

Academic Entrepreneurship Overview: New Program Development Using Entrepreneurship Principles

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Abstract: This paper examines human dimensions of innovation within the context of complex problem solving and solution generation. We review theories and methodologies used in entrepreneurship, identifying similarities and implications. In an illustrative case study, we describe process used to launch a new academic program in a university. Program faculty used frameworks, perspectives, and analysis that are fundamental to entrepreneurship with the goal of launching an academic program in response to local industry requests. We conclude with a discussion of implications for research and practice.

Keywords: Academic entrepreneurship, Design thinking, Effectuation, Innovation, Entrepreneurship

1. Introduction

Entrepreneurship instructors provide students with an assortment of concepts, frameworks, and analytical methodologies, or a toolbox of sorts, to understand the field of entrepreneurship and, perhaps, start a business. In considering entrepreneurship theories, the perspectives range from deterministic and causal to dynamic and emergent. From a learning perspective, the instructor may want to offer a concise set of materials that describe theoretical aspects of the topic being shared with the audience. However, in offering overviews of theoretical frameworks, there may be some perceived ambiguity or misunderstandings by the audience in reconciling the variety. Instructors may also include stories from life as illustrations of success or failure to convey the nuances of entrepreneurial decisions and actions. The audience may struggle to reconcile theory with practice.

We address these aspects of this conundrum; how to reconcile theoretical differences and how to reconcile theory with practice. This paper reviews foundation theories in entrepreneurship and offers suggestions for distinguishing nuance between the perspectives. Using a case study, we address discuss how theoretical perspectives align with practice. We conclude with thoughts on theory, practice and instruction.

2. Literature Review

Universities are crucibles of innovation that occurs on various levels. Their focus involves open innovation, or innovation that involves the managed inflows and outflows of knowledge across organization boundaries in accord with organization goals, and at various organizational levels (Chesbrough & Bogers, 2014). Within this context, we focus on innovation that addresses problems that are complex, ill-structured, open to various perspectives, and require creativity combined with diverse knowledge in order to develop viable solutions (Beck, et al, 2022). Entrepreneurship literature that puts an emphasis on various frameworks and tools for identifying, and creating and assessing entrepreneurial “opportunities” (e.g., DeTienne and Chandler, 2004) and teaching a design thinking methodology provides a framework to innovate in academic business programs (Glen, Suciu, and Baughn, 2014).

We discuss models of entrepreneurial innovation practices that offer counterpoints to traditional business practices (of extensive planning and forecasting within static markets) for developing and innovating new products, programs, services, or processes. These models involve exploration, experimentation and iteration. Design thinking applies to these processes broadly, incorporating ethnographic methods to understand potential users, ideation to generate new ideas, prototyping to gather user reactions, and visualization throughout the entire iterative process (Lietka & Ogilve, 2011; Brown 2009). This process helps to ensure that ideas for new products, services, programs and processes are anchored in actual needs, even when potential users cannot articulate those needs.

Work in effectuation specifically challenges the logic of planning and extensive goal development in the area of entrepreneurship. Effectuation and the lean startup approach to entrepreneurship reduce the cost and risk of innovation through continuous testing and feedback at early stages of the venture so failures occur at lower levels of investment, and that the firm can move to a plan that works before running out of funds. Each of these innovation models is grounded in deep understanding of the needs of potential customers.

While design thinking provides guidance in developing initial ideas for innovation, the work on business model generation and lean startups helps to address additional issues that arise in the development of the business itself (Mueller & Thoring, 2012). Design thinking is particularly useful in addressing the underlying value proposition component in the business model canvas, developed by Osterwalder and Pigneur (2012), and incorporated in lean models and addresses the customer segments and customer relationships elements of the canvas, but can be extended more broadly. At the same time, the lean methods provide quantitative testing and feedback to assess opportunity in the market. In contrast to descriptive and explanatory sciences, design sciences focus on the process of making choices on what is possible and useful for the creation of possible futures, rather than on what currently prevails (Hevner et al. 2004; Romme 2003).

2.1 Design Thinking Methodology

Design thinking draws from such fields as architecture, urban planning, and product design (Cross, 1982; Lawson, 1979; Kimball, 2011; Rowe, 1987). The problems faced in such fields are often ill-defined and ill-structured, calling for the need to undertake a process of exploration with users in jointly developing an understanding problem formulation, design specifications, and alternatives. The process is highly explorative and iterative, with a strong emphasis on visual representation of concepts and prototypes (Buchanan, 1992; Ferguson, 1997; 1992). Herbert Simon (1969) and Richard Buchanan's (1992) assertion that the difference between science and design is that "design thinking deals primarily with what *does not yet exist*," while science "seeks to explain *what is*." Science discovers, design invents.

Business firms typically collect customer information through focus groups and surveys, and may segment markets based on readily-measurable demographic characteristics. Design thinking, on the other hand, invests in extensive observation and in-depth interviews with users (as well as non-users and extreme users) to develop empathy and insights relating to both expressed and unexpressed needs (Liedtka and Ogilve, 2011; Fraser, 2007, Brown, 2008).

While a traditional business approach attempts to avoid failure and manage risk through extensive and expensive analysis and planning before committing resources to action, design thinking reduces risk by engaging in relatively inexpensive means of gathering information from potential users through interaction based on quick, low-fidelity prototypes (Liedtka and Ogilve, 2011). This is reflected in common design thinking refrains, such as "fail often to succeed sooner" (Kelly, 2001, p. 232) and "fail early to succeed sooner" (Brown, 2009, p. 17). Design thinking provides an opportunity to gather feedback and uncover problems as strategy unfolds, rather than waiting until it is formally locked down and rolled out into the market (Fraser, 2007).

2.2 Business Model Methodology

Business models are being incorporated into innovative projects (Blank and Dorf, 2012; Osterwalder and Pigneur, 2010; and Ries, 2011). The rationale is that many of the business assumptions will probably be incorrect, so the business model itself should be prototyped and developed using design principles. Variations of this idea include Osterwalder and Pigneur's (2010) widely used visual "canvas" that includes nine business building blocks to expedite business model prototyping. Using the business model canvas approach, Blank and Dorf (2012) detail the steps for building a business startup. The model includes assumption testing and emphasizes going "outside the building" for observation and ideas.

In the process of moving from developing a product/service concept to launching business, one faces new sets of issues. Osterwalder and Pigneur's (2010) approach to business model generation addresses nine essential elements used in providing a rationale of how the firm creates, delivers, and captures value. These nine building blocks are: customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structure. Osterwalder and Pigneur (2010) developed a business model canvas to provide a visual platform and shared language to serve as the basis for understanding, developing, describing, and challenging elements of the proposed business.

Business model generation is customer-centric, research informed understanding of customers' environments, daily routines, concerns and aspirations is used to access and understand unreached segments. Addressing unreached segments is facilitated by extending considerations beyond existing customers. Osterwalder and Pigneur's (2010) approach builds strongly on design thinking principles. Nearly 70 pages of their *Business Model Generation* are devoted specifically to design methods and tools used not only in developing a sound understanding of customer needs, but also in communicating, developing, challenging, and testing the various elements of the business model.

2.3 Lean Start Methodology

Startups involve the creation of new products or services under conditions of extreme uncertainty. Who is the customer and what the product should be is often not yet known. It is critical to design experiments to test and validate early assumptions so that the entrepreneur can learn a sufficient amount about what works before running out of cash (Ries, 2011; Blank & Dorf, 2012; Maurya, 2012). Approaches facilitating this process of learning were drawn from lean principles of manufacturing developed by Toyota, as well that from the “customer development” process developed by Blank (2006). Customer development entails getting out of the building to gain deep, personal firsthand understanding of potential customers’ needs (Blank & Dorf, 2012; Maurya, 2012).

Lean approaches replace a fixed business plan with a flexible business model that mitigates risk through early testing to get the product right, and by validating all components of the business plan in building a path to customers. This involves repeated “build-measure-learn” feedback loops in the development and testing of hypotheses relating the product or strategy to all phases of the business model canvas (Reis, 2011, p. 75; Blank & Dorf 2012; Maurya 2012). The lean approach builds on continuous iterations and “pivots”, using structured course corrections designed to test a new fundamental hypothesis about the product or strategy (Ries, 2011, p. 149). The process involves the development of prototypes, including a minimally viable product (MVP), for evaluation by, and possible sale to, customers. The experimental nature of this approach is supported by actionable metrics to provide feedback to understand the people behind the numbers (Maurya, 2012). These include split-tests, for example, which offer different versions of products to customers at the same time, and cohort analyses to assess the effect of a design decision over time.

2.4 Effectuation Methodology

Effectuation, articulated by Sarasvathy (2001, 2003), describes processes adopted by entrepreneurs in the area of new business creation, where planning and forecasting is particularly problematic. Simon noted in *Science of the Artificial*, “if there is any way to design without forecasts, we should seize on it” (1996, p. 147). Sarasvathy (2001) found that entrepreneurs succeeded through exploitation of contingencies rather than through well-specified goals and extensive analytic projections.

Entrepreneurs begin with who they are, what they know, and whom they know, and proceed to construct opportunities through experimental and iterative learning. By bringing on board key stakeholders, including customers and strategic partners, the entrepreneur does not need to waste resources on prediction as they continually listen to customers, building an ever-increasing network of customers and partners. The structure of what the venture is, including the market and goals for the firm itself, is flexible and dependent on the particular commitments made by customers and other stakeholders (Sarasvathy, 2001; 2003). This process addresses the constraints that uncertainty places on information processing and the use of planning in entrepreneurship (Grégoire, et al, 2011). Also, effectuation focuses on affordable loss rather than expected returns. As with design thinking, risk is reduced by allowing failures to occur at earlier stages and at lower levels of investment. At the same time, the effectuation process promotes capitalizing on successes that arise, which shape subsequent investments (Sarasvathy, 2003).

Effectuation proposes several other guiding principles (Read, et al, 2011). In a review of the development of effectuation literature, Zhang & Van Burg (2020) identified the following effectuation design principles (Sarasvathy 2001; Wiltbank et al. 2009):

- Principle 1, Bird in hand: Start with your means, who you are, what you know, and whom you know.
- Principle 2, Affordable loss: Decide on the basis of what you can afford to lose instead of expected returns.
- Principle 3, Crazy quilt: Form and obtain pre-commitments from partnerships.
- Principle 4, Lemonade: Leverage both uncertainties and contingencies.
- Principle 5, Pilot-in-the-plane: Rely on human agency to maneuver rather than on exogenous factors, such as technological trajectories.

The above principles are prescribed as heuristics for developing solutions to difficult problems in complex situations under uncertainty. They share the aspiration of exploiting locality and contingency in the evolution of an artifact rather than predicting the best artifact in advance (Sarasvathy 2003). These principles also are not passive deployments and redeployments of resources purely in response to simple signals (cf. Augier and Teece 2009); rather, they are purposeful and intentional actions (Matthews 2009; Zhang & Van Burg, 2020;).

3. Methodology

A qualitative case study was selected for the illustrative purposes of this study. A qualitative approach was deemed appropriate given the purpose of this study is to understand and communicate the how various processes are used in practice. For this project, interviews with the founders, reviews of journal notebooks, and reviews of related program documents were the primary sources of data collection, with in-depth interviews as the primary data collection method. Interviews were carried out over several months to explore the decision-making process and learning outcomes. Journal notebooks were kept by faculty team members throughout and used to provide a record of relevant events. Interviews were conducted both face-to-face.

3.1 Objectives, Including Need and Relevance

The objectives of the paper are to present theoretical perspectives and methodologies to discuss the similarities and differences between them, and to illustrate how these methodologies are implemented by managers. Understanding and distinguishing the basis of the methodologies and similarities is important for researchers and faculty working in the topic area in order support research and training.

3.2 Case study: New Program Development

In this section, we describe the decisions, actions, and learnings experienced by the new program development team charged with launching a hospitality management program.

3.2.1 The program mandate

The impetus for the team's program development effort was a mandate by the university president made in response to a request for a training program by a major employer in one of the state's largest industries. Following a meeting in 2021 with the management team of one of the state's largest ski resorts, the university president said, "We will launch a hospitality program and I want it ready by next year." With that simple statement, the team had their outcome and completion time goals identified.

In 2020, the world was in turmoil as it tried to survive the Covid-19 pandemic. Industries that depended on service employees were substantially short staffed but at the same time the general public's demand for food and entertainment services increased. In Idaho, demand for outdoor recreation in both winter and summer seasons surpassed the capacity available to serve customers. By midyear 2021, tourism had returned to pre-pandemic levels and continued to grow. In 2024, Idaho's \$3.7 billion tourism industry employed more than 45,800 people and generated US\$475 million in local, state and federal tax revenues (commerce.idaho.gov), making it Idaho's third largest industry behind agriculture and technology. Also, with a large land size and relatively small population, much of the state's tourism and recreation locations are located in rural areas which meant that reaching potential students would be a challenge.

3.2.2 Launching a program

The team likened the launch of the hospitality program to a venture startup. The team was composed of two faculty and one staff member used to working in an academic environment. With backgrounds in entrepreneurship, they used the concepts, frameworks, and processes that they taught in their courses to help guidance their efforts.

The goal of launching a new hospitality program was clear enough but the time frame in which to do it was a constraint. Developing new programs in universities often take several years, not one year. The team's challenge was how to create a new program in a very short amount of time. Also, they had no dedicated funds available to support faculty, staff, course development, or marketing. These conditions were additional resource constraints.

3.2.3 Start with the customer

A first step of the project was identifying the customer. Since ski resorts had initiated the call, they seemed an obvious customer group. But students were also customers as they would be taking the courses in the program.

Before diving into the program development, the team needed to learn more about their intended customer groups. Talking with and understanding user's needs and wants is fundamental for design thinking and the business model canvas approach. Both emphasize the critical importance of first talking with the user to understand their current problems and desired aspects of any future solution or benefit. The goal was to develop a solution that was desirable, feasible and viable.

The team began by talking and engaging with expected customers. As the program request came from a ski resort, the team first met with the resort. In the first discussions, the resort management team brought in their current open jobs list. While the list contained the expected jobs of customer service representatives, chair lift operators, and snow groomers, many of the vacancies were for business roles such as accountants, marketing, supervisors and first line managers. The team learned that during the pandemic, many of the older and more experienced staff had left or retired, while most newly hired staff were younger and less experienced, creating a skill gap in leadership roles. Further conversations revealed it was these opening that were of the biggest concern to the resort. This need for staff with business management skills was reinforced with customer discovery conversations with other ski resorts.

The team turned next to their other customer group, the potential students, identified as people currently employed in the industry or interested in working in the industry. In talking with people were currently working in the industry, the team found that many had started in the industry with summer jobs or as temporary work but stayed because they enjoyed the work, atmosphere, culture, service orientation, and/or camaraderie of the job. They also learned from interviews that many felt additional training or skill development was needed to build a career or be recognized for promotions.

3.2.4 Customer discovery: Pains, gains, and benefits

In the course of interviewing ski resorts and their employees, the team discovered that while the state had 19 ski resorts in operation, only five were large enough to have a sufficient number of interested employees to support program enrollments. With this realization, the team broadened their scope of industry to include resort hotels, urban hotel groups, and restaurant groups. Subsequent conversations with this expanded customer group reinforced many of the earlier customer characteristics, needs, and wants: business management and leadership emphasis, flexible class schedules, online delivery, and career focus. At this point, the team felt they had a good enough understanding of both customer groups to begin working on a solution prototype, or minimum viable product, that they could discuss with users.

3.2.5 Bird in hand principle

To shape their program development efforts, the team followed the effectuation principle, “bird in hand”, to start with what they had available. The team recognized their existing online Bachelors of Business Administration (OBBA) as a platform foundation on which to build. Within five years, the online program had become nationally ranked in the top 25 of online business programs. Primarily a general business management degree program, it could offer areas of emphasis and provided core business management courses. As a “degree completion program,” it was designed to complement two-year associate degree programs. Also, as an online program, it was not geographically constrained by a physical campus, allowing a hospitality focused program to reach students anywhere in the state and beyond, and offering growth potential as the program developed.

The team also recognized that being a business management program, it allowed them to distinguish the program from the many two-year associate degree technical programs which focused on applied job skills such as culinary arts, restaurant, hotel and hospitality operations, and ski lift operations. Focusing on the business management aspect of these industry sectors allowed the team to create a complementary and distinct program that filled a career skill gap for supervisors, first line managers, and those with hospitality management career aspirations. This repositioning of the program and its components was, in essence, an example of the effectuation principle of “transformation”.

3.2.6 Crazy quilt and lemonade principles

Taking this transformation one step further, the team had determined through customer discovery conversations with employers and current employees that many working in hospitality and outdoor recreation industries were unable to stop working in order to attend classes full time. To accommodate this constraint, the team needed to develop an option that allowed a part-time or flexible course schedule. Also requested was a program shorter in duration. Certificate programs could require only six courses completed with less time and cost. Coincidentally about this time, the state expanded support of certificate programs for workforce training.

Two related events helped bootstrap the program. First, the state expanded its financial support for certificate programs to include academic programs. Under the Workforce Development program, student participants were eligible for grant award funding up to 80% of program tuition or US\$5,000, whichever was less. There were eligibility and residency requirements, but the support would cover most of the certificate tuition cost (idaholaunch.com). Second, the team successfully applied for a program development grant to support the costs

associated with launching a certificate program, receiving program funding support for three years. This was a fortunate transformation and financial bootstrapping achievement.

3.2.7 Program progress

One year later, January 2023, the program offered its first classes with six students enrolled. By January 2024, over 40 students were enrolled. Through customer engagement, the team discovered that the interest in and need for the program was stronger in the urban hotel and restaurant industry segments and pivoted to be responsive to their program input. The team engaged with hospitality and tourism associations, positioning the program as a training partner in enhancing the level of workforce service quality in the local markets, thereby strengthening their venture identity message, which was also supported by social media. Through the team's continued customer engagement, ski resorts began to enroll students in the certificate program, seeing the potential benefits for management development.

3.3 Observations and Discussion

Among the observations derived from the case study research were that the team members were flexible in their search for solutions and ways to progress toward their goal. Faced with a definite purpose, i.e. launch a new program, and a clear timeframe, i.e. in one year, they utilized aspects of all the process models in a flexible mix-and-match manner, applying process options to situations as best fit the situations. They did not perceive themselves bound to a particular approach. Instead, reaching the goal of program launch was the important driver and they utilized whatever methodologies supported progress toward that goal.

In discussing various theories of entrepreneurship innovation methodologies, we may be inclined to present each as distinct and stand alone. However, when discussing implementation, we need to recognize that entrepreneurs often are flexible and not held to strict theoretical boundaries. Instead, they use permeable boundaries between models as a way to match solutions to problems, aligning with Chesbrough and Bogers (2014).

4. Entrepreneurship Thoughts: Theory and Practice

We focused on theories that consider the human aspects of innovation as humans, individually or in groups, perform the innovation (Majchrzak, et.al., 2023). We discussed theories and methodologies regarding creativity and innovation within the context of solving complex ill-structured business problems. In all of these considerations, an important feature stood out: the role, or interpretations and actions, of humans, usually as individuals or organization members, engaging with one or several user groups, to gather and assess wants and needs in order to develop viable solutions (Beck, et al, 2022; Chesbrough & Bogers, 2014; Osterwalder & Pigneur, 2010; Kelley, 2001). How the problem, challenge, or situation was evaluated for potential pains, gains or benefits, and the solution proposed were greatly influenced by the perceptions of the team members and how they interpreted the information gathered from their users or customer groups. This area warrants future research as the findings can be extremely insightful for academics and practitioners.

Another aspect to consider is whether or to what extent do solutions to complex ill-structured problems vary by the individual or group personalities of the problem solvers, especially in whether they take a structured approach to problem solving or a flexible, more open approach. The outcomes could vary on whether teams are strict rule followers or more independent in their thinking and how their perceptions affect the views of other team members involved in solution generation. Future research can examine how the roles of docility and disruption orientation affect problem solving, solution generation, and team dynamics.

This paper described one team's experience in launching a new academic program. Within the perspective advocated by Chesbrough and Bogers (2014) we should consider organizations as having permeable boundaries in regards to information and knowledge flow. Individuals acting within the university may receive knowledge and information from outside the university and use it to shape decisions internally that have external implications. In the team's hospitality program development efforts, their perceptions of opportunities and constraints were very much shaped by their individual perceptions and interpretations of information and how they collectively assessed opportunities, challenges, and their path forward.

5. Conclusion

For university administrators and individual faculty, it is important to utilize the knowledge we share with our students. In this paper, we discussed used processes and methodologies that consider human aspects of innovation that include Design Thinking, Business Models, Lean Start, and Effectuation. In the case study, the

team followed processes and methodology that are the foundations of most design thinking and entrepreneurship courses. However, we may not fully realize the power they offer. Recognizing that these frameworks and methods can apply to a range of problems and solutions can yield effective outcomes if we are ready to see opportunities.

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