audience? How do you frame it differently? What are the things important to that audience? And how does [what you’re talking about] relate to that?” Since the program needed professors from different disciplines to travel in a staggered schedule to lead modules for the students who were spending the semester abroad, Martin focused much of his attention on faculty. In his first semester as director, he estimated that he met with a half-dozen faculty members each week. Before these meetings, “I would go online, read up on them, look at their research, and look for potential ways to work with them.” His goal was to “have an idea” of how he could get them involved “by the time I
met with them.” In every meeting, no matter an individual’s apparent usefulness to the program, Martin sought to build his network by connecting likeminded faculty members.

Martin tailored the story he told about the program by considering audience members’ perspectives and their intrinsic interest to understand, “How does this affect me?” For example, he realized the importance of making the program’s value clear to faculty members he hoped to engage as collaborators, because they “were bound not by what they wanted to do, but what they actually signed up to do,” which often entailed focus on a limited set of students, i.e., those majoring in a specific field. Additionally, Martin noted that intense time pressures created by university teaching and research agendas deterred faculty members from engaging in non-traditional educational efforts. He said that when faculty members who would otherwise want to pursue curriculum innovation saw the program, they “got very excited that someone was doing this. They were happy that they didn’t have to do [the logistics]” but they could “be a part of it” while maintain control of “their turf.” Martin also developed an awareness of how his degree status influenced his interactions with faculty members. He observed that “having a PhD is a huge asset,” because it helped him connect with faculty members. When he started in the director position, he did not include his PhD degree in his email signature, “but I had a faculty member whom I trust call me up and say, ‘You need to put it in there.’” This small change made a notable difference in the responsiveness he received from faculty members: “It’s night and day, having versus not having the degree.”

Martin shared an example of how he tailored the program’s story, in this case, for a meeting of undergraduate academic advisors. He originally thought he would simply
present a high-level overview of the program that he had previously designed for administrators. Thanks to a discussion with a colleague, he adjusted the message: “I actually ended up talking about my experience, sharing stories. So I had pictures up, saying ‘This is what happens.’” When the advisors spoke with students, he “wanted them to be able to say, ‘Yeah, there’s a program where the students [get to do this really cool thing].’” Martin imparted some memorable stories as a “tool” that the advisors could use when speaking with students.

The program Martin directed allowed students to study abroad and earn 15 credits over the spring semester. They traveled to three sites and completed five modules taught by different faculty members who examined themes related to the local communities and the environment that surrounded them. At a high level, Martin wanted the program to “not promot[e] any one topic, discipline, or subject.” Rather, his aspiration was to use a service-learning approach to help “prepare students and faculty to deal with the complexity of the world” and “find ways to articulate the complexity” in a clear manner. Darren, who was one of the program’s affiliate faculty members, specified: “We simply go into a community to learn, and if along the way we can do something with that learning that’s useful” and “defined by what the community wants” then “we do it.” Darren also noted that students in the program increasingly asked them to take a social entrepreneurial approach. He said, “There’s lots of students who I think prefer [Ronen]’s approach, because they see a problem and they do something about it. The return is a lot more immediate.... You can actually go there and build something now that’s useful.”
Along the same line, Martin said students wanted to go beyond service, that is, do more than “build a school or build a well.” For this reason, Martin shared:

The social entrepreneurship piece is something I’m pushing now more than ever before, …because there are students who want to bring value, and so we get students who get frustrated because they feel powerless. They’re just like, “Okay, so you’ve taken us here. We’ve seen differences; we’ve seen poverty. We want to do something. But we don’t know what.” And there’s guidance as to how to do this [from social entrepreneurship].

Whether the program moved deeper into the turf occupied by SEE, Ronen felt the relationship was one marked by both competition and cooperation. On one hand, the program might pique students’ interest in SEE. On the other hand, it might just capture the interest of students who would have otherwise enrolled in SEE.

Martin’s program, which concluded its third year of operation during my study period, typically enrolled more than two dozen students, both lower- and upper-division, from a half-dozen disciplines. To attract students to program, Martin emphasized in his recruitment efforts that its cost was comparable to a semester in residence on the university’s campus. Furthermore, the credits applied to a minor offered by the earth sciences college. Nurturing a financially and organizationally sustainable program model was important to Martin because he wanted long-term engagement by faculty and students with the international communities. He “wanted to be able to look at a [community leader] and say, ‘Yes, we’ll be back.’”
Martin concerned himself with institutionalization of the program from an early stage, and this priority informed his approach: “I’m a strong believer that you have to design programs that work within the system” so that it becomes possible “to step away” without having “everything crumble.” The program should not, down the road, depend whatsoever on his personal “philosophy” or “energy.” Ideally, someone else would be able to take over his position and “maintain the quality of the program, because there are set goals. And on top of that, they can have freedom…and flexibility.” He eschewed what he termed “the rock star approach,” in large part because he realized over the past few years that he did not want to pursue this “as a career,” and he planned to eventually find a more “traditional position” that would allow him to “go after big grants and compete for those big grants.” Hence, Martin sought in his career to balance his interests in theory and practice. He summarized this tension through a turn-of-phrase he modified: “I want to be the jack-of-all-trades, master of one.” By “jack-of-all-trades” he meant someone who could engaged broadly across academic silos; by “master of one” he meant someone who conducted rigorous research in a given field and maintained his “credibility” as a scholar.

Comparing himself with Ronen, Martin said, “I’m a little bit more of a planner, and so I lay things out, and then I dive into it. [Ronen], by contrast, is more of a doer.” In addition, Martin shared:

The other thing that contrasts [my program] with [Ronen]’s program is, as I said, that it rests on his back. And I think there are pros and cons to both [approaches]: his flexibility to do things versus [how I] limit myself to doing certain things. So he’s a rock star. Everyone knows him. He’s the face of the program. And I’ve
tried not to do that for [my program].

In sum, Martin engaged quite successfully in a tempered version of curriculum entrepreneurship—tempered because he did not have to build the program from scratch as Ronen did. He used some of the same tools as Ronen, for example, he valued networks and nurtured them, used storytelling to address different audiences, and was willing to make curricular adjustments depending on the interests of students and the faculty who agreed to teach.

In summary, the experiences of Louis and Martin provide comparisons and contrasts to Ronen’s efforts. Though, like Ronen, Louis sustained his efforts by tapping into deep-seated motivations, he struggled to secure the support needed to establish a service-learning program in engineering. This was largely due to his lack of savvy around the organizational politics surrounding curriculum development. Politically, he alienated potential faculty collaborators and administrative supporters by presenting an inflexible vision even when met with skepticism about his approach. This lack of skill in relating to and influencing peers who needed to be convinced of the value of his service-learning vision was a detriment to his curricular efforts. With the resources that administrators and faculty colleagues controlled or influenced out of reach, Louis turned toward students and an extracurricular approach to service-learning that detached it from the engineering curriculum. Students responded positively to the opportunity, but often found that the service focus of the projects did not align fully with their interest in long-term solutions. Eventually, when other faculty advocated service-learning, Louis was able to participate in establishing a service-learning certificate in engineering. Though a promising step
toward his goal, he found himself coordinating a loose collection of learning experiences under the control of various faculty colleagues rather than a coherent set of courses with a clear guiding principle.

Louis began to appreciate the weaknesses in his approach to curriculum entrepreneurship when Ronen started to develop the SEE program. For example, Louis realized the value that conducting and publishing research on his past projects could have yielded only after Ronen said, in essence, “Okay, so let’s get the students and let’s begin publishing.” In addition, Ronen had to instruct him directly to stop sharing his knowledge about how to engage students in developing country contexts with James, who was siphoning his ideas. Louis also recognized how “socially intelligent” Ronen was in his dealings with potential collaborators and supporters. According to Louis, at meetings they attended together, Ronen was “able to understand” the cues that others offered. Afterwards, he’d say things to Louis such as, “Did you see that glance?” and “I don’t think that there was very much interest in that, and I think that our focus needs to be [on something else].” Louis realized through these interactions with Ronen how his inability to imagine and build mutually beneficial arrangements had hindered his personal efforts over the years. While Louis could appreciate Ronen’s skill, he could not relinquish the service approach for social entrepreneurship, and by the end of my study, he had scaled back his work with SEE.

Martin’s effort to build a study abroad program that had been piloted by other professors required less curriculum entrepreneurship than Ronen’s. Nonetheless, to run the program each year, Martin had to attract a sufficient cadre of faculty collaborators
willing to travel to West Africa for a two-week period during the spring semester. He also had to attract students and increase enrollment. To do so, he used some of the same entrepreneurial tools as Ronen. For one, in his interactions with potential supporters and partners, he considered their interests and tailored the stories he told them. For another, he took a flexible approach to forming collaborations. For example, he incorporated the interests and priorities of other faculty members into the content of the study abroad curriculum. Organizationally savvy, as well as attentive to his personal career interests, Martin also expressed concern for the program’s institutionalization and the ability of a successor to take over with ease. Like Ronen, he wanted to minimize the influence of his personality on the program over time.

**Conclusion**

The university’s structure and culture made it suitable for bottom-up efforts on the part of individual faculty members like Ronen who engaged in curriculum entrepreneurship. In particular, the institutional environment contained ambiguity owing to competition for resources and pressures to meet priorities around research and teaching, both of which contended for faculty time and administrative support. In this environment, individual actions were not strictly circumscribed, and some amount of uncertainty (or sense of possibility) attended how students, faculty members, staff members, and administrators used the resources they controlled or influenced, including time, credit hours, expertise, and funding. While larger financial, cultural, and structural forces beyond the control of any one faculty member shaped SEE’s development, Ronen
exercised his agency (as any founder might to build a startup) to garner resources and handle challenges faced by the program.

Ronen pursued curriculum entrepreneurship because it allowed him to enact deeply held values around technology’s role in building a more just society, particularly in developing country contexts. He hustled to make up for a shortage of resources and worked excessive hours to bridge the gap. In addition, Ronen generally expressed an appealing level of entrepreneurial passion in his interactions with others, which signaled his earnestness and sparked a desire in them to contribute to or participate in the program. He skillfully crafted stories and tailored them to the concerns and interests of the listener. Through storytelling, he attracted resources like student enrollments, faculty collaborations, and administrative support.

Ronen engaged in networking to expand his contacts and the pool of potential resources he could access through them. He also made extensive use of bricolage, through which he put at-hand or easily accessible resources to work and brought undervalued resources together to create something of high value. He used at-hand resources to smooth SEE’s transition to an academic department by symbolically appropriating and agreeing to rebrand an existing certificate program. This mitigated the perception by other faculty members that the administration was supporting a new program in a challenging economic climate marked by regular budget cuts. He also tapped into at-hand resources when he formed collaborations that brought other faculty and their students into SEE’s activities. Rather than approach them with predetermined specifics, he engaged in shared conversation to devise workable and mutually beneficial
arrangements. Ronen further marshaled undervalued resources together to create the research focus of SEE and to promote publication of undergraduate research. This component significantly advanced SEE on a number of fronts. For one, it helped Ronen balance SEE’s heavy practice-focus with academic inquiry, giving it intellectual heft in the university setting. For another, it helped him secure more and diverse resources like legitimacy, outside funding, and high achieving students.

Through improvisation, Ronen made on-the-spot decisions that helped him cope with the highly uncertain process of developing a program that valued both real-world impact and published student research that shared SEE’s social and technological contributions. The relative uniqueness of Ronen’s effort meant that he could not satisfactorily model SEE after other programs. Instead, he drew together disparate concepts from engineering design, social science, entrepreneurship, and social entrepreneurship, along with insights he had personally gained through experience working in developing country contexts. Over time, he worked to codify SEE’s curricular content and pedagogy but remained open to making ad hoc changes in response to the real-time progress of the student teams working on SEE’s half-dozen ventures.

Bootstrapping was another tool Ronen used to advance SEE in the university’s resource-constrained environment. By finding and tapping into monetary and non-monetary resources, he met the program’s financial needs without increasing SEE’s operating budget or asking for funding for more faculty lines. For example, he tapped into student travel funds that administrators and staff across the campus controlled. Faced with insufficient funds to support SEE fieldwork requirements, Ronen maximized the
value of students’ time by establishing explicit goals for each venture team as well as small group research projects that organized (and consumed) students’ time in the field, thus reducing the number of chaperones needed to ensure their safety.

In sum, Ronen used entrepreneurial tools including hustle, passion, storytelling, networking, bricolage, improvisation, and bootstrapping to build SEE. Keeping the program running and growing consumed much of his time and attention. Even as he continued to expand the program through faculty collaborations, Ronen worked to institutionalize SEE by streamlining, documenting, and sharing SEE’s content and process. The broad range of his concerns and capabilities struck informants as uncommon. Nonetheless, I met two other faculty members who, like Ronen, used their agency to pursue curriculum entrepreneurship during the time of my study. One faculty member, also based in engineering, endeavored to direct a program in service-learning, but lacked the savvy and skill needed to attract the resources and support from others that would allow him to realize his goal. The other faculty member, who worked on a program based in the earth sciences, required less entrepreneurialism since he became director only after the curriculum was piloted by a team of tenured professors. Yet he similarly employed entrepreneurial tools, as Ronen did, to build support and recruit students. In particular, he skillfully used storytelling to draw faculty collaborators into conversation and displayed flexibility in making arrangements to involve them in ways that ensured their participation.
Chapter 7. Discussion and Implications

How might universities produce engineering graduates who are prepared to address wicked problems (Rittel, 1973; Conklin, 2006; Kolko, 2012) like poverty and pollution that intersect social and technical concerns and resist resolution? Various quarters have called for change in engineering education to prepare graduates who are capable of innovating, taking entrepreneurial action, and addressing complex issues (Duderstadt, 2008; National Science Board, 2007; Lattuca et al., 2006). Curriculum change efforts in undergraduate engineering education have shown some success at placing greater emphasis on professional skills (Lattuca et al., 2014; Lattuca et al., 2006; Prados et al., 2005). However, more progress is needed to develop educational experiences that prepare engineers who are comfortable working with the breadth of interconnected issues surrounding real-world problems.

This opening question implicitly invokes the persistent debate on how to effectively balance theory and practice in engineering education (Seely, 1999; 2000). Over the sweep of history, educators first favored practice, then tipped their priorities toward theory. Only from the early1990s did national granting and accreditation organizations begin to strongly espouse a rebalancing of theory and practice (Prados et al., 2005; Seely, 2005; Harwood, 2006). Since that time, engineering educators and change advocates have experimented with various curricular modifications and approaches to encouraging curriculum change. Many efforts have focused on modest course adjustments and diffusion models that have had limited success at spreading piloted approaches (Graham, 2012).
In this context, my study sought to expand the base of empirical research on innovative curricular and instructional efforts that come about in an endogenous manner through the actions of individuals within their particular institutions. Specifically, I conducted a case study to investigate how an individual faculty member worked in a bottom-up, entrepreneurial fashion to build an undergraduate program that integrated social entrepreneurship into the engineering bachelor’s degree. As an emerging field of practice and academic inquiry, social entrepreneurship combines two aims that are conventionally viewed as incompatible: addressing social problems and building sustainable or profitable organizations (Tracy & Phillips, 2007).

My focus on the process by which this curriculum developed called sharp attention to the role of individuals and their interactions with one another in particular institutional and sociocultural contexts. The extant research on how organizational change occurs in higher education settings has focused on top-down models that deemphasize individual agency (Kezar, 2001; Kezar & Eckel, 2002), though some more recent work has examined how individuals with limited status can organize and effect change (Kezar & Lester, 2011). Similarly, research on curriculum change has typically characterized higher education institutions as “more reactive than proactive,” and thus tends to neglect “the important role of human agency” (Lattuca & Stark, 2009, p. 303; Lattuca & Pollard, 2016). Beyond its relevance to engineering and social entrepreneurship education, my study also contributes more broadly to our empirical understanding of process in curriculum change and the influence of individual agency.
My preliminary research on the program selected for this study suggested that it came about in an entrepreneurial manner, and that the director approached its development as a founder might a startup in the business world. The director conveyed the essence of his motivation and approach in our initial conversation. He initiated the program because it allowed him to act on his values and he wanted to do it, even though no one had asked him to pursue it or provided advance resources. This conversation suggested to me that an entrepreneurial lens would provide an emic (Pettigrew, 2000), or insider, rendering of the case and contribute to research on entrepreneurship as a process, both within the context of curriculum change and generally. Indeed, research on entrepreneurship has typically favored quantitative examinations of how specific variables influence outcomes. However, numerous scholars in the field have noted limitations to this approach and called for greater research focus on entrepreneurship as a process (e.g., Moroz & Hindle, 2012; Shane & Venkataraman, 2000; Davidsson & Wiklund, 2001; Bygrave, 2006). Viewed in this light, the entrepreneurial capacities of individuals and contextual factors heavily inform the shape and success of entrepreneurial efforts.

**Overview of the Study**

Two purposes guided this dissertation. First, I wanted to explore how curriculum change might happen in an entrepreneurial manner that emphasizes the importance of individuals and their interactions with one another as well as with the institutional environment and broader (external and sociocultural) environment. Specifically, the dissertation examined how faculty members and those with whom they interact can use
their agency to engage in curriculum innovation using entrepreneurial tools. Second, I sought to develop an understanding of the issues that arise when creating a curriculum that integrates social entrepreneurship education into engineering. Three related research questions guided my study:

- How is a curriculum integrating social entrepreneurship into engineering developed and/or perceived by faculty, students, and others involved?
- What factors impede and facilitate the development of this curriculum?
- How do individual-, unit-, and organizational-level factors and their interplay influence the development of this curriculum?

To explore these questions, I conducted a qualitative case study that allowed me to examine contextual complexity and retain flexibility in the data collection process (Edmunson & McManus, 2007). The case study was explanatory (Yin, 2003), because I sought to uncover how the curriculum unfolded (as opposed to providing a purely descriptive account). Likewise, the case study was instrumental because I generated insights into the issue of curriculum entrepreneurship, which I define as the application of an entrepreneurial approach in curriculum development. Finally, it was a study of what could be (Schofield, 1990), that is, a situation that seemed exceptional while demonstrating possibility.

During the study’s ten-month period, I conducted 96 informal and semi-structured interviews with 83 participants—including 8 interviews with the director—and compiled pertinent documentation. Participants included faculty, students, administrators, university personnel, and external partners who variably served as collaborators,
supporters, contributors, or competitors of the program. I used participant observation to build an emic view of the program and formulate clarifying questions for subsequent interviews (either with the same informant or another informant of the same variety). Documentation included news articles and feature pieces, conference proceedings and published journal articles produced by the program’s director and student participants, emails sent by the director to the program mailing list, student blogs, videos, and the program’s website. The documents were particularly helpful in constructing the case’s timeline since informants recollected the past in relative rather than precise terms.

For data analysis, I first organized the data, transcribed a majority of the interviews, checked those completed by a transcriptionist, and wrote memos to capture my initial analytical thoughts. Following this, I engaged in a combination of inductive and deductive coding to build an initial codebook and refine and expand it as I continued coding. This entailed using a constant comparative method to refine, collapse, and expand codes which may be typified as descriptive, in vivo, values-centered, and process-oriented (Miles et al., 2014; Saldana, 2009). Concurrent with the coding process, I began to delineate the case’s chronology using documentation. The academic plan model (Lattuca & Stark, 2009) along with scholarly work on entrepreneurial tools (e.g., Baker, 2007; Cardon et al., 2009) informed the development of the coding scheme and thus my data analysis. The academic plan model helped me remain open and cognizant of the myriad factors depicted in the model, while the literature on entrepreneurial tools helped me detect the different ways in which the director sought to build the program. On this second point, during interviews I probed participants’ understandings of the program’s
development and the factors inhibiting and encouraging it, along with impressions on the ways in which the director worked to advance the program. Though I remained aware of a dozen entrepreneurial tools discussed in the literature, I did not explicitly ask about them in interviews unless participants mentioned them organically in their own language. Some tools like hustle, passion, and storytelling were mentioned explicitly by participants; others like bricolage were spoken about implicitly. Hence, during data analysis, I coded for tools that were salient to the participants and incorporated the ones with the richest support into the findings.

I used several strategies to enhance the trustworthiness (or validity) of the findings (Corbin & Strauss, 2008). Among these, I engaged in a prolonged period of participant observation and data collection, which built trust and afforded wide-ranging perspectives. I used multiple data sources, for example, interviews and documentation, to triangulate data sources and my interpretations. Participant observation provided background information, built trust among informants, and helped me detect promising strands of inquiry for follow-up in subsequent interviews. To ensure careful interpretation of the transcribed interviews, I documented emphasis in language, pauses, laughter, and notable tone of voice. Further, I began memo-writing with the transcription process and continued to employ this reflective tool through the write up of my findings (Miles et al., 2014). Finally, I recognized my positionality and remained conscious of my perspective as a researcher with a career interest in social entrepreneurship education. After data collection but before completing data analysis, I directed social entrepreneurship programming at a university full-time. I managed my subjectivities and positionality.
(Peshkin, 1988) by embracing an open-minded approach to analysis. Specifically, I sought out and attended carefully to critical and oppositional statements about the curriculum development effort and remained open to these alternative perspectives during the data collection and analysis; these alternative perspectives are reflected in the findings and conclusions.

Study limitations included the pitfalls of sensemaking by participants when queried about past developments; uneven access to informants (i.e., some could be reached for repeat interviews while others were less accessible); and an inability to secure interviews with one kind of informant (i.e., administrative assistants who reportedly played a role in the development of elective programs like SEE, but who appeared to underappreciate the role they played and declined my requests). I offset these limitations to a degree through my extended engagement with and access to numerous study informants.

**Summary of the Case Chronology**

My first task was to understand the genesis and development of the curricular effort that became SEE. Based on my data I delineated five stages in the program’s development to provide a clear understanding of the case. Each stage demarcates a shift that helps “structur[e] the description of events” and indicates that there “is a certain continuity in the activities within each period and there are certain discontinuities at its frontiers” (Langley, 1999, p. 703; Langley & Truax, 1994).

In the first stage, Ronen’s growing restlessness with his university-based consulting job prompted him to pursue precursory, unconnected opportunities to teach,
volunteer, and travel with students, and these experiences ultimately informed the
development of the SEE program. Organically over time, he realized value in connecting
social entrepreneurial venture development and course-based engineering design work. In
the second stage, he made a first attempt to connect these two components by
collaborating with faculty members based outside of engineering, who engaged students
in a summertime service-learning program in a developing country context that interested
him. Though this arrangement did not last owing to disciplinary approaches that the
collaborators could not harmonize, Ronen learned much through this experience and
sharpened the curricular purpose he wanted to advance.

In the third stage, Ronen set out to establish and direct a program. He coalesced a
curriculum model that rested upon multiple course offerings and flexibly determined
collaborations with faculty and programs based within and more often outside the college
of engineering. He refined the story he told, which helped him go from working with a
handful of students to many dozen in a semester’s time. He also broadened and deepened
his network, established a lasting, mutually beneficial collaboration, and expanded a
collaboration with a faculty colleague that allowed him to start teaching dedicated
courses for the initiative he was building. He encountered strong opposition from faculty
members within the department listing his courses when he posted a website calling his
effort “a program.” Owing to their complaints to administrators, he took down the
website and refrained from calling SEE a program in the meantime. This semantic issue
proxied for their deeper concern over competition for resources like funding, reputation,
and students. Also during this stage, Ronen secured grants from university sources as
well as from external funding organizations. Finally, he travelled to East Africa over the summer with a sizable group of students and some faculty collaborators to pilot the social ventures being developed by the student teams in collaboration with local community partners.

In the fourth stage, the program gained traction as Ronen expanded student recruitment activities, secured more grants, developed new courses, and built out the program’s course offerings. He also introduced research into the curriculum, for which students received institutional approval and published in increasingly scholarly journals (at first, student research journals and later academic peer-reviewed journals). Research validated the program through the currency of academic legitimacy (i.e., publications), refuted criticisms of the program’s intellectual rigor, and helped students understand more deeply the intellectual and practical issues facing the ventures over their multi-year development. The program gained additional legitimacy and visibility when it was highlighted as one of just four stories shared by the university president in a general capital fundraising campaign. This marked an inflection point that contributed significantly to the engineering dean’s decision to support the program.

In the fifth stage, the dean formalized the program by providing annual funding for the director’s faculty line and a modest operating budget. With this development, the opposition of department faculty became less concerning for SEE’s continued operation. Additionally, Ronen established new student ventures and faculty collaborations even as the involvement of some early faculty collaborators waned. He also worked to institutionalize the program more deeply by, for example, compiling and publishing its
content and producing instructional videos. By the close of my study, the program had advanced beyond a nascent stage to a semi-institutionalized one. The general consensus among informants was that SEE would survive if Ronen left, but that its breadth or scope of activities would likely adjust to reflect the interests of a new director.

Summary of Findings

My first research question asked how a curriculum integrating social entrepreneurship into engineering was developed and perceived by those involved. I found evidence of an entrepreneurial process that informants uniformly corroborated in explicit or implicit terms. Ronen acted as a curriculum entrepreneur who created the program, just as a founder in another sector might a startup. Ronen’s effort developed from a collection of activities into an organization-like entity with boundaries, competition, and customer-equivalents (Aldrich & Ruef, 2009). In Stages I through IV, Ronen sought to publicly name his activities “a program,” that is, to delineate a boundary around the effort, but was met with opposition. Even though there were no clear requisites for naming a program, he was only able to comfortably claim this boundedness for the effort once the dean gave his explicit support.

Once a formalized program, SEE competed with other elective programs within and beyond its home department. Competition centered on the overlap of subject-matter, student recruitment and enrollment, reputation, legitimacy, and funding. In the formalization process, SEE secured the support of the dean, who fulfilled a customer-like role. His decision to provide stable funding to the program from his thinly stretched discretionary funds was informed by a number of influencers, including the development
director, department heads, and even the university president, who appreciated its potential to attract donors through a compelling story of student engagement. The dean was likewise swayed by the possibility of donor dollars and a potential endowment, as other elective programs had garnered. Students also served in a customer-like role during SEE’s recruitment efforts, since Ronen had to “sell” this opportunity and convince them to dedicate some of their limited elective credits to the program. The entrepreneurial way in which Ronen developed the program mirrored the skills he sought to impart to students, that is, how to create ventures that could and ideally would launch into a community or marketplace and make a sustained positive impact.

My second research question probed the factors that impeded and facilitated the development of the curriculum. I found that many factors—whether originating in the environment or from Ronen’s decisions—had two-sided effects on the program’s advancement. For example, while Ronen’s status as a non-doctoral degree holder aroused misgivings among some faculty colleagues, it freed him to engage in curriculum innovation at an earlier life stage than afforded tenure-line faculty, who were counseled to wait until they had achieved tenure. By this time, many faculty members were inundated with the demands of family obligations and mature research agendas. Ronen used his relative freedom from traditional demands and poured his energy into creating a novel program that heavily engaged students. As another example, while the non-traditional structure of the program commanded less prestige, it enabled Ronen to gain formal administrative support without first being subjected to the faculty review process.
required of minors and certificates prior to their launch. It also allowed him to forge agreements to integrate SEE as a track in newly formed university-wide minor programs.

Ronen used his entrepreneurial skill and savvy around curriculum development to balance theory and practice in the program. His early courses and co-curricular experiences had a heavy practice focus that drew criticism from colleagues concerned about the rigor of the program’s scholarly foundation. Over time, this and other concerns informed his decision to integrate institutionally reviewed, student-conducted research into the program. He did so in a way that reinforced the practice-based goals of the program, namely, developing functional ventures, while also making intellectual contributions to engineering and social science. Thus, Ronen did more than take the curriculum to the extreme end of the practice debate. The elements he harmonized were not new, that is, practice and research; instead, the innovation came in the way he tied the two together through real-world venture development experiences.

Certainly, plenty of engineering and (typically separate) social entrepreneurship curricula ask students to design for the real world, but their faculty often do not expect or continue to push projects to actual implementation (e.g., Brock & Ashoka, 2008; Smith et al., 2008). In SEE, the potential to create sustained impact in communities satisfied participating students’ desires to engage in actual practice and appeared to motivate them to participate in intensive team-based design work and take responsibility for publishing research that both informed the ventures’ future development and made wider scholarly and practical contributions. As with his approach to the practice-based aspect of the program, Ronen engaged students in as authentic an experience as possible. This meant
that he eschewed undergraduate research journals, pushed instead for students to publish in standard academic journals, and often sent undergraduates to present in conferences generally attended by faculty and graduate students. Thus, Ronen sought to maximize the benefit he could derive from the advantageous aspects of the many two-sided factors that surrounded the program’s development (e.g., holding versus not holding a doctorate).

With regard to theory and practice, he strongly engaged students in both by tapping into the realism and intensity with which he imbued the program’s focus on venture development.

My third research question asked how individual-, unit-, and organizational-level factors and their interplay influenced the development of the curriculum. I found that while institutional culture, structure, and priorities exerted influence on the program’s development, Ronen viewed them as navigable and to some extent negotiable. Indeed, scholars of entrepreneurship describe entrepreneurs as “embedded in a social context that both constrains and facilitates” their “actions and behaviors” (Stinchfield, Nelson, & Wood, 2013, p. 891). At the same time, entrepreneurs often “refuse to enact commonly accepted limitations” (Baker & Nelson, 2005, p. 354) and thus create “space to ‘get away with’ solutions that would otherwise seem impermissible” (p. 349). I found that Ronen’s success at navigating the institution at its various levels and unlocking resources controlled or influenced by others depended on his skillfulness in several areas: coping with uncertainty around the availability of resources, applying entrepreneurial tools, displaying political sensitivity, and exercising savvy around the curriculum development process.
While Ronen’s effective exercise of personal agency mattered immensely to SEE’s development, no amount of entrepreneurial skill or savvy could on its own ensure the program’s continuance. The program’s customer-equivalent, the engineering dean, and his influencers (e.g., the department head and development director) could have ended Ronen’s effort at any point. Prior to SEE’s formalization, this possibility remained strong. The exceptional decision by the head of Ronen’s consulting unit to support his employee’s earliest curricular efforts helped Ronen grow the initiative to a stage where it had garnered a record of success at attracting resources in the form of recognition, external funding, and robust student enrollments. Even with these accomplishments, the dean could have easily ended the effort given the downtrend in discretionary funds he controlled to meet various needs across the college.

The dean’s decision was heavily informed by the university’s strategic priority on global engagement, with which SEE aligned by engaging students in travel and non-travel-based experiences. Absent this priority, the dean very well may have withheld his support. Hence, I found that the exercise of individual agency by Ronen and those with whom he interacted happened in dialogue with other institutional factors like culture, structure, and strategic priorities. In the course of the curriculum’s development, Ronen’s skillfulness, SEE’s purpose, and others’ personal or professional values interacted with each other, the institutional environment, and the broader environment external to the university. The following section presents an analytical model that I developed to elucidate these interactions and the process of curriculum entrepreneurship that happened in this case.
Theory Development

Process data “are messy” (Langley, 1999, p. 691), because events frequently comprise the data being analyzed and the levels of analysis involved are difficult to disentangle. Theorizing from process data involves induction, deduction, and inspiration. It is successful when “new and plausible connections” between “formal data, experience, a priori theory, and common sense” can be “made explicit as theoretical products” (Langley, 1999, p. 708). Through reflection on my analysis, I developed a model to summarize and depict the nature of the actions, influences, and exchanges that produced the curriculum that I studied. While cognizant of the limits on a single case study’s explanatory power, the model suggests some propositions and directions for future research that I discuss below.

I present a middle range theory in Figure 2, which conveys the process that was under way as the curriculum entrepreneur worked to transition the curriculum from a startup phase to institutionalization. My study ended while the curriculum was semi-institutionalized, meaning its founder had articulated its model and secured essential administrative support. However, the program required additional resources to ensure its sustainability, and thus continued to depend on the founder’s savvy and skillful use of entrepreneurial tools. The curriculum’s development during the first through fourth stages are described by Figure 2. During the fifth stage, the founder guided the curriculum closer to, but had not yet achieved, full institutionalization. As with any entrepreneurial effort, full institutionalization was by no means given and my study period closed during this semi-institutionalized phase.
Figure 2 shows the curriculum’s startup and development phase. It emphasizes the initiating role of the curriculum entrepreneur (bolded) and the recursive, mutual exchanges (depicted by the different types of arrows) that are required for the curriculum’s creation and development. The depiction of the *external and sociocultural environment*, as well as the *institutional environment* (through the outer boxes), emphasizes their pervasive though somewhat diffuse influence on the curriculum entrepreneurship process. In this case, environmental influences included the newness of social entrepreneurship as a field of study and practice in engineering, and the economic recession that affected unit budgets and academic programming. Three key characteristics, specifically the curriculum entrepreneur’s *organizational savvy*, along with his *skillfulness* at using *interpersonal tools* like storytelling, helped him access *new resources* controlled or brokered by potential *collaborators, supporters, and contributors*. I define interpersonal tools as those an entrepreneur uses to gain access to resources controlled by others or to which they broker access, such as storytelling, entrepreneurial passion, and networking. Organizational savvy refers to an entrepreneur’s awareness of how the institution works, including political considerations.
As shown in the top half of the figure, with the resources the curriculum entrepreneur obtained from others, he applied *curriculum development savvy* and *creational tools* to shape the curriculum. While interpersonal tools grant access to new resources, creational tools like bricolage, hustle, and improvisation help a curriculum entrepreneur take resources and integrate them into the program’s content or structure. Creational tools are those a curriculum entrepreneur uses to apply directly controlled resources (like personal time) or newly given resources (like a new faculty collaborator’s
time) to a curriculum. Curriculum development savvy heavily influenced the program. I define it as having a good sense of how to integrate curricular elements into a coherent, effective learning experience for students. This sense was vital for the curriculum entrepreneur, who had to use creativity under severe resource constraints to meet his curricular goals. In comparison, the majority of faculty members appeared to rely upon imitation and approaches they observed colleagues adopting. This was owed to their “limited exposure to the variety of instructional processes that are possible” (Lattuca & Stark, p. 192) and the fact that “few have been formally trained in teaching” (p. 191). Research indicates that during their graduate studies merely 15% of engineering faculty received any kind of training on how to teach (Lattuca, Bergom, & Knight, 2014).

The bottom half of the figure depicts how in return for the value generated by the curriculum (such as realistic practiced-based learning and global engagement) others gave established resources like their time, funds, and credit hours, as delineated or allowed by the curriculum entrepreneur. An example of an established resource that the curriculum entrepreneur eventually prevented from flowing to the curriculum was service-learning projects.

The curriculum entrepreneur worked to fully institutionalize the program, and if and when this was achieved, he understood that he would be able to reduce the intense level of effort he had expended to launch and grow the curriculum. At this point, the curriculum entrepreneur would be able to shed this function and continue to serve as director in a more moderate fashion or leave the program after securing a replacement to lead it, free of his active influence and with more reasonable demands for carrying out
maintenance and outreach activities. The curriculum entrepreneur’s goal of institutionalization was analogous to a common (if not universal) goal held by startup founders in the business world. That is, while limited upfront resources necessitate intense effort, they seek to create a routinized, sustainable, and/or profitable organization.

**Institutional structure and culture.** *Proposition 1a. Institutional structure and culture influence the efforts of a curriculum entrepreneur but are treated as navigable and indeterminate.* Rather than view the institution’s structure and culture as constraining, the curriculum entrepreneur in my case, Ronen, demonstrated a willingness to go outside the expectations of his position. He treated the institution’s structure and culture as navigable and indeterminate. Competing institutional logics and the permeation of academic capitalism in faculty work, which researchers suggest are widespread in higher education (Gumport, 2000; Slaughter & Rhoades, 2004), contributed to the environmental ambiguity that permitted Ronen to pursue an entrepreneurial approach to creating a new curriculum. Whereas tenure-line faculty members in the university tended to pursue its dominant expectations, namely, focus on research agendas supported by large grants, non-tenure-line faculty members like Ronen were freer to prioritize teaching and curricular concerns. Of course, relative freedom to act entrepreneurially did not necessarily translate into such action. Ronen had a desire to act on his deep-seated values to create a program that engaged students in a way that he observed others were not. Thus, he identified unique value that he wanted to deliver to students, the institution, and local communities in developing country contexts. This, in combination with his familiarity with entrepreneurship through his professional work and early success
developing a venture with students in stage one of the curriculum’s development, contributed to his willingness to navigate the institution’s structure and culture, which study informants characterized as discouraging of, or at best, not set up for curriculum innovation.

**Proposition 1b. An institution’s dominant structural and cultural forces influence, but do not fully determine, the decisions that individuals make to contribute to a curriculum entrepreneurship effort.** Just as the curriculum entrepreneur refused to be constrained by the institution’s dominant structural and cultural forces, so too the individuals who decided to collaborate on, support, or contribute to the curriculum tapped into personal and professional values. Given the curriculum’s intense level of undergraduate student engagement in research and the development of real-world solutions, these individuals shared with me their excitement to enact values that did not find expression (or as direct an expression) in any of their other work. Faculty collaborators said they appreciated the opportunity to engage their students in course work addressing an authentic problem. Administrators valued the program for its globally focused student engagement, which were priorities often subsumed by the demands of maintaining and growing the institution’s research activities. Student contributors said they appreciated the opportunity to work on implementable solutions with the potential to make sustained community impact. The contributions individuals made to Ronen’s effort were invariably tempered by demands from the institution’s dominant culture and structures. Faculty collaborators often could not afford to sacrifice time devoted to their research agendas. Administrative supporters could not dedicate funds at the expense of
core academic programming. And student contributors compelled to complete their major requirements often could not continue their involvement.

**External context. Proposition 2. A curriculum entrepreneur leverages actors in the external environment, and trends in the sociocultural context, to influence potential collaborators, supporters, and contributors.** The curriculum entrepreneur in my study leveraged the relationships he built with actors located outside the university to influence others located inside the university to contribute to the program. These external actors included granting organizations, professional associations, national student competitions, and partners in international communities where the student-developed ventures operated. They provided external validation, which helped build the program’s reputation (and therefore value) among administrators and faculty colleagues. Reportedly, spontaneous mentions of the program by outside colleagues burnished its reputation for the dean, department head, and some faculty. Likewise, the program received national awards from academic and professional associations and its students won (or ranked highly in) several national competitions. Partnerships with international organizations and agencies also attracted the attention of their organizational peers, thus expanding the potential for the student ventures’ success. Faculty collaborators cited Ronen’s success at building relationships with international partners as a contributing factor to their decision to work with him, because they would not on their own pursue these time-consuming often challenging-to-maintain relationships.

Though my research did not probe this dimension, I note that trends in the sociocultural context appeared to have a pervasive and positive influence on the
development of the program. Namely, Ronen’s effort benefited from a growing interest in creating meaningful, sustained impact in communities. In popular culture, this concept had been espoused by societal figures like Pierre Omidyar and Bill and Melinda Gates through their foundations and the work they supported. SEE received coverage in some high-circulation media publications, and thus appeared to tap into a timely approach to addressing societal problems that had garnered widespread attention. By contrast it appeared that the intersection of service and engineering, which Ronen’s colleague Louis espoused in his curricular efforts, was not timely or as compelling to other engineering faculty and administrators.

**Institutional strategic priorities.** *Proposition 3. The development of an entrepreneurially created curriculum depends on how convincingly the curriculum entrepreneur aligns its purpose with institutional priorities and produces value.*

Whereas the curriculum entrepreneur approached institutional structure and culture as navigable rather than determinate, he could not circumvent the need to align with the university’s institutional and strategic priorities. The dean and the associate deans emphasized the importance of alignment between individual initiatives and the priorities that filtered down to the colleges and departments owing to the university’s longstanding tradition of strategic planning. Though alignment mattered for elective programs in general, it became even more critical for this entrepreneurially created program driven by the vision of a single faculty member who was not asked to do it or given advance resources. While other elective programs were built by faculty teams with early administrative support, Ronen used an entrepreneurial, non-consensus approach to create
the program. According to the dean, initiatives tended to be successful when top-down administrative priorities met bottom-up faculty effort. Indeed, he noted that the administration had difficulty advancing strategic priorities without passionate faculty support, and progress came much easier when these two aligned.

In this case, alignment appeared necessary but insufficient to securing the administrative support needed for any curricular effort to advance beyond an inchoate stage. Specifically, how compelling the effort was in meeting strategic priorities seemed to matter. For example, the university president included SEE in a capital fundraising campaign because of its captivating story and imagery. Had Ronen worked from his resource-disadvantaged position on a commonplace effort, alignment alone would have been insufficient to attract administrators’ limited discretionary funds, for which numerous initiatives competed.

It is worth noting that at the outset of Ronen’s efforts, he incidentally aligned with priorities seeking to enhance student engagement, particularly around global issues. Over time, he worked to enhance this alignment by incorporating non-travel-based global experiences for students, which the college of engineering wanted to find ways to vastly increase given the field’s heavily prescribed curriculum and challenge of convincing hundreds of students to travel abroad and pay additional expenses for such experience. Though Ronen engaged students in international fieldwork, he worked with faculty collaborators from the curriculum’s third stage onward to incorporate and scale non-travel-based experiences. For example, he worked with an English faculty member to
incorporate a writing assignment into her class that produced a communication’s tool that SEE students traveling in the summer would use in their work.

The three propositions just discussed emphasize pervasive but not fully determinate environmental influences on curriculum entrepreneurship. The following propositions concern exchanges that happen between the curriculum entrepreneur and potential contributors, and between each of these two and the curriculum. Based on this study, I argue that the curricular effort is jeopardized if any of the mutual exchanges (depicted by arrows in the model) do not occur. While environmental and contextual factors influence these exchanges (as the preceding propositions suggest), the following propositions emphasize the mutuality in resource and value exchanges, and the instrumentality of the curriculum entrepreneur’s savvy and skill in applying tools to develop the curriculum. While in some instances, one exchange being broken or unfulfilled is enough to effectively end the effort, in other instances, the entrepreneur can access alternatives with which to establish exchanges.

**Interpersonal influences.** Proposition 4. A curriculum entrepreneur’s skillfulness at using interpersonal tools, along with organizational savvy, heavily influences others’ decisions to grant access to new resources that they control or to which they can broker access. In my study, the skillfulness with which the curriculum entrepreneur used interpersonal tools, along with organizational savvy, mattered a great deal for the program’s development. Ronen would not have succeeded in advancing the program without new resources like other faculty members’ time and network contacts that resulted from his interactions with them. As an entrepreneur, he was working from a
position of resource constraint and unsecured support. As such, without skill and savvy, others were unlikely to give resources crucial to the curriculum’s development.

Louis, the professor with longstanding interest in building a curriculum integrating service into engineering education, provided an example of what happens when an entrepreneur fails to show organizational savvy or skillfully apply interpersonal tools. By his own account and those of his colleagues, he lacked political savvy and repelled faculty and administrators through what they perceived to be hard-headed expressions of passion and poorly framed stories. Without the resources controlled or brokered by others, Louis was forced to shift from a curricular effort to an extracurricular one, because the latter could succeed with students as its only contributors.

Through experience, Ronen developed skill at applying these tools. For example, he initially failed to appreciate the persuasive power of highlighting students’ involvement in the ventures’ conceptual development. Once he received feedback about this from colleagues, he honed his storytelling skills and applied them more effectively during interactions with potential collaborators, supporters, and contributors. Entrepreneurial passion was another tool he learned to wield to greater effect over time, for instance, by better regulating his passion after moments of under-regulation that conveyed unrealistic expectations of students and adversely affected their motivation.

Thus, simply telling a story or expressing passion did not mean others would be convinced to make contributions that Ronen could then direct in productive ways towards the program. Furthermore, skillfulness at applying interpersonal tools was necessary although not sufficient to elicit resources, because potential collaborators, supporters, and
contributors took into consideration other concerns. Potential faculty collaborators, for example, weighed concerns like promotion and tenure expectations and family obligations that inescapably demanded their time and attention.

Potential collaborators gave their own resources, such as their time, to champion or promote the program among peers, colleagues, and superiors. Some faculty members volunteered their time to travel with students, even though they received no monetary compensation to do so. Other faculty members collaborated with Ronen to modify course plans to involve their students in SEE’s work. While these faculty gave resources they directly controlled, many individuals brokered access to resources not directly under their control, for example, by making network introductions to colleagues and administrators, or setting up opportunities for Ronen to speak at limited-access events like an academic council meeting and a banquet for university donors. The richness of Ronen’s network made it possible for him to attract new faculty collaborators when some established collaborations withered owing to interpersonal conflict or disciplinary differences.

Hence, others’ occasional withholding of new resources, with a notable exception, did not harm Ronen’s overall effort. He persevered by applying his savvy and skill to other contacts. Various informants noted that the exception appeared to be the dean, whose support, if withheld initially or at any other point, would have likely put an end to the curriculum.

It is worth noting that organizational savvy, especially around politics, mattered because the curriculum entrepreneur was working from a politically disadvantaged position. Savvy helped him display political sensitivity around more powerful players
like the faculty who ran competing elective programs out of the same department. In addition, influential figures like the department head and development director appreciated his political savvy, and they reported that this contributed to their willingness to support the program’s development. In short, political considerations mattered but they did not drive the actions of the entrepreneur.

**Creational influences. Proposition 5a. A curriculum’s development is heavily influenced by the skillfulness with which a curriculum entrepreneur applies creational tools, along with curriculum development savvy.** In this case, Ronen’s skillful application of creational tools heavily influenced the program’s growth. Owing to resource constraints, he remained flexible about the form that the curriculum took and openly embraced the challenge of integrating diverse resources into the program. For example, Ronen used bricolage to take a bioengineering professor’s offer to collaborate and transformed it, as an at-hand resource, into a learning opportunity that engaged the latter’s design lab students in SEE’s work (many of whom also enrolled directly in SEE’s courses). Through hustle, he applied his time (typically over 16 hours a day) to make up for a lack of alternative resources like a program assistant. This tool allowed him to advance the program faster and farther than would have been otherwise possible. With improvisation, Ronen was able to quickly jump on new opportunities that came his way, like grant applications that yielded support (and therefore his pursuit of) a formal assessment of student learning and the development of a new course. To illustrate further, the compressed time frame for piloting a new grant-supported course could only be met under Ronen’s overall resource constraints by improvising course content. Improvisation
continued to be employed beyond the first iteration of new courses, in large part because Ronen determined that what peer faculty taught was largely unsuited to the needs of the program he was creating.

Along with creational tools, Ronen’s curriculum development savvy was intimately tied to the fact that the startup he created was a program. He thought creatively and incessantly about how to make the curriculum satisfy his values, that is, real-world impact and student engagement, while providing value to others and to the institution.

**Proposition 5b. A curriculum entrepreneur will spend time on a curriculum’s development to the extent that it delivers the value that motivated the effort.** With no external prompting, promised resources, or glut of resources, an entrepreneur’s sustained motivation plays a critical role in an effort’s continuation. For an entrepreneur to continue spending time on a curriculum’s development, it needs to retain its alignment with the entrepreneur’s values. In this case, Ronen accessed deeply held beliefs and values to create the SEE program. Though he approached the program’s development with a great deal of flexibility and sensitivity to the interests of others, he guarded its purpose and weeded out opportunities that threatened to take the program in directions not compatible with his intentions.

If for any reason the program ceased to generate sufficient value for the entrepreneur to continue, he likely would quit the curricular effort. Since he did not experience values misalignment through my study period, I can only speculate how this might happen. To provide an example, one day the program might take on a muddied or even conflicting direction once resources allow it to expand the number of faculty lines.
Variance in perspective or approach by additional faculty might suffice to steer the program away from Ronen’s intentions. The fact that he took a pay cut to assume the program’s director position—while also acknowledging that he could have easily earned twice the amount in a professional engineering position—underscored his potential willingness to quit the effort should it no longer reflect his values.

Louis’ experience illustrates the effect of incongruent program value on a curriculum entrepreneur. By the time of my study, Louis had already endeavored for a dozen years to create a service-learning program in engineering. His mounting frustrations found yet another disappointment in his collaborative work with SEE. He had hoped that Ronen’s effort would help him meet his goal. However, over time, it became apparent through conversations and confrontations with Ronen that the social entrepreneurial focus of the program did not provide him with the value he desired, and he began to step away from the effort. Thus, in general terms, an entrepreneur will spend time on a curriculum to the extent that it delivers the value that motivated the effort. If it ceases to deliver this motivating value to the entrepreneur, the latter will quit the effort and, owing to its pre-institutionalized form, likely collapse.

**Sustaining Influences. Proposition 6. Others’ ongoing willingness to give resources through established flows to the entrepreneurially created curriculum depends heavily on whether it provides them with sufficient value.** As suggested above, the curriculum entrepreneur used his savvy and skillfulness to influence others to offer new resources that he used to shape the program. During the curriculum development process, he created or sanctioned ways that others could continue to contribute directly to
the program. The ongoing flow of resources from others to the program played an indispensable role in its continuation and growth. As an example, the channels by which students became involved in the program represented a set of these established resource flows. Students were inspired to enroll through a range of recruitment efforts including career services counseling, information sessions, and an ideas competition. They also became involved through Ronen’s collaborations with other faculty members, who engaged them in SEE-related course projects and encouraged those interested in summer fieldwork to sign up for the prerequisite SEE seminar. Collaborations ranged from single class projects to the dedication of an entire course’s work to SEE, like the bioengineering design lab that created affordable medical devices for the mobile clinic venture. In addition to the established channels for students and faculty to contribute in an ongoing manner to the program, administrators provided financial support that allowed Ronen to maintain creative control as director.

Once resource flows became established, the curriculum’s ongoing ability to generate sufficient value for others determined whether it continued to receive those resources. Since the program was elective, none of its collaborators, supporters, or contributors were compelled to give up any of their resources. Just as the program had to align with the curriculum entrepreneur’s values to sustain his dedication, it had to align with the interests of others. For students, the program afforded them a way to engage in real-world problem solving and make sustained community impact. For faculty, it provided an authentic problem space in which to embed their courses and engage their students. For administrators, the program helped address the strategic priorities of
enhanced undergraduate student engagement, particularly around global themes. If at any point the program failed to provide sufficient value, others retracted their resources. In such instances, Ronen modified existing resource flows or used interpersonal tools to create opportunities to engage new contacts. On the latter point, as a few faculty collaborations soured over time, Ronen compensated for these lost resources by working with new faculty contacts to generate mutually beneficial arrangements that became part of the program. On the former point, when SEE struggled at one point to enroll a target number of students, Ronen made tweaks to the recruitment channels by, for instance, asking current students to speak at information sessions and invite their likeminded friends. The most serious threat to the program’s continuation was the possibility that the dean would withdraw his financial support. The department head and Ronen both had confidence in the durability of the dean’s support, and expected it would continue even if Ronen should decide to leave. Regardless of their expectations, in this instance, one of the few apparent alternatives would be for Ronen to secure significant donor support.

**Institutionalization.** Proposition 7. As a curriculum entrepreneur reduces the use of entrepreneurial tools and runs a curriculum through routinized effort and flows of resources from others, the program becomes institutionalized. In my study, the program had reached a semi-institutionalized phase. Ronen’s goal was to make SEE freestanding, that is, not dependent upon him in the long run. To do so, he had to flesh out the program’s structure and content, and routinize both the effort required of the director and the channels through which others contributed their resources. For Ronen’s effort to follow the path of successful startups, SEE had to eventually become a
routinized, established program. Hence, while the process of curriculum entrepreneurship is not neatly linear, its purpose is to help a curriculum become institutionalized. Not all efforts succeed; indeed, five-year success rates for business startups range by various accounts from one in two, to one in ten (see e.g., Shane, 2008). SEE had not, at the time of my study, reached a fully institutionalized phase, because Ronen’s entrepreneurial effort was still required to grow the program. However, the funding line was relatively secure and Ronen was taking steps to enhance SEE’s institutionalization by, for example, systematically documenting its content and process. Though he poured immense effort into the program, his goal was to make his role as curriculum entrepreneur obsolete. With full institutionalization, then, he anticipated that someone else would step in at some point to run the program.

**Implications for Future Research**

The findings of my study informed the theoretical model and propositions I presented above. In addition, I offer some recommendations about how my overall findings and model might shape future research and practice.

*Recommendation 1. Future research should continue to investigate the exchange of value in entrepreneurial processes, both within the setting of curriculum innovation and generally.* The model I developed to theorize the study’s findings emphasized the exchange of value, both intangible (i.e., values expression) and tangible (i.e., resources), and the mutuality and contingency involved in these exchanges. In line with calls to more deeply investigate entrepreneurship as a process (e.g., Moroz & Hindle, 2012), future research should probe the nature of these transactions by
considering the affordance of existing theories. For example, social exchange theory (e.g., Homans, 1961; Blau, 1964) may provide insights into the exchange of values and resources I identified in this study. The theory centers on dyadic, or one-on-one, exchanges between parties who weigh relative costs and benefits while also considering or being affected by contextual issues. In their meta-analysis, Cook, Cheshire, Rice, and Nakagawa (2013) outlined the constructs and theories most commonly examined in relation to social exchange, such as trust and fairness. From this review and my search of the literature, it appears that researchers have not yet examined how social exchanges are influenced by interpersonal tools like storytelling or a related, more general construct like persuasion.

**Recommendation 2.** *Future research should investigate factors that affect a curriculum entrepreneurs’ adeptness at applying tools to a curricular effort.* My analysis further suggested that the curriculum entrepreneur’s skillfulness at applying interpersonal and creational tools heavily influenced his success at developing the curriculum. Future research might examine more closely the factors that affect an entrepreneur’s adeptness at applying entrepreneurial tools and their impact. For example, are certain tools more important than others at specific stages of a curriculum’s development? In support of this possibility, my study showed that well-regulated passion played a focal role at the outset of a program’s development and that storytelling became more important in the subsequent phases of its growth. For example, Martin, the director of an elective program that competed with SEE, took the helm after the program’s initial launch. He purposefully downplayed his passion and avoided coming across in his
interactions as “a rock star” who made a strong impression on others. Rather, he relied heavily on storytelling to attract their support. He reportedly did this because he was planning for his eventual succession and transition from the director’s position to a tenure-line faculty appointment. In short, researchers might probe which tools are most important in specific circumstances.

Future research might also investigate how curriculum entrepreneurs learn to apply tools more effectively through experience, and what factors facilitate or prevent them from putting their learning into action. For example, in my study, Louis expressed awareness of how he could improve his use of entrepreneurial tools while also consciously resisting the application of what he said he had learned. In Pifer and Baker’s (2013) study, some research university faculty resisted the idea of professional networking, considering it too “political” and antithetical to personal or perceived academic values. Individual values and/or perceived disciplinary norms may affect faculty members’ openness to the application of entrepreneurial approaches to the creation of a curriculum.

Finally, I encourage future research to continue the focus on a suite of entrepreneurial tools, because there is a tendency to isolate tools. While this can yield valuable insights, there is much to learn about process from deeper examinations of how the various tools mutually reinforce one another or take precedence at various points in the development of an effort. In my study, I found that the curriculum entrepreneur used a wide range of interpersonal and creational tools to overcome marked resource constraints.
**Recommendation 3. Future research should examine how a curriculum entrepreneur’s organizational savvy and skillfulness at applying interpersonal tools influence which resources are at hand.** My analysis suggested that in resource-constrained environments, which resources are at hand, or readily accessible, depends to a large degree upon a curriculum entrepreneur’s organizational savvy and skillfulness at using interpersonal tools. In this study, it appeared that nearly every resource within the resource-constrained environment was controlled or contested by someone, rendering very little at hand without the application of some amount of savvy or skill. Research on bricolage has called attention to the idiosyncratic, socially constructed nature of a startup’s resource environment (e.g., Baker, 2005). That is, not all organizational entities within the same context access resources with equal ease. Future research might examine how a curriculum entrepreneur’s organizational savvy, or awareness of how things work in a given context, along with her skillfulness at applying interpersonal tools like storytelling and passion, affects her resource environment and thus the curriculum she is working to create. Some curriculum entrepreneurs, like Ronen, might amass a large repertoire of tangible and intangible resources with little apparent effort thanks to savvy and skillfulness, while others, like Louis, might fail to attract resources owing to an inattentiveness to organizational concerns, ineffective storytelling (which results from such inattentiveness), and unappealing expression of passion. Future research might also examine the factors that lead some curriculum entrepreneurs to hone their savvy and skillfulness while others do not.
**Recommendation 4.** Future research should examine whether the integration of social entrepreneurship education into engineering—especially through instructional processes that engage students in developing implementable solutions to socially embedded problems—produces desired learning outcomes. This study enhances our understanding of both curriculum innovation processes and issues that arise while developing a curriculum integrating social entrepreneurship education into engineering. I did not rigorously examine student learning outcomes and thus did not determine the program’s success in preparing undergraduate participants to address society’s wicked problems (Rittel, 1973; Kolko, 2012). Anecdotally, a dozen students cited their participation in SEE as highly influential in confirming or redirecting their future career plans. Several secured professional positions that allowed them to continue to work on similar issues, which others pursued graduate studies that incorporated similar social entrepreneurial approaches.

While researchers have examined engineering students’ preparedness for practice (Lattuca et al., 2014; 2006), they have not yet focused on how to promote students’ readiness to address socially embedded problems, even with various calls for engineering programs to produce graduates capable of handling the complexity and ambiguity of these issues (e.g., Duderstadt, 2008; National Science Board, 2007). Consequently, given the interest in capacity building in this area, researchers might address the effects of different instructional processes on student learning. My analysis suggests that, in this case at least, the authenticity of the socially embedded problem engendered deeper and
more sustained engagement by students, and showed promise in attracting women and minority participants.

**Implications for Practice**

My goal in this research was to build understanding and theory rather than to identify direct applications for educational practice. The use of a single case study for the latter purpose may be imprudent. With this limitation in mind, I offer a few thoughts that engineering educators and administrators might consider as they seek to engage students more deeply in practice, balance theory and practice, and develop innovative learning experiences regardless of the apparent resources available.

In this study, many students valued the opportunity to create implementable, validated, and sustainable solutions to real-world problems. The program tapped into these students’ values, most especially their desire to make a sustained contribution to the betterment of the world. The authenticity of the experience engaged them intensely in practice, which motivated not only their efforts to develop ventures but also the research that the program asked them to conduct and publish. The research component helped these students learn to question their assumptions as engineers and dig deeper when engaging in practice. The curriculum’s design engaged students in both theory and practice, and generated a mutually reinforcing rather than either-or relationship between the two. Ronen connected these otherwise familiar elements in a novel way, by emphasizing long-term engagement in authentic problem spaces, of which students also work to gain greater understanding. This approach may offer a model for existing or
future programs that seek to better prepare students for practice while striking a balance of theory and practice.

Also in this study, I observed that it was not enough for a faculty member engaging in curriculum entrepreneurship to have passion. Indeed, poorly regulated passion negatively affected one faculty member’s curricular efforts. Thus, faculty members interested or already engaging in curriculum entrepreneurship might benefit from viewing the savvy and tools explored in this study as something that can be learned. While not sufficient on their own to overcome the multiple contingencies in an institutional environment, savvy and entrepreneurial tools are just that—awareness and tools that can be developed through experience and reflection. Ronen adopted a learning posture, remained attentive to organizational cues, and learned how to better use a variety of entrepreneurial tools. In making this suggestion, I follow scholars who emphasize that an entrepreneur is defined by actions rather than personal traits (e.g., Gartner, 1989). Reasonably, it follows that individuals can learn to take more skillful action through reflection on previous experience. Ronen and Martin reflected on their learning processes, for example, with regard to tailoring the stories they shared. Louis also learned lessons, but he resisted putting these into action. That is, he refused to engage in what he viewed as dissembling behavior, including any attempt to stray from a single narrative or modify the way he expressed passion.

**Concluding Thoughts**

This study examined a case of a curriculum development effort that *could be* (Schofield, 1990), and threw into sharp relief a process that may become more prevalent
over time or may be presently happening to a greater degree than generally appreciated. Further, through this study, I contributed to the understanding of how bottom-up curriculum change occurs in higher education, supplementing a literature that primarily emphasizes top-down models. I suggested a theoretical model to illustrate how curriculum innovation happens through a process of curriculum entrepreneurship. It is my hope that future researchers will benefit from and build upon this model. Beyond the study’s contributions to a scholarly understanding of change processes, it suggests what can happen when an engineering program deeply engages students in authentic practice-based experiences that tie to and are mutually reinforced by research. So, too, it is my hope that engineering programs will consider the possibilities while heeding calls from various quarters to better prepare students to take on real-world challenges marked by complexity, ambiguity, and the intermingling of social and technical concerns.
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## Appendix A. Data Analysis Code Book

### PERSONAL/PROFESSIONAL BACKGROUND

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>background</td>
<td>comments about (personal/educational/professional) background</td>
</tr>
<tr>
<td>current work</td>
<td>comments about professional focus and work. Note: stories related to current work with the program go under “collaboration backstory.”</td>
</tr>
<tr>
<td>how acquainted</td>
<td>comments on how acquainted with the program or its leaders</td>
</tr>
<tr>
<td>life stage/family</td>
<td>comments about life stage and family considerations</td>
</tr>
<tr>
<td>values/passion/motivation</td>
<td>comments about the values, passion, motivation of anyone except the director. Note: comments about the director goes under “motivation” in “director.”</td>
</tr>
</tbody>
</table>

### COMPETITION

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>appearances/commitment/games</td>
<td>comments about people trying to create the appearance of doing or owning something; comments about others’ commitment levels</td>
</tr>
<tr>
<td>funding/resource competition</td>
<td>comments about competing for funding or other resources. Note: other comments about getting funding or dealing with the program’s budget go under “funding/budget” in “resources.”</td>
</tr>
<tr>
<td>managing relationships</td>
<td>comments about managing or dealing with competitive relationships</td>
</tr>
<tr>
<td>territorial issues/in similar space</td>
<td>comments about competition in similar territory with other programs (e.g., moving from the periphery versus center of attention) and competing in a similar space (e.g., global education)</td>
</tr>
<tr>
<td>department</td>
<td>comments about the program’s home department, e.g., its history and dynamics</td>
</tr>
<tr>
<td>department head</td>
<td>comments about the department head</td>
</tr>
<tr>
<td>potential feeder course</td>
<td>comments about the lower-division course that was a potential competitor or feeder for the program</td>
</tr>
<tr>
<td>entrepreneurship minor/director</td>
<td>comments about the entrepreneurship minor or its director</td>
</tr>
<tr>
<td>service-learning collaborator</td>
<td>comments about the service-learning collaborator</td>
</tr>
<tr>
<td>leadership minor/director</td>
<td>comments about the leadership minor or its director</td>
</tr>
</tbody>
</table>

### PROGRAM DIRECTOR

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>director</td>
<td>comments about the director that don’t fall under any other code</td>
</tr>
<tr>
<td>energy/intensity/work ethic</td>
<td>comments about the director’s energy, intensity, or work ethic. Note: comments about his passion go under “passion”</td>
</tr>
<tr>
<td>job appointment</td>
<td>comments about the director’s job appointment</td>
</tr>
<tr>
<td>learning from others</td>
<td>comments about the director learning from others</td>
</tr>
<tr>
<td>learning thru experience</td>
<td>comments about the director learning through experience or trial and error</td>
</tr>
<tr>
<td>likeminded/in-network</td>
<td>comments about being likeminded or in the same networks</td>
</tr>
<tr>
<td>motivation</td>
<td>comments about what motivates the director, including his values</td>
</tr>
<tr>
<td>no PhD/non-tenure-track</td>
<td>comments about the director not having a PhD or not being on the tenure track. Note: other comments about academia’s reward structure and culture go under “reward structure/culture” under “institution.”</td>
</tr>
<tr>
<td>overextended</td>
<td>comments about the director being overextended, spread thin, or lacking focus</td>
</tr>
<tr>
<td>trust</td>
<td>comments about trust (i.e., director talking about others, or others talking about director)</td>
</tr>
</tbody>
</table>

### EDUCATION TREND

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>education trend</td>
<td>comments about education trends not covered by the other codes</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>engineering ed</td>
<td>comments about engineering education, including comments about curriculum innovation</td>
</tr>
<tr>
<td>experiential/hands-on ed</td>
<td>comments about experiential, hands-on, or real-world education</td>
</tr>
<tr>
<td>global ed</td>
<td>comments about global education or global engagement</td>
</tr>
<tr>
<td>multidisciplinary ed</td>
<td>comments about multidisciplinary education in the program or generally. Note: comments about students’ experience working in multidisciplinary teams goes under “working in venture teams” in “student experience.”</td>
</tr>
<tr>
<td>social entrepreneurship ed</td>
<td>comments about social entrepreneurship education, and social entrepreneurship in general, i.e., people’s impressions of social entrepreneurship. Note: comments in which attacks on social entrepreneurship are being used as a proxy to attack the program go under “intellectual opposition.”</td>
</tr>
<tr>
<td>ENTREPRENEURIAL PROCESS/TOOLS</td>
<td></td>
</tr>
<tr>
<td>entrepreneurial process/tools</td>
<td>comments about process/tools that aren’t covered by other codes</td>
</tr>
<tr>
<td>bootstrap</td>
<td>comments about bootstrapping, i.e., doing more with less resources than others</td>
</tr>
<tr>
<td>hustle</td>
<td>comments about hustling (using time) to meet needs of the program</td>
</tr>
<tr>
<td>improvising/piecing together (bricolage)</td>
<td>comments about improvising or engaging in bricolage (i.e., piecing together resources or tapping into at-hand resources)</td>
</tr>
<tr>
<td>engaging existing opportunities</td>
<td>comments about leveraging existing resources or opportunities.</td>
</tr>
<tr>
<td>networking/relationship-building</td>
<td>comments about networking and relationship building</td>
</tr>
<tr>
<td>passion</td>
<td>comments about passion of the program’s director</td>
</tr>
<tr>
<td>reputation building</td>
<td>comments about building the reputation and notoriety of the program</td>
</tr>
<tr>
<td>serendipity</td>
<td>comments about serendipity or luck helping the program</td>
</tr>
<tr>
<td>storytelling/marketing</td>
<td>comments about storytelling or marketing the program</td>
</tr>
<tr>
<td>IN VIVO</td>
<td></td>
</tr>
<tr>
<td>in vivo</td>
<td>comments that contain an ‘in vivo’ phrase not covered by the below</td>
</tr>
<tr>
<td>business-like</td>
<td>comments using business analogies and terminology</td>
</tr>
<tr>
<td>champion</td>
<td>comments about people acting like champions for the program. These comments can be explicit or implicit.</td>
</tr>
<tr>
<td>INSTITUTION</td>
<td></td>
</tr>
<tr>
<td>institution</td>
<td>comments about the institution not covered by other codes</td>
</tr>
<tr>
<td>alignment</td>
<td>comments about the program aligning with the institution’s priorities</td>
</tr>
<tr>
<td>bureaucracy/’by the book’</td>
<td>comments about navigating the bureaucracy of the institution to get things done for the program.</td>
</tr>
<tr>
<td>comparison</td>
<td>comments comparing the University to other institutions</td>
</tr>
<tr>
<td>competing programs</td>
<td>comments about other classes or programs that compete or potentially compete that are based outside the department</td>
</tr>
<tr>
<td>dean</td>
<td>comments about the dean of the college of engineering</td>
</tr>
<tr>
<td>IRB</td>
<td>comments about IRB (institutional review board)</td>
</tr>
<tr>
<td>multidisciplinarity</td>
<td>comments about multidisciplinary work and cross-campus collaboration at the institution. Note: specific comments about the program and this kind of work goes under “multidisciplinary/cross-campus” under “program.”</td>
</tr>
<tr>
<td>president</td>
<td>comments about the president of the University and the top leadership</td>
</tr>
<tr>
<td>reward structure/culture</td>
<td>comments about the institution’s reward’s system</td>
</tr>
<tr>
<td>risk management</td>
<td>comments about risk management</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>structure/culture</td>
<td>comments about the institution’s structure or culture</td>
</tr>
<tr>
<td>university-wide minors</td>
<td>comments about the university-wide minors that were coalescing at the time of the study</td>
</tr>
</tbody>
</table>

**OPPOSITION**

<table>
<thead>
<tr>
<th>opposition</th>
<th>comments about opposition not covered by other codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>intellectual opposition</td>
<td>comments about the program not being intellectual enough. Note: comments about discipline-based critiques go under “discipline-based friction.”</td>
</tr>
<tr>
<td>opposition from above</td>
<td>comments about opposition to the program from administrators</td>
</tr>
<tr>
<td>opposition from below</td>
<td>comments about opposition to the program from faculty or staff members</td>
</tr>
<tr>
<td>political opposition</td>
<td>comments about political issues, e.g., the program not being allowed to call itself a program</td>
</tr>
</tbody>
</table>

**PROGRAM**

| assessment | comments about assessment of the learning happening through the program |
| challenges | comments about challenges for the program, e.g., identifying/anticipating roadblocks |
| class time | comments about class time in the program |
| comparing/differentiating/benchmarking | comments comparing, differentiating, or benchmarking the program with other programs |
| content/goals | comments about the program’s content and goals |
| control/frustration | comments about control (or lack of it) over factors affecting the program |
| logistics | comments about logistics, including comments about practical limitations and what’s realistic. For collaborations, use “collaboration logistics” in the “collaboration” family. |
| mentorship | comments about mentorship for students, e.g., on their research projects by other faculty members |
| program maturation/history | comments about the program’s maturation (history) over time. Note: comments talking about the future of the program go under “scaling/sustaining/institutionalizing” |
| recruitment/enrollment | comments about student recruitment and enrollment. Note: comments about student peer recruitment go under “peer recruiting” in “student experience” |
| scaling/sustaining/institutionalizing | comments about scaling up the program, making it more sustainable, and setting up structures to help make the program independent of the founder/more ready for eventual transition to new director |
| side projects, ineffective | comments about side projects that proved ineffective in supporting the program |
| side projects, effective | comments about side projects that proved effective in supporting the program |
| structure/continuity | comments about the program’s structure and continuity (meaning how well the parts fit together) |
| teaching | comments about teaching in the program |
| ventures | comments about the ventures in the program. Note: use codes in “student experience” when appropriate |

**PROGRAM COLLABORATION**

<p>| collaboration | comments about collaboration with the program not covered by other codes |
| collaboration with outside colleagues | comments about collaboration between the program and those at other universities |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>collaboration backstory</td>
<td>comments on how the collaboration came about, e.g., through serendipity, a</td>
</tr>
<tr>
<td></td>
<td>pitch, a conversation, etc.</td>
</tr>
<tr>
<td>collaboration benefit</td>
<td>comments on the benefits of collaboration between the program and another</td>
</tr>
<tr>
<td></td>
<td>person or program. Note: comments about values aligning go under “values</td>
</tr>
<tr>
<td></td>
<td>alignment”</td>
</tr>
<tr>
<td>collaboration description</td>
<td>comments describing the collaboration between the program and another faculty</td>
</tr>
<tr>
<td></td>
<td>member or program</td>
</tr>
<tr>
<td>collaboration logistics</td>
<td>comments about the logistics of collaborating</td>
</tr>
<tr>
<td>collaboration ownership</td>
<td>comments about friction over ownership of the collaborative projects or</td>
</tr>
<tr>
<td></td>
<td>publications</td>
</tr>
<tr>
<td>international collaboration</td>
<td>comments about collaboration between the program and international partners</td>
</tr>
<tr>
<td>multidisciplinary/cross-campus</td>
<td>comments about the program working in a multidisciplinary or cross-campus</td>
</tr>
<tr>
<td></td>
<td>manner. Note: comments in general about working across disciplines should</td>
</tr>
<tr>
<td></td>
<td>go under “multidisciplinarity” in “institution.”</td>
</tr>
<tr>
<td>partnership/affiliation</td>
<td>comments about arrangements that are better described as partnerships or</td>
</tr>
<tr>
<td></td>
<td>affiliations (as opposed to collaborations)</td>
</tr>
<tr>
<td>values alignment</td>
<td>comments about the value provided by the program aligning with personal or</td>
</tr>
<tr>
<td></td>
<td>professional values. See also “values/motivation/passion” under “background”</td>
</tr>
<tr>
<td></td>
<td>for more general comments about values.</td>
</tr>
<tr>
<td>PROGRAM, PERCEPTION OF</td>
<td></td>
</tr>
<tr>
<td>discipline-based friction</td>
<td>comments about disciplinary differences causing friction, e.g., within the</td>
</tr>
<tr>
<td></td>
<td>program’s collaborations</td>
</tr>
<tr>
<td>legitimacy</td>
<td>comments about legitimacy, e.g., of pedagogy, program aims, non-PhD holding</td>
</tr>
<tr>
<td></td>
<td>program director</td>
</tr>
<tr>
<td>speculation on what needed</td>
<td>comments that speculate on what the program needs</td>
</tr>
<tr>
<td>strengths</td>
<td>comments about the perceived strengths of the program or director</td>
</tr>
<tr>
<td>weaknesses</td>
<td>comments about perceived weaknesses of the program or director</td>
</tr>
<tr>
<td>PROGRAM SUPPORT</td>
<td></td>
</tr>
<tr>
<td>support from above</td>
<td>comments about support for the program from administrators</td>
</tr>
<tr>
<td>support from below</td>
<td>comments about support for the program from faculty or staff</td>
</tr>
<tr>
<td>support from outside</td>
<td>comments about support from outside entities, e.g., international agencies</td>
</tr>
<tr>
<td></td>
<td>and granting organizations</td>
</tr>
<tr>
<td>support from service units</td>
<td>comments about support for the program from support or service units in the</td>
</tr>
<tr>
<td></td>
<td>university</td>
</tr>
<tr>
<td>PROGRAM RECOGNITION</td>
<td></td>
</tr>
<tr>
<td>exemplar/innovator</td>
<td>comments about the program or its director being an exemplar, innovator, or</td>
</tr>
<tr>
<td></td>
<td>early mover</td>
</tr>
<tr>
<td>presentations/conferences</td>
<td>comments about presenting or attending conferences</td>
</tr>
<tr>
<td>recognition/publicity</td>
<td>comments about recognition or publicity for the program</td>
</tr>
<tr>
<td>research/pub/dissemination</td>
<td>comments about research, publication, or dissemination related to the program.</td>
</tr>
<tr>
<td></td>
<td>Note: use “research/publication/presentations” in “student experience” for</td>
</tr>
<tr>
<td></td>
<td>student-related comments about these topics</td>
</tr>
<tr>
<td>PROGRAM RESOURCES</td>
<td></td>
</tr>
<tr>
<td>resources</td>
<td>comments about resources not covered by other codes</td>
</tr>
<tr>
<td>endowment</td>
<td>comments about endowments and/or the potential of the program to secure one</td>
</tr>
</tbody>
</table>
funding/budget comments about funding sources for the program, including sustaining the ventures, supporting student travel, conducting assessment, covering the director’s salary. Note: students talking about their own experience with getting funding for their travel can be coded “travel abroad/funding”

need comments about resources that are needed, lacking, or in short supply

time comments about time, e.g., as it relates to getting things done for the program

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STUDENT EXPERIENCE

student experience comments by students about their experience with the program not covered by other codes

cross involvement comments about student cross involvement or double counting of educational experiences, e.g., enrollment in both the program and a minor

doing fieldwork/venture development comments about doing work in the field, including comments about the experience of being in the field doing research or working to advance the ventures while on the ground. Note: general comments about being abroad go under “experience in field”
education/experience comparison comments by students on how the program compares with other educational opportunities or life experiences

experience in class comments on work done in the classes, or things that happened in class

experience in field/abroad comments by students about being abroad and what it was like to be abroad. Note: comments that are specifically about doing fieldwork and venture development go under “doing fieldwork/venture development”

frustrations comments about frustrations with the program and/or the director

future plans comments by students about future study or career plans

interactions with international collaborators comments about student experience with international collaborators, e.g., while doing fieldwork abroad

interactions with/expectations of director comments about students interacting with the director and his expectations

leadership/ownership comments about student experience taking on leadership roles in the program, including comments about students’ sense of ownership for the ventures

learning/benefits comments about what students learned and how they benefitted by participating in the program

motivated v. average students comments about the differences in student experience that come from being highly motivated versus just being there for a grade

peer recruiting comments about the student experience being recruited to the program by peers, or helping to recruit other students

research/publication/presentations comments about student experience or involvement doing research, writing/publication, and presentations through the program

retention/ongoing engagement comments about students’ retention and ongoing engagement with the program, e.g., year to year, or in the semester following the summer fieldwork

self-discovery comments by students about discovering something about themselves through their experience with the program

student funding comments about student funding for travel for the program

student motivations comments about what motivates students, especially to participate in the program

trust, student-related comments about trust, e.g., the director trusting the students to take on responsibilities, or team members trusting one another

working in venture teams comments about working in venture teams, including comments about different education levels, disciplines, and team dynamics
Appendix B: Recruitment Letter for Student Participants

For student participants:

Spring Semester 2011

Greetings!

I am a graduate student working under the direction of Professor Lisa Lattuca in the Higher Education program at Penn State University. I am conducting research for my dissertation to learn more about social entrepreneurship curriculum in higher education.

I am contacting you to participate in this research because of your involvement in [first course name], [second course name], and/or the projects associated with these courses, including [list of project names].

I’m asking that you allow me to include you in my research in up to three different ways: first, by allowing me to observe and take notes on your activities in classes, related meetings, and/or fieldwork; second, by allowing me to ask you for occasional, informal interviews about your experiences and directly related matters; and third, by allowing me access to materials you produce for the classes and/or project work. I may take photographs of your class or field activities; these will be used only for my notes and will not be published. You may say no to one or more of these ways of being involved at any time, and you are encouraged to approach me with concerns or questions.

This research will take place in Spring and Summer 2011, with some possible follow-up in the subsequent Fall and Winter.

For more details about this research, please see the accompanying Informed Consent Form and/or contact me at mef226@psu.edu. If you are willing to participate in this research, please complete the Informed Consent Form and return it to me. Thank you!

Sincerely,

Melanie Fedri
Appendix C: Consent Form for Student Participants

This is to be hand-delivered or emailed to the participant.

INFORMED CONSENT FORM FOR SOCIAL SCIENCE RESEARCH
The Pennsylvania State University

Title of Project: Ethnographic study of a social entrepreneurship learning initiative

Principal Investigator: Melanie Fedri, PhD Candidate
Higher Education
301 Rackley Building
University Park, PA 16802
(phone number): mef226@psu.edu

Advisor: Dr. Lisa Lattuca
Professor of Higher Education
400 Rackley Building
University Park, PA 16802
(814) 865-9754; lxl29@psu.edu

1. Purpose of the Study: The purpose of this research study is to gain an in-depth understanding of social entrepreneurship curriculum in higher education, with a focus on the experiences of those involved.

2. Procedures to be Followed: You are asked to allow the principle investigator (PI), Melanie Fedri, to observe and take notes on your activities in your [name of program] classes, related meetings, and/or fieldwork. The PI may also ask you for occasional, informal interviews about your experiences and directly related matters; these will last approximately 45 minutes or less. With your permission, some of your coursework will be collected. Also with your permission, interviews and discussions will be audio taped. I may take photographs of your class or field activities; these will be used only for my notes and will not be published.

3. Benefits: It is hoped that this research will help students, educators, and administrators better understand social entrepreneurship curriculum in higher education, especially the experiences of those involved in it.

4. Duration: The study will take place primarily in Spring and Summer 2011, with some possible follow up in Fall and Winter 2011/2012. You will not be asked for more than 45 minutes of your time for any periodic, informal interview that the PI may request.
5. **Statement of Confidentiality:** Your participation in this research is confidential. Only the PI will know your identity. The data will be stored on an external hard drive kept in a lockbox in the PI’s office. Only the PI and possibly a transcriptionist will have access to the recordings and photographs. The recordings and photographs will be destroyed in five years, in 2016. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared.

6. **Right to Ask Questions:** You can ask questions about this research. Contact Melanie Fedri at [phone number] with questions.

7. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer.

8. **You must be 18 years of age or older.**

   [ ] I agree to allow coursework (e.g., assigned blog posts) from [name of course “A”] and [name of course “B”] to be released to the principal investigator and the research team of this study for the purpose of helping them gain a clearer understanding of my reflections, learning, and experiences related to the class and its projects.

   [ ] I DO NOT agree to allow coursework (e.g., assigned blog posts) from [name of course “A”] and [name of course “B”] to be released to the principal investigator and the research team of this study.

If you agree to take part in this research study and the information outlined above, please sign your name and indicate the date below. You will be given a copy of this form for your records.

Signature of participant ___________________________ Date ____________

Signature of investigator ___________________________ Date ____________
Appendix D: Recruitment Letter for Non-Student Participants

For non-student participants (minus key field site contacts):

Spring Semester 2011

Greetings, XXXX!

I am a graduate student working under the direction of Professor Lisa Lattuca in the Higher Education program at Penn State University. I am conducting research for my dissertation to learn more about curricular innovation in higher education, with a focus on perceptions and/or experiences related to it.

I am contacting you to participate in this research because of your acquaintance with a social entrepreneurship program [name of program] at [University]. I am asking for approximately 45 minutes of your time for an interview, with the possibility of a follow-up at a later date.

For more details about this research, please see the Informed Consent Form and/or contact me at mef226@psu.edu. If you are willing to participate in this research, please complete the Informed Consent Form and return it to me. Thank you!

Sincerely,

Melanie Fedri
Appendix E: Consent Form for Non-Student Participants

This is to be hand-delivered or emailed to the participant.

INFORMED CONSENT FORM FOR SOCIAL SCIENCE RESEARCH
The Pennsylvania State University

Title of Project: Ethnographic case study of a curricular innovation in higher education

Principal Investigator: Melanie Fedri, PhD Candidate
Higher Education
301 Rackley Building
University Park, PA 16802
[phone number]; mef226@psu.edu

Advisor: Dr. Lisa Lattuca
Professor of Higher Education
400 Rackley Building
University Park, PA 16802
(814) 865-9754; lxl29@psu.edu

1. Purpose of the Study: The purpose of this research study is to gain an in-depth understanding of curricular innovation in higher education, with a focus on the perceptions and experiences of those aware of or involved with a social entrepreneurship program [name of program].

2. Procedures to be Followed: You are asked to allow the principal investigator (PI), Melanie Fedri, to interview you for approximately 45 minutes or less about your perceptions and/or experience related to curricular innovation. If applicable, you are asked to allow the PI to observe and take notes on your activities related to curricular innovation. With your permission, interviews and discussions will be audio taped.

3. Benefits: It is hoped that this research will help educators and administrators better understand curricular innovation in higher education, especially the perceptions and/or experiences of those involved in it.

4. Duration: The study will take place from Spring 2011 through Spring 2012. You will not be asked for more than 45 minutes of your time for any periodic interview that the PI may request.

5. Statement of Confidentiality: Your participation in this research is confidential. Only the PI will know your identity. The data will be stored on an external hard drive kept in a lockbox in the PI’s office. Only the PI and possibly a transcriptionist will have access to the recordings. The recordings will be destroyed in five years, in 2016. In the
event of a publication or presentation resulting from the research, no personally identifiable information will be shared.

6. **Right to Ask Questions:** You can ask questions about this research. Contact Melanie Fedri at [phone number] with questions.

7. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer.

8. **Participants must be 18 years of age or older.**

9. **Consent to audio record the interview(s):** Do you give me permission to audio record the interview(s)?
   - [ ] Yes
   - [ ] No

   If you agree to take part in this research study and the information outlined above, please sign your name and indicate the date below. You will be given a copy of this form for your records.

   Signature of participant ________________________________ Date _____________

   Printed name of participant __________________________________________

   Signature of investigator ___________________________ Date _____________
Appendix F: Recruitment and Consent for Field Site Contacts

To be read to key field site contacts in developing country:

Greetings!

I am a graduate student working under the direction of Professor Lisa Lattuca in the Higher Education program at Penn State University. I am conducting research for my dissertation to learn more about social entrepreneurship curriculum in higher education.

I am asking you to participate in this research by speaking with me for no more than 45 minutes about [name of project]. With your permission, I may audio record our conversation. Also, I may take some photos related to [name of project]; these will be used only for my notes and not be published. You can ask me not to photograph you at any time.

Your participation in this research is confidential. Your identity will be protected in any publications about this research. Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Any recordings of our conversation and photos will be stored in a lock box in my office. Only myself and possibly a transcriptionist will have access to the recordings. The recordings and photos will be destroyed in five years, in 2016.

You must be 18 years of age or older to participate in this research.

Completion of the interview implies your consent to participate in this research.

Do you have any questions about this request and my research? [Pause for response]

☐ Yes
☐ No

Do you give me permission to interview you? [Pause for response.]

☐ Yes
☐ No

Do you give me permission to record the interview? [Pause for response.]

☐ Yes
☐ No

Thank you so much!

[Name, date, and time permission granted will be recorded in my official field notes and a separate note stored with the signed consent forms.]
Vita

Melanie Elizabeth Fedri

Education
Doctor of Philosophy in Higher Education, The Pennsylvania State University 2017
Bachelor of Arts with Distinction in Foreign Affairs, University of Virginia 2003

Honors
University Graduate Fellow, The Pennsylvania State University 2007-2009
Harrison Undergraduate Research Award, University of Virginia 2002-2003
Echols Scholar, University of Virginia 1999-2003

Professional Experience
Managing Editor, American Journal of Education 2009-2013 The Pennsylvania State University
Graduate Assistant, Higher Education Program The Pennsylvania State University 2007-2009
Personal Assistant to the Secretary-General of the Bahá’í International Community (Haifa, Israel) 2004-2007

Teaching
Instructor, GW Summer Programs, Startups & Incubators, The George Washington University 2016
Adjunct Faculty Member in Human Services and Social Justice, Social Innovation, The George Washington University 2015
Teaching Assistant, NSF DC I-CORPS Program 2014
Workshop Designer and Facilitator in Social Entrepreneurship, Design Thinking, and Lean Startup Methods DC Climathon, GW Office of Sustainability 2013-2016
GW New Venture Competition, GW Office of Innovation and Entrepreneurship 2013-2016
Young Scholars CivicWeek, Jack Kent Cooke Foundation 2013-2016

Professional Development
Course Design Institute, University of Virginia (Washington, DC) 2016
Summit for Transformative Education, Transformative Action Institute (Palo Alto, CA) 2013
StartingBloc Institute, StartingBloc (New York, NY) 2010

Selected Presentations
Best practices for nurturing student pathways for social innovation Ashoka U Exchange Annual Conference, New Orleans, LA 2016
The tools of curriculum entrepreneurship: An exploration of how curriculum change comes about through faculty members’ personal passion and entrepreneurial effort Association for the Study of Higher Education Annual Conference, St. Louis, MO 2013
Undergraduate research: Adding value and dimension to entrepreneurship education and venture creation VentureWell Annual Conference, San Francisco, CA 2012