

Do we Practice What we Preach? Applying Startup Practice to Entrepreneurship Education

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Abstract: Definitions of the term “entrepreneurship education” vary from the process of passing the necessary skills and concepts to individuals to identifying new business opportunities and to reach high levels of self-confidence to benefit from such opportunities. Some scholars refer to entrepreneurship education as more of skill building and leadership programs, focused on new product development, creative thinking and technology innovation. This study set out to examine the entrepreneurship faculty perspective on applying venture creation methods to entrepreneurship courses. Through interviews with 15 entrepreneurship faculty in two entrepreneurship programs, in Israel and the United States, it examines their professional and academic backgrounds, thought processes and best practices for teaching entrepreneurship. Building on the Lean Startup Methodology, it mostly looks at the extent that lean startup guidelines such as iterations, customer feedback and product development are applied to their teaching methods and curriculum. The study found that many of these guidelines were applied by the professors, especially among those with an industry oriented professional background.

Keywords: entrepreneurship education, startups, lean startup, higher education, agile development

1. Introduction

"The course from my perspective is a business" (Dr. R.H, entrepreneurship faculty member)

In today's world, entrepreneurs are the new Superheroes trying to solve the world's biggest problems. The space mission became another technological assignment for Elon Musk, while startups offered solutions for remote health and learning during the Covid-19 pandemic. No wonder entrepreneurship studies are gaining attention- students are looking to be the game changers, and higher education institutions are looking to be the Alma Maters.

Is it possible to teach entrepreneurship? Of course. Naturally, some are more inclined to the field. Nevertheless, entrepreneurship education allows one to develop tools and tactics to provide an edge in a competitive world. Students learn to develop skills needed by the future workforce, such as judgment and decision making, fluency of ideas, active learning, and originality, and working in multidisciplinary teams. They learn to navigate uncertainty, deal with disruptive change, accommodate failure, and implement structural change.

Researchers from the European 2020 Initiative found that students participating in entrepreneurship programs are much more likely to launch their own companies. Furthermore, these businesses tend to be more innovative and successful than those led by individuals without an entrepreneurship background. Graduates of entrepreneurship programs are less likely to be jobless and more likely to have steady employment.

As leaders of two programs whose aim is to educate the entrepreneurs of tomorrow, we asked the question, do we act like a startup when we teach students to build them? To answer this question, our research team interviewed 15 entrepreneurship faculty members from two leading academic institutions in Israel and the US. We asked them to reflect on their curriculum, teaching style by applying frameworks from the startup world, such as Lean Startup. Our focus was on understanding the value proposition of entrepreneurship studies to its students, and how we can provide it while maintaining academic standards.

2. Literature review

2.1 Entrepreneurship education

We are living in times of unprecedented technological and societal changes. The past two years of the Covid 19 pandemic have demonstrated significant challenges shared worldwide. These challenges and the changing needs of society demand closer collaboration between universities (Wilson, 2012). As a result, many forward-looking universities have reevaluated their core activities and research capabilities. This requires a wide range of modes of university knowledge transfer and business engagement which is responsive to the needs of industry (Bercovitz and Feldman, 2006; Fitzgerald and Cunningham, 2015; Miller et al., 2016).

Definitions of the term “entrepreneurship education” vary from the process of passing the necessary skills and concepts to individuals to identifying new business opportunities and to reach high levels of self-confidence to benefit from such opportunities. McMullen et al. (2012) refer to skill building and leadership programs, new product development, creative thinking, and technology innovation.

Mcintyre and Roche (1999) define entrepreneurship education as the process of passing the necessary skills and concepts to individuals to identify new business opportunities and to reach high levels of self-confidence to benefit from such opportunities. McMullen and Long (1987) and McMullan et al (2002) state that entrepreneurship education should include skill building and leadership programs, new product development, creative thinking and technology innovation . Entrepreneurial education may include activities which allow students to gain direct experience with entrepreneurial practices through “learning by doing”. This angle corresponds with project-based learning (PBL) educational approach, which helps students realize they can develop useful skills, knowledge and attitudes to solving challenges and “real life” problems (Barrows, 2012). PBL is a significant component of entrepreneurial thought and action which Igwe et al describe as a new mental model for leadership approach (Igwe *et al.*, 2018).

Another substantial emphasis in entrepreneurial studies is on teamwork. As such, entrepreneurial education curriculum emphasizes practical exercises that build skills by teaching how to efficiently navigate uncertainty, introduce creative solutions, accommodate failure, and execute change (Reis, 2011) The entrepreneurship curriculum provides students with tools to help build skills determined as necessary for the future workforce by teaching how to efficiently navigate uncertainty, introduce creative solutions, accommodate failure and execute change. Learning is designed to encourage sound judgment and decision making, fluency of ideas, using creative problem solving within multidisciplinary teams, (Bakhshi et al, 2017). According to Brown & Stubbings, (2017) traditional current educational methodologies many times fall behind these changes. There are many ways to teach entrepreneurial skills and tools. The rapid increase in entrepreneurship programs, which combine theory with a strong emphasis on “hands-on experience”, cater to the expectations of Gen Y and Z for a more practical learning experience that prepares them for an uncertain work environment.

2.2 Entrepreneurship faculty

There is an existing body of literature related to entrepreneurship and the concept of entrepreneurial university. Martin (2016) argues that as universities respond to external economic and social drivers and policy pressure there is a need for them to be more entrepreneurial and this has consequences for the academic role. Universities are now expected to be both innovative and entrepreneurial which demands both institutional and cultural change to embrace a much wider range of knowledge transfer activities to help achieve this mission (Etzkowitz, 2003). Leih and Teece (2016) suggest that in addition to simply providing support and enabling legitimacy of entrepreneurial activities among academics, to be truly entrepreneurial universities must develop their dynamic capabilities. Particularly they should be sensing opportunities, seizing them by relying on strong university leadership and be able to transform policies, strategies and practices whenever changes call for it.

A main factor in transforming a university to be more entrepreneurial is the faculty itself. The uniqueness of Entrepreneurship faculty has been referenced in several studies. For example, Kamariah et al (2015) look at entrepreneurial intention and entrepreneurial orientation of faculty and students towards commercialization of research. The study results indicate that the faculty and students have a strong entrepreneurial mindset. According to Miller et al (2018) Universities are now viewed as key economic actors within regions and are

central actors in shaping and influencing entrepreneurial ecosystems. The consensus was that the key objective of an academic entrepreneur is to engage in activities which lead to the commercialization of technology. This is in essence defining them by their actions where the activity of an academic entrepreneur can take the form of patents, licenses, and new venture start-ups. However, the researchers point out that there are key distinctions between entrepreneurial academics and academic entrepreneurs. Understanding this distinction also helps identify the value of varying types of academics in helping achieve the entrepreneurial mission of a university.

Alexander et al. (2015) note that only in recent years has the term entrepreneurial academic emerged. The entrepreneurial academic emerged as a term used to describe academics who engage in wider forms of knowledge transfer which involves personal interactions with industry. Martinelli et al. (2008) identify that an entrepreneurial academic is an 'innovative' faculty member who differs from the archetypical start-up academic entrepreneur. Furthermore, Alexander et al. (Ibid) identify an entrepreneurial academic as someone that adopts an entrepreneurial outlook and who readily seeks engagement with industrial partners, often through the less formal modes of engagement. They also note that engaging in entrepreneurship does not always result in an academic becoming an academic entrepreneur.

This study looks at the entrepreneurship faculty in terms of the lean startup methodology (Blank, 2013) . A methodology that emphasizes "the "learning by doing" approach. As such it resembles the PBL educational model described above. It questions if faculty, both academic entrepreneurs and entrepreneurial academics, incorporate concepts as product development, agile iterations and pivoting, all part of Blank's methodology, when teaching entrepreneurship to undergraduate students.

3. Methodology

3.1 Study background and methods

The current study explored the relationship between entrepreneurship studies curriculum and teaching practices to frameworks and methodologies from the "real world" of startups. To achieve this goal, the research team interviewed 15 entrepreneurship faculty members from two leading academic institutions in Israel and the US. In this study, we examined how faculty members deployed entrepreneurship principles in their teaching methods. This includes understanding the target audience and value proposition as well as constantly adjusting, iterating, and pivoting to provide the best value to the students.

3.2 Interview questions

To collect the relevant data, we've developed a set of questions, aimed to explore the professional and academic backgrounds, and teaching methodologies of entrepreneurship faculty in two academic institutions. The questions were focused on a deeper understanding of the professor's thought processes and the implementation of the "practice what we preach" concept. The interview questions can be found in Appendix A: Interview Questions. The interviews, each lasting 30-40 minutes, focused on the entrepreneurship studies curriculum, as well as how it compares to various frameworks from the startup world, such as Lean Startup.

3.3 Participant recruitment

A total of 15 faculty members from two leading academic institutions in Israel and the US who volunteered to participate in an interview exploring their experience teaching entrepreneurship to college students were interviewed. Interviews were held via Zoom between September and December 2021.

3.4 Data analysis

The interviews were transcribed. Content analysis was applied to the transcripts. The results were categorized under main themes corresponding with the interview questionnaire.

4. Entrepreneurship education in action

4.1 Customer discovery

"For me my course is a business and until the business stabilizes, I do not have a product, and I do not have a course!" (R.H Entrepreneurship faculty member)

According to the lean startup methodology, (Blank, 2013) to reach product market fit, startups should continuously test their assumptions regarding their product. This is done by constantly receiving feedback, through various stages of product development, through the customer discovery process.

Customer Discovery is a key process that incorporates customer feedback into product or service design to create a better fitted solution. It is based on hypothesis development, validation, testing with potential customers, evaluating customer feedback, and implementing changes if needed. When it comes to entrepreneurship studies, the academic framework challenges the concept of customer discovery; as previously mentioned, courses are expected to have a certain structure; cover specific predetermined material and include student assessment. The question is what kind of customer discovery is possible when the customer is also the one being assessed as part of the (educational) consumption process? Or as part of a larger question; should we treat education as a product, students as consumers and professors as service providers?

In this study most lecturers referred to their course as a product and the students as customers/target audience. However only about half- agreed that there was a clear parallel between the lean methodology and academic product development. Students are referred to more as users than customers, as the interchange is less transactional and more focused on knowledge transfer.

"Education and teaching are not necessarily aligned with customer service," states a faculty member teaching product development, "better to find a market that needs the product or educate the market."

That said, most lecturers take the customer discovery approach, keep checking constantly what works and what doesn't work with this target audience to "fix" the product which is the course. Using the student's constant feedback as "market research" used for product development, in this sense the course as in any product iterates until it reaches its ultimate form. As the feedback in most cases will be applicable for next semester or next year, it is a slower development cycle. But there is a thought of a product and how it adheres to the needs and demands of the target audience.

"As time goes by, I learn my audience better and try to adapt my product to my audience. Over time I learned their needs, I have a book and methodologies I have developed. I have learned how these future entrepreneurs think **and how you as an educator can push them forward with the things they do.**"

4.2 Product development

"Ultimately, the course is a product; you don't want them (students) to love you. You want them to grow from the product. So, if they didn't receive it well it means there was something wrong with how it was presented. So, you have to rethink it."

According to Lean startup methodology, startups are launching an MVP that is being refined based on user feedback, creating a ground for experimentation. However, students in higher education institutions are expecting to receive the best version of the "product" to begin with. As opposed to the traditional business transaction where the responsibilities of all parties are clear, the teaching process includes "customer" (students) assessment by the "service provider" (professor).

This unique structure makes it more difficult to apply the traditional customer discovery model, as students might be interested in getting a good assessment without putting in the required effort, and students who are unhappy with their assessment (grades) might be pushing to change the "product" (education style) or assessment method. In this case, the customers cannot always be right.

"We've done so much changing. We try to keep what works, we try new things, but it's constantly evolving. It's like a startup on a deck. The second you present your deck it needs to be changed. We're always iterating."

Nonetheless, within the academic framework of entrepreneurial studies, we've found that professors are open for "customer" feedback, and eager to improve their "product" when possible. Many of them mentioned that entrepreneurship is a state of mind; therefore, professors with a strong entrepreneurial background are applying the same state of mind in the classroom. Similarly to the customer discovery process, they welcome student feedback and make changes accordingly *"I do make a lot of changes. I ask for feedback and based on that feedback I will make changes. I usually have students do feedback mid semester. And I also try to do informal feedback before that, as well."* and adjust classes to the audience *"...every semester is different, based on the students. Sometimes I will have students who are more engaged and do their work, sometimes I don't. So all that goes into having to change the structure of the class."*

Despite the fundamental differences between the structure of higher education and the startup environment, entrepreneurship professors are navigating their teaching experience by applying entrepreneurial fundamentals into their teaching methods. *"I rarely use 100% of my previous outline or syllabus. I'm always adjusting as I go along, week to week. For example, I don't want to cut the students off if we're into a topic and it takes more time than I planned."*

As in previous examples, here too the traditional academic structure and environment is to some extent "anti-lean". Main points are the following:

- 1. Students paying full tuition do not appreciate being tested along the way. They demand a perfect product from day one. Tuition paying students demand an excellent course from the get-go and not wait for the product to develop. "
- 2. Students many times see their goal as getting a good grade. It is inherently not constructive to build the product with knowledge and tools. In this sense they are not a typical client. The customer is not always right, and development cannot be all around the students.
- 3. Academic courses adhere to the syllabus, the contract between students and faculty. Constant change does not work well with pre-determined syllabi. Professors were divided on this issue; some said they adhere strongly to the syllabus, as not doing so creates instability for the students that may affect their grades and satisfaction levels. Some said they adhere strongly to the syllabus but change within the confinements of the syllabus. For example, simplify the presentations or add recitations to adapt the product/course to different audiences as they have different needs. A few respondents believe that clients should be met where they are. As such the class, including the syllabus, must be dynamic. "If we had a static class, we would be doing students and education in general a disservice. The beauty of the course is that it is constantly changing and that sense mimics the workplace. We define our syllabus as a "Dynamic cloud"

As entrepreneurship related topics change constantly and are in constant flux, faculty emphasized the flexibility and emphasis on including practical examples and updated case studies in their classes. " I don't want the students sitting there like deer in headlights, we are in constant iteration". Stated a lecturer.

In this sense entrepreneurship studies may provide a benchmark for structuring and teaching academic courses. The inherent flexibility was emphasized when dealing with the Covid 19 crisis and the transfer to online learning via Zoom.

4.3 Entrepreneurial teachers and feedback

Overall, we found that certain teachers adjusted more to student feedback than others. The teacher's previous profession played a major role in determining this. Teachers who had not worked as teachers originally and were more doing it to share their knowledge with students had a great chance at taking in student feedback. They seemed to recognize that they don't know everything and are more open to suggestions. Since they are not teachers by trade and are only doing this for the sake of the students, they seem to take feedback very seriously to provide students with the best experience possible. However, teachers who were teachers by trade do not as highly regard student feedback. Overall, they felt that student feedback was too biased as it was mostly grade related.

4.4 Agility and pivot under crisis - zoom semester

..." We are totally agile..... reiterate and go back... we are constantly in this feedback loop"

According to the Lean Startup methodology, startups should emphasize *agile development* that includes iterative approach and optimization. Agility is about flexibility and placing more value on adapting to developments. It encounters growth by continuously embracing changing demands and preferences, in a rapidly changing and turbulent environment. How does this concept play out in a classroom of entrepreneurship studies?

First, we must acknowledge that the traditional academic environment to some extent contradicts the idea of agility. While the startup world consists of uncertainties and the Lean methodology is based on quick development testing and adjusting, in academic teaching (until Covid-19 crisis hit) most factors were expected or predictable. Academic classes are planned, structured, have a predetermined, detailed syllabus and a clear set of expectations. The fact that tenure track faculty incentive models are based on research rather than on teaching evaluations makes it even more challenging to implement the agile approach among these faculty members. As indicated in one of the interviews: *"as long as our teaching scores are above a certain threshold, there's no incentive for somebody who's spent ten years almost completely on research to put in a tremendous amount of time in teaching"*.

We've discovered that faculty who are deeply rooted in the entrepreneurial ecosystem and the business world, find space for agility within the framework of the academic course. It comes across in their reaction to student feedback, pivoting course structure from lecture to workshop when needed, adjusting content and assignments to current events, innovative teaching strategies and more. As several professors in this study indicated, there is a framework, and within this framework we can be agile *"We're constantly doing that. Whether it's the speaker's themselves or the topics they are talking about; we're online, I can get the most dynamic speakers on the planet. We're constantly bringing in new talent; we're constantly looking at new materials."*

While the differences between the academic and business settings are clear, startup bred entrepreneurship faculty tend to exploit agile development while maintaining the academic core structure. Agility played a fundamental role during the changes caused by Covid-19 in March 2020.

"Covid made me make many changes – the emphasis was a product that will give the students tools for life." (L.M Entrepreneurship Faculty)

"We changed our class, we did it before, maybe we do it a little more now. Our assumption is that it's going to stay the same for a while"

In March 2020 Universities transferred studies online without much preparation time. As a result, faculty did not have time to adjust their teaching methods to Zoom and did so on the fly. In this case we suggest that entrepreneurship courses were better equipped to make these changes on the fly as they keep changing constantly and adhere to the constant iteration guidelines offered by the lean startup methodology.

The Covid 19 crisis provides an interesting test of the academic structure which was forced to rethink and recalibrate as it attempted to adapt quickly to the changing situation.

For the most part most instructors said that the zoom semester passed well. However, the majority agreed that overall, in-class-in person teaching is preferable, especially entrepreneurship education which is hands-on and practical in nature. Most faculty members looked at the "Zoom semester" as a learning experience.

Thinking ahead, several faculty members decided to continue to incorporate digital features within a physical classroom environment when resumed. These may include online surveys and polls, displaying results of quantitative data, creating short interactive videos to view before class and cutting back on the lecture portion of the class.

Content wise, faculty adapted course materials to refer to the Covid 19 crisis. In one investment class, students wrote an investment memo and pitched to the investment committee based on real life portfolios. The ideas were "Covid friendly" and one of them raised \$4 million during the pandemic. Students were able to receive a hand on relevant experience and added value during the crisis.

These findings correspond to those of Miller et al (2018), referring to the differences between faculty members as "Entrepreneurial academics and academic entrepreneurs". As universities are now viewed as key economic actors within regions and are central actors in shaping and influencing entrepreneurial ecosystems. This has meant that universities now must become more entrepreneurial in offerings, outlook, and culture. (Wilson 2012)

5. Discussion

This study set out to examine attitudes of Entrepreneurship programs faculty regarding methods of teaching entrepreneurship. There are various definitions of entrepreneurship education. We chose to focus on principles of the lean startup methodology, which we incorporate in our curriculum. Our faculty were asked if they felt that they "practice what they preach" i.e. use lean startup principles such as product development, agility, iterations and customer centric approach when designing and teaching their courses.

Our interviews revealed that many faculty members did not necessarily view their work through the lean startup lens. However, while interviewed, many realized that in many cases they do incorporate them in their work. Mostly by viewing the course as a product, and practicing constant agile development, as the courses needed to be updated constantly. Despite the notion that the traditional academic structure and environment is to some extent "anti-lean", faculty members who spent time working in the industry were navigating their teaching experience by applying entrepreneurial fundamentals into their teaching methods. For instance, when it comes to customer discovery, while the focus was on knowledge transfer rather than satisfying customer's needs, the majority of faculty members used a customer discovery approach, periodically examining what works and what doesn't in order to optimize the course. They also tended to address their course as a product, applying practices from the "Lean Startup" product development approach, including implementing frequent feedback loops, practical examples and updated case studies. Feedback loops presented a challenge to the more traditional professors, as they experienced student feedback as biased, and grade related.

Finally, when the external environment shifted during the Covid-19 crisis, many faculty members from the Entrepreneurship programs demonstrated agility and flexibility, just like startups that constantly adapt to changing demands and preferences in a rapidly changing and turbulent environment. Through this turbulent period, they adjusted their classes, made the necessary adjustments, and continued providing students with value and meaningful learning experiences.

If one agrees that universities must become more entrepreneurial in spirit this raises the question of the requirements of those who teach entrepreneurship. Should it be, in the words of Miller et al, "Entrepreneurial academics and academic entrepreneurs"? Looking at the future of higher education, and given the positive feedback received from students on the more active structure of entrepreneurship studies, it seems that academic institutions would benefit from incorporating entrepreneurial thinking and structures in their curriculum and among the faculty. Do professors who teach entrepreneurship adopt practices from startups? Although it varies depending on who you ask, it seems that most professors use iterations, flexibility and assumption testing. Based on the findings of this study, we believe that adopting some of the practices from the startup world into the academic framework will have a positive effect on the generation of entrepreneurs we educate in the future. Creating an entrepreneurial education that incorporates both deep insights rooted in extensive research and best practices from the startup industry, such as fast change, pivoting, being open to feedback, and a growth mindset, can offer the best of both worlds.

6. Appendix A: Interview questions

Questionnaire: Entrepreneurship studies as a startup – teaching startups while behaving like a startup

What is your professional background?

What brought you to teach entrepreneurship? How long have you been teaching entrepreneurship?

What course do you teach? What year are the students?

Do you have any special teaching methods? Example

On a scale of 1-5 1 being the lowest and 5 the highest, to what extent do you make changes and adjustments to your course during the semester? + Examples

On a scale of 1-5 1 being the lowest and 5 the highest, to what extent do you make changes and adjustments to your course from year to year? + Examples

What do you feel you change the most?

Course material? Teaching method, level of collaboration with industry? Emphasis on team work vs. individual work? Presentations? Other please elaborate

Have you ever felt you failed any aspect of your course? If so, how did you respond? Please elaborate

On a scale of 1-5 one being the lowest and five the highest ; to what extent do you respond to student evaluations? Have you ever made changes to your course/teaching methods following student evaluation/feedback?

How do you react if you try to make a change to the class and it is not received well by the students? (example)

Please describe a learning experience from teaching via zoom during the Covid – 19 crises

Following your experience teaching via zoom during the Covid 19 crisis, to what extent do you intend to make changes to your course materials and/or teaching methods in class? (on a scale of 1-5 1 being the lowest and 5 the highest) + Examples

According to the “lean startup methodology” founders turn the key questions they have about their business into testable hypotheses and then build fast and cheap MVP’s to test these hypotheses. If the tests show they are not correct, they should pivot and change direction modifying the product or the market they are approaching, until achieving product market fit

Thinking about the course you teach as “the business” to what extent does your work follow the lean startup methodology in regards to hypotheses, MVP’s and reaching product market fit? (On a scale of 1 to 5 one being the lowest and 5 the highest . Please elaborate

According to the Lean Startup methodology, startups should emphasize agile development. Breaking complex problems into modules, developing solutions to each component through rapid prototyping and placing more value on adapting to change

On a scale of 1-5 one being the lowest and 5 the highest would you describe your teaching experience as “Agile” ? Please elaborate and provide examples

If you have been teaching entrepreneurship for more than one year:

One a scale of 1-5 one being the lowest and 5 the highest; to what degree do you agree that teaching a new entrepreneurship course is feeling today less disruptive and more like adaptive business as usual? Please provide examples

How did you feel in the beginning – did it change in your second year?

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