1. What I have learned about teaching entrepreneurship: perspectives of five master educators

Bill Aulet, Andrew Hargadon, Luke Pittaway, Candida Brush, and Sharon Alpi

INTRODUCTION

One of the most commented on and, arguably, acclaimed, contributions of the last volume of USASBE's *Annals of Entrepreneurship Education and Pedagogy* was the entry titled "What I've Learned About Teaching Entrepreneurship: Perspectives of Five Master Educators" authored by Jerome Engel, Minet Schindehutte, Heidi Neck, Ray Smilor, and Bill Rossi. Engel and colleagues took time to practice deep reflection on their experiences teaching entrepreneurship and then translated their learnings into deeply meaningful insights for the field to draw from.

In planning this volume, the editors believed it was important to build upon this work, so we invited five new entrepreneurship educators to share what they have learned about teaching entrepreneurship. Again, we reached out to faculty members acknowledged by their peers, leading academic organizations, their institutions, and their students to be among the very best in entrepreneurship education. And again, each of these individuals has over a decade of experience in the entrepreneurship classroom and has witnessed the rapid evolution of a very dynamic discipline. In the pages that follow Bill Aulet, Andrew Hargadon, Luke Pittaway, Candida Brush, and Sharon Alpi share their reflections on decades of cumulative experience both inside and outside the classroom.

Bill Aulet

I have had the great honor and fortune to teach entrepreneurship for over a decade at MIT, and it has been a journey of continuous learning and improvement. While I could write books on what I have learned about how to teach entrepreneurship, here is a selection of 13 key lessons

learned that I encourage you to consider incorporating into your teaching strategies.

Define your terms

I'm an engineer by training, so I was taught that the first rule before solving a problem is to define your terms. This is excellent advice here as well. What do we mean by entrepreneurship? What is the difference between SME (Small & Medium Enterprise) and IDE (Innovation-Driven Enterprise) entrepreneurship? What is innovation? What's the difference between entrepreneurship and innovation, and why does that matter? These differences matter, and too many people treat entrepreneurship as a catch-all term or as a single-minded focus on billion-dollar "unicorn" start-ups. The problem is that if you don't define entrepreneurship, you can't define your learning, and hence, your teaching objectives. Hint: At MIT, we believe entrepreneurship is about more than just start-ups.

Understand your mission and don't get distracted

Beyond the individuals who alone or with others are engaged in driving entrepreneurship, there are three major groups that play a key role: 1) Economic development organizations (e.g., publicly funded regional development initiatives); 2) Investment organizations (e.g., venture capital and angel investor groups); and 3) Academic institutions (e.g., colleges, universities, and academic centers). Each is important and has different objectives. Economic development organizations have the goal to produce a large number of companies. Investment organizations' success metric is ownership percentage in companies that grow to become valuable companies and provide a very attractive return on investment. Academic institutions should be focused on creating entrepreneurs by educating them on how to succeed in entrepreneurship. Blurring the lines between these three categories is very tempting and easy to do but in the long term it is extremely destructive. In particular, by having academic institutions take on the roles of creating companies or investing in companies, makes academic entrepreneurship education dramatically less effective. Incentives almost immediately are at cross purposes and the students figure this out quickly. Do the students look at us as educators who are there for their personal development or are we investors who have a vested interest in a positive outcome? Should they be open and honest with us or should they try to impress us so they get us as investors? What happens to those we do not invest in, what signal does that send to the broader market? The moment we are something other than 100 percent educators is the day we lose our "honest broker" uniqueness relative to the first two organizations. Being an honest broker educator to me means

that we are always completely looking out for our students' best interests. Measuring our success by the number of companies we prod our students to start is not the right metric. We should determine what constitutes success in entrepreneurship education, and then assess our success in teaching those elements. Vanity metrics like companies started, money raised by companies, jobs created, awards won and the like can distract us from our unique mission.

Entrepreneurship can be learned

Historically, there has been a widespread perception that entrepreneurship success is nature rather than nurture. In fact, I believed this when I first started teaching. My friend and mentor, MIT Professor Ed Roberts, showed me data that demonstrates the more times a person engages in an entrepreneurship venture, the more likely they are to be successful. As I thought about this, it became more obvious that this is true. Having been a serial entrepreneur, I knew much more the second time around than the first and even more the third time, because I learned so much each time I went through the process. We get better over time in most things in life, so why should entrepreneurship be different? It isn't. The data do not lie. The question then becomes, can we teach it? As my other lessons demonstrate, I believe that we can.

Entrepreneurship is a craft

A breakthrough for me was properly framing entrepreneurship. Part of the frustration people have in thinking about entrepreneurship education is that they want the field to be a "science" i.e., deterministic. That is, if we do A and B and C, we will get outcome D. That is not how entrepreneurship works. If we do A, B and C, our odds of getting outcome D increases significantly, but the outcome is not assured. This frustrates all of us and makes our problem much harder, but it is the reality. This does not mean entrepreneurship is an "art" that is abstract and success comes only to a gifted few. Entrepreneurship is a "craft" which means it is accessible (something that everyone can do) and yet it produces unique products. It is also learnable because there are fundamental concepts that increase your odds of success. Like a craft, it should be taught in an apprenticeship model where the theory (fundamental concepts) is applied through practical application to convert knowledge into capability. This mental model helps educators and students understand what to expect on their entrepreneurship education journey.
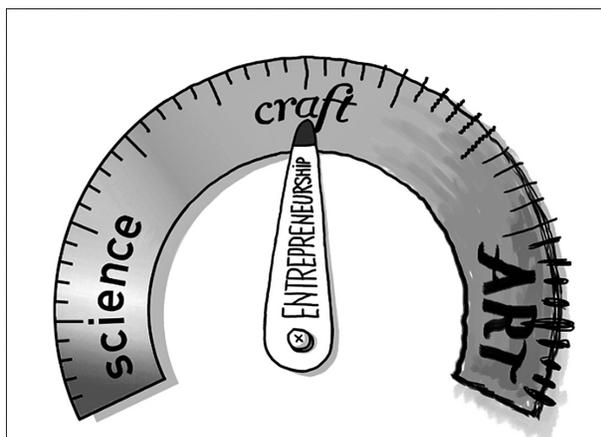
Source: Marius Ursache.

Figure 1.1 The sciences are well-defined and deterministic; art is the opposite. Entrepreneurship is a craft that sits between these two ends of the spectrum

**Entrepreneurship is not a spectator sport**
A clear derivative of the statement above is that our entrepreneurship education offerings should be focused more on doing than leaning back, listening, and reflecting. Hands-on work and achieving results is one of the key tenets of an entrepreneur.

Entrepreneurship is a team sport
Research by numerous academics like MIT Professor Edward Roberts and USC Professor Noam Wasserman have shown that the odds of success are materially higher if you have a team of founders than if you have an individual founder. People focus way too much on having a "brilliant" idea, but pay much less attention to the strength of their founding team. That's why a big part of our teaching methods involve having students work in teams on their projects so that they learn how to do so effectively. They must also learn how to make the tough decisions to add and remove members from their team.

Spirit of a pirate
Entrepreneurship is all about doing something that has never been done or in a way that has not been done before, so entrepreneurs have to be willing to be different and venture into new areas. If all the fish are swimming
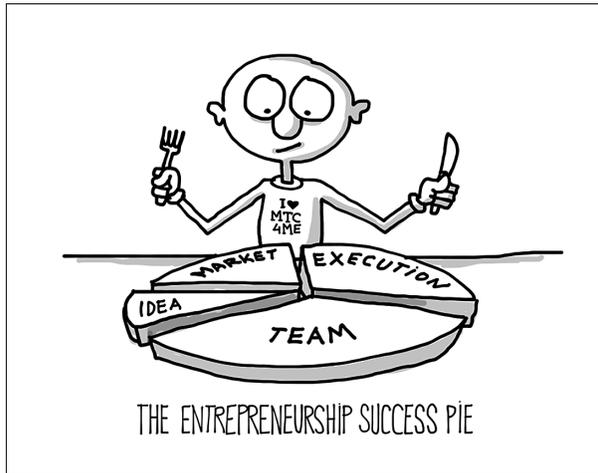
Source: Marius Ursache.

Figure 1.2   *The team is the most important factor in the success of an*
entrepreneurship initiative

one way, entrepreneurs must not only be willing to swim in the other direction, they should also *enjoy* swimming in the other direction. For an entrepreneur, it all starts with the first of our four Hs – Heart.[1] The "spirit of a pirate" includes not just a willingness to be different, but also an understanding of the difficult journey ahead, as well as the belief that success is still possible at the end of this journey – and that it is well worth the effort. In the Martin Trust Center for MIT Entrepreneurship, we live up to the Steve Jobs quote, "It is more fun to be a pirate than to join the navy," and we even incorporate the spirit of the pirate into our center's logo!

Implementation skills of a Navy Seal
Once our students understand entrepreneurship and are excited and confident about it, we cannot send them into battle without proper training. That is the essence of our next two Hs, the Head and the Hands. We must teach our students the first principles and knowledge that will optimize their chances of success – this is the "Head." Some of those principles

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[1]   Much credit goes to Professor Steve Gedeon of Ryerson University from which the 4H model emanated, building off his 3H model which we have discussed over the years in highly productive discussions about assessment. The four Hs are, in order, Heart, Head, Hand and Home.

Source: Marius Ursache.

Figure 1.3 Capturing and reinforcing the entrepreneurial spirit every day through our logo

(consolidated from many sources) are documented in the *Disciplined Entrepreneurship* books I have written and we use in our classroom. We then must create projects where students learn by doing, allowing them to translate their knowledge into capability – the "Hands." This combination of theory and practice is essential because it reinforces and deepens both the theory and the practice. This creates the excellence in execution skills that is required to do something that has never been done before with minimal resources.

Entrepreneurship education is in its infancy
We have to recognize that entrepreneurship education is relatively new compared to other disciplines such as law and medicine, as well as other business areas such as finance, accounting, strategy, and organizational design. As a result, there is not a large, mature, rigorously curated

body of knowledge in the field and our knowledge is rapidly evolving. This has created a situation where demand far outstrips the supply of rigorous, high-quality entrepreneurship education. We must avoid filling this gap with less than rigorous "storytelling," which at times assumes that assembling successful entrepreneurs in front of students so that they can spout platitudes about working hard is sufficient to prepare them for the great challenges of entrepreneurship. Storytelling has a role in fostering spirit within potential entrepreneurs, but is not a substitute for teaching rigorous fundamentals. It is also critically important that in such a dynamic evolving field, we as educators stay current with the latest developments.

Systems thinking is essential
I cringe when I hear simple solutions to entrepreneurship. Entrepreneurship is a complicated multi-faceted challenge which requires a systems thinking approach rather than a linear mindset. We have to constantly look for connections and relationship between the different parts of the system. We also have to understand that there will most likely be a time delay between an action and the full effects of that action. This is daunting when teaching because it makes it difficult to assess the success of any one program. Systems thinking is the only way to create the high-quality entrepreneurs we need for the future.

An open system with a common language is the best way to scale
The collective wisdom of the group is always greater than that of any one individual. Entrepreneurship knowledge will not come from any one person, institution or country. We all have to work together to build a body of knowledge that everyone can contribute to if we really want to create a discipline that is respected by academics, practitioners, and students. We frame our educational approach using the metaphor of a toolbox, and we constantly incorporate tools from many sources if they are appropriate for our students. The new tools are curated and integrated with the existing ones. When new concepts are proven worthy, we can easily incorporate them without throwing out all the previous good work we have done. Instead we build off what has come before and continually improve each tool and the overall toolbox, and then we share the toolbox with the rest of the entrepreneurship community through books and articles, workshops, and many other ways.

The 4th H – "Home" – is most often overlooked
The role of community is most often overlooked and not yet well codified into our educational efforts. This is the fourth and final "H" which
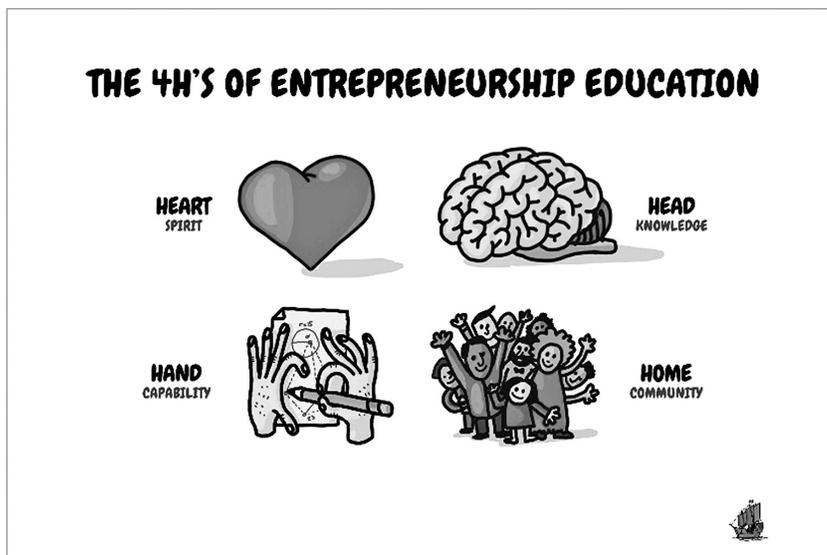
Source: Marius Ursache.

Figure 1.4 *The 4Hs that form the central themes of our educational efforts*

stands for Home, or the ability to build and be a productive member of vibrant and sustainable communities. The godfather of entrepreneurship studies at Harvard Business School, Professor Howard Stevenson, famously defined entrepreneurship as "the pursuit of opportunity beyond resources controlled" – the key point being entrepreneurs have to be able to creatively marshal resources they do not currently control, including knowledge, networks, and emotional support. Entrepreneurs do not have the luxury of big companies that have considerable resources under one roof. Entrepreneurs have to be efficient and embrace decentralization. They need to have a core set of skills, but build community with other entrepreneurs and partners both to ensure the success of their individual companies, and of the community of entrepreneurs as a whole. Anyone who has worked with me knows my favorite quote, from Rudyard Kipling's *The Jungle Book*: "For the strength of the pack is the wolf, and the strength of the wolf is the pack." Each entrepreneur has to be strong in their own right, but the "pack" makes them so much stronger and they can achieve so much more.

Have fun when teaching
This point might seem trite, but having a sense of self-deprecating humor and humility is important for entrepreneurs. While entrepreneurs must take the job of creating a business very seriously (it is hard and important work), they can't take themselves too seriously. Failure is part of the entrepreneurship process and if they take themselves too seriously, not only will they not survive, but their organization won't either. As instructors, we teach by our actions at least as much as with our words. So when teaching, let's not take ***ourselves*** too seriously, but let us take ***our responsibility of teaching*** very, very seriously. Enjoy the good times and teach our students how to celebrate them as a team, because there are always lots of bumps in the road on the entrepreneurial journey, and we all need to keep our spirits up to survive and thrive.

Andrew Hargadon

While the Mike & Renee Child Institute for Innovation and Entrepreneurship runs the usual programs of a campus entrepreneurship program – a business competition and associated workshops, a coordinated set of innovation & entrepreneurship courses, hackathons and other events, etc. – we got our start running a series of distinct programs for university researchers looking to commercialize their work. These early programs forged our particular approach to entrepreneurship education, which I'll talk about here.

A professor, a venture capitalist, and a serial entrepreneur walk into a class
Our program began in the Winter of 2004 with a single course on entrepreneurship conceived and taught by a professor (me), a venture capitalist (Scott Lenet), and a scientist turned entrepreneur turned angel investor (Charlie Soderquist). That course sparked two promising ventures and taught us a series of insights that still drive our greatest impact.

The first lesson we learned was of the tremendous value and fun that came out of combining these three different perspectives, experiences, and networks in the classroom. That has guided our teaching style ever since.

The second lesson came from the two new ventures, which had formed around a medical student and an engineering student who had audited the class. We quickly recognized an untapped market just outside our doors. That Spring we went to eight of our most productive faculty on campus and recruited their best science and engineering PhDs and post-docs to form the first class of Business Development Fellows. These students take 5 hands-on courses in innovation and entrepreneurship at the Graduate

School of Management, learning and working alongside our MBAs and participate in our campus business competition. That year, we had three more companies launch. The value of combining the university's best graduate students, their research, and an introduction to entrepreneurship came into focus. As an added benefit, integrating these researchers into the MBA classroom has added to the experiences (and opportunities) of the business students.

Our early successes also caught the eye of Chancellor Larry Vanderhoef, who challenged us to scale the program. UC Davis spends over $750M on research every year and has over 7,000 graduate students – each with deep knowledge of the latest research in their fields yet also just beginning their careers. We have colleges of Agricultural, Medicine, Nursing, Veterinary Medicine, Biological Sciences, Engineering, and Letters and Sciences. Fortunately, we also have a strong culture of interdisciplinary research and faculty are used to working (and walking) across campus on a daily basis.

So we designed what would become our flagship program, a three-day Entrepreneurship Academy focused on the needs of university's PhD, post-doc, and faculty researchers. These three-day intensives bring together 45-50 researchers interested in understanding and advancing the commercial potential of their research. Through the academy, they explore the real-world problems their work can solve, the products or services enabling those solutions, and the business models required to deliver them. While we developed the curriculum, we held on to our first lesson: individual sessions are taught by entrepreneurs, angel investors, venture capitalists, IP and corporate lawyers, R&D managers, and others with direct experiences and relevant war stories. Each night, the participants share their emerging ventures with eight to ten local mentors in a speed-dating session that provides them with quick feedback and introduces them to the value of mentoring. We run four academies each year, three of which focus on particular sectors like biomedical engineering, food & health, or green technology. At this point, participants in our program come from all seven major colleges. Engineering, medicine, and agriculture account for 60 percent, management students make up less than 10 percent.

Consider the following outcomes:

- A Business Development Fellow and PhD in neurology joined a start-up that is building solutions in an area of her research. She recently wrote us:
    - *"I'm at a start-up that uses what we know about the brain to design for behavior change. I'm the neuroscience expert on the team, but it's a small start-up . . . so I am learning a lot and*

> *learning fast! I am grateful to you and the Fellowship experience – [it] gave me an edge in the application and interview process and is helping me in this transition and adapting to the start-up culture."*

- A doctoral student in environmental science, attending our Green Technology Entrepreneurship Academy, used the time to explore the commercial potential of her research. While it became clear this work would not support a company, one of the mentors was a R&D director at a major corporation and offered her a job on the spot.

- A faculty member in Chemical Engineering had developed a dramatically more efficient means to break down biomass in the early stages of ethanol production. Evaluating the commercial potential, it became clear it could not become a new venture on its own and, as a Full Professor, he had no desire to abandon his research, his lab, and the dozen or so doctoral students and post-docs working for him. Since then, he's closed four licensing deals, which has exposed him to the needs in industry that he and his students are now working to solve.

- Four undergraduates attended our Green Technology Entrepreneurship Academy and brought with them an idea for converting biomass to plastic – research they helped conduct in a lab on campus. As they fleshed out ideas and quickly tested their early market, financial, and technological assumptions, the initial feedback – and connections – gave them the confidence to commit to their new venture. Ten years later, one of those students remains the CEO and just closed a $49M round (they've raised $70M in total) which also brought Nestlé and Danone in as both investors and strategic partners.

Same goals, different trajectory

Over 2,000 participants have attended our academies and teaching so many university researchers provided us with our third valuable lesson. The vast majority come to learn how their research can change the world, not to start companies. Indeed, research has shown that starting companies is just one, and one of the smaller, means for commercializing university research. Publishing, consulting, placing students (or getting a job) in industry, patenting and licensing, starting a new venture, shaping policy all are viable and valuable options. So too is "letting go and moving on." Assuming and encouraging everyone to start companies can do as much harm as good.

We learned that our first contribution lies in helping participants

understand whether and how their work has value beyond the university. Then it's helping them determine the best path forward – maybe it's a start-up, or licensing, consulting, etc. Which path is best depends on the particular aspects of the research and researcher. Finally and most important, we help them define and take the first steps along their chosen path. If that path is a new venture, we have follow-on programs as well as a variety of resources, incubators, and lab space on campus and in the community.

Our programs provide a variety of other benefits for university researchers. When we started, few researchers engaged with the office of technology transfer and licensing and fewer still trusted the process. We have been able to provide valuable perspective and objective guidance to everyone from doctoral students to senior faculty on how to navigate the system for university patenting and licensing. Second, few researchers understand their own role in patenting, licensing, and other ways of commercializing their research. We were able to describe the importance of treating patenting, licensing, and commercialization less like a hand-off and more like a service. Finally, we discovered that our programs prepare graduate student researchers for working and managing innovation in corporate R&D settings. Given that roughly 75 percent of graduating science and engineering PhDs across the UC system enter industry, but do so with little knowledge or preparation for the transition, it turned out our programs make them highly competitive in this job market.

Cliffs and valleys
Perhaps the largest lesson we learned from our focus on researchers was of a gap in the entrepreneurship curriculum. There's plenty of material on having ideas, everything from design thinking to user-observation, problem-finding, problem-solving, brainstorming, etc. And there's now plenty of material on designing and building new ventures, from lean start-up to team-building, networking, legal, and financial best practices. Most of this material tailors to the student who has already decided they want to be an entrepreneur and is in need of having a good idea, building a new venture around it, or both.

What was missing was help in making the commitment to move forward at all. The tug of the familiar – finishing a PhD or post-doc, writing another grant, getting back to the lab – means many promising developments in university research are never pursued. So much is made of the valley of death in the entrepreneurial lifecycle, yet it did us little good to focus on that when so many were stuck on what we came to call the cliff of commitment. Of course, those students who have committed to being entrepreneurs first (and just lack a good idea) face the opposite problem,

they've already leapt, but we've found still benefit from following a more disciplined vetting and commitment process.

Over time we have increased our focus on understanding and managing the commitment as a journey, not a decision. This means helping protocols-entrepreneurs recognize the critical uncertainties holding them back, the necessary experiments to give them confidence moving forward (or letting go), and the network of mentors, advisors, co-founders, and others who will support them along the way.

Looking back and moving forward

At this point, our institute has delivered over 35 Entrepreneurship Academies and helped launch over 75 companies (that have raised over $150M). But the bulk of our alumni remained in academia or took industry jobs, where their entrepreneurial knowledge and skills have helped them design impactful research programs, work effectively with industry partners, align R&D projects with the needs of the business units, and even launch a new venture years later. At the same time, our programs have helped build strong ties between our Graduate School of Management and the other Colleges and Schools across campus, leading to opportunities to develop new academic programs in energy, agriculture, food, and healthcare. Moving forward, we are growing our programs for graduate and undergraduate students across campus in ways that combine an entrepreneurial mindset with their own disciplinary work and careers – wherever they go.

Luke Pittaway

Like others who have responded to this question and faced with a somewhat existential question I drew a bit of a blank initially. What have I learnt? Why do I do this? Why am I here? These questions almost had me digging out philosophy books and considering my views about reality and my place in the world. As I reflected though a number of key drivers emerged for me personally and these seem to guide why I think I am an entrepreneurship educator and what I have learnt along the way. For me, I think I have learnt about the importance of "imagination" and "action". I believe strongly about the interface between "experience" and "reflection" and I'm motivated to help students gain an appreciation of and empathy for the lifeworld of entrepreneurship. Or indeed, I wish to encourage students to be change agents creating positive change in society through entrepreneurial endeavor.

Imagination and action

I've never forgotten reading the Cambridge economist Shackle's work during my PhD. I think this guides my approach as an educator more than I realize. Einstein's quote captures my view on this perfectly, *"the true sign of intelligence is not knowledge but imagination".* I think too much of our educational system focuses on knowledge, on knowledge creation, on knowledge acquisition and on knowledge transfer. Kids sit in school and college digesting text books and regurgitating them, with no obvious purpose and learning very little in the process. Learning how to be imaginative, in my view, is largely neglected. In fact, one can even argue that most educational design destroys inherent imaginative skills among our young people. Yet, if we wish to create new and wonderful things we must first imagine that they are possible. Good entrepreneurship education should put imagination back firmly into the educational mix. When education focuses on "sitting in classrooms digesting knowledge" the other aspect of human behavior that seems overtly neglected is action. Kids that can't sit still, with ADHD or who simply are easily bored, find these classrooms intolerable. Getting up, working in teams to implement things, building new stuff, getting out of the classroom, working in the community, finding time to build models, to engage, to sell, to do: these are all ignored. For me, like others, action and doing are critical, all entrepreneurship students should leave their programs with a genuine sense of initiative and programs should be designed to instill this attribute. So I believe I have learnt that my practice belongs in the nexus between imagination and action. I love entrepreneurship education because we are trying to put imagination and action back into the educational context (and we're sneaky because not everybody has figured that out yet).

Experience and reflection

Along these lines the quote outside my office door says, "the critical ingredient is getting off your butt and doing something". Entrepreneurs are undoubtedly "doers", they must drive forward into implementation, they must pivot, they must learn rapidly, they must be tenacious and persistent. This is why so much of entrepreneurship education has gone down the road of experiential learning and I am a convert along with everybody else. We have to give students a sense of what it is like to "fly by the seat of their pants", making decisions rapidly, and experiencing ambiguity and uncertainty. I also discovered along the way that some of the best entrepreneurs can be incredibly reflective. For me, while running programs that give students experience is important I have come to believe that we unduly neglect the reflective aspect of experience and this is equally important. We need to embed more reflective practice and I find myself revisiting this issue on a regular basis when designing classes.

Empathy for the lifeworld

For many entrepreneurship educators we are often faced with the dilemma that many of our students don't become entrepreneurs (at least not in the direct sense of starting businesses). This leads some of our detractors to suggest there is no point in what we do. I think they miss an important point. We need a society that is tolerant and supportive of entrepreneurial endeavor and we need people to act in entrepreneurial ways in all walks of life, in order to improve society. So entrepreneurship education is about creating empathy. It is about making sure that our accountants, our public servants, our teachers, our bankers, our politicians, everybody knows that those people who create new things are important to society, that they give up much to do it and that they take on risks that many of us wouldn't want to face. In my view, empathy for entrepreneurs is an important part of our educational mission. Having people who will be imaginative, take initiative and create change is another aspect, as not all entrepreneurial people start businesses but they do effect positive change in society.

Positive change

I always wanted to be an entrepreneur but I never did it (apart from playing around the edges as an academic). You could argue I am fooling myself, but I asked a key question when I graduated from college which was – why do I want to be an entrepreneur? My answer was very clear – I want to make positive change to society. The conclusion also seemed obvious at the time – don't be an entrepreneur be an educator. You can create a lot more change in society through leading/educating others who on mass create change, than by adding one more business (unless of course it scales significantly). Who knows whether my calculation was correct, but I do know that educated appropriately entrepreneurs drive positive change in all aspects of our lives and that is as good a reason as any to be an entrepreneurship educator.

So what have I learnt – be an education rebel, put imagination and action back into educational practice. It's great in entrepreneurship education for students to do stuff but make sure they learn stuff by reflecting on what they do. Create empathy by immersion in the entrepreneurial lifeworld. Aim for positive change in the world and inspire our young people to imagine that future and create it.

Candida Brush

It is the spring semester 2014, in the middle of January, and snow covers the ground. The temperature is in the teens and approaching single digits.

It is early evening and very dark outside here in New England. Tonight is my first entrepreneurship class meeting with a new group of MBA candidates. At 6:00p.m. I walk into the classroom 30 minutes before my session will begin. I am the only person in the classroom. I turn on the lights, turn up the heat, log on to the computer and turn on the projector.

I open up my Pandora app and select an instrumental jazz station. The music of Santana's "Europa" comes through the speakers. The music energizes me and I hope it energizes my new students! I check my remote clicker and make sure my 5 slides project clearly. I set the projector to my first slide, "Are you an Entrepreneur"?

I write my name, email address, office number, and the learning objectives that I have for students this opening session on the whiteboard:

- To uncover myths about entrepreneurs
- To experience entrepreneurial thinking
- To start the entrepreneurial journey

I head to the restroom, check my appearance, and return to the classroom. I quiz myself on the names of the students. Last night I spent a lot of time studying their photos and reviewing their backgrounds. I want to know as many names as possible on the first day, and I will have them all memorized within a week. I am expecting about 45 students and about half of them are from outside the US.

About 6:20p.m., a few students enter the room. As students enter, I shake everyone's hand, and introduce myself to every student. "*Hi, I'm Professor Brush. Welcome to my class! Where are you from?*" A firm handshake is a must and I know that this can make a positive first impression. I chat with as many students as I can. I ask students to please put their name tags out.

As I meet each student, I try to associate their names with their faces. Some students seem to know each other, others seem to be meeting each other for the first time.

Even though I have been teaching for 25 years, I am always a little nervous on the first day. When I scan the room and look at each student, I wonder if they are nervous too? What were they doing before they came to this class? What are they thinking? What are they feeling? I notice some students looking around and at me – What are they trying to figure out about me? What are they expecting from this class?

I have learned that one of the most important factors in teaching is managing expectations. In my 10 years as Department Chair advising and mentoring faculty, I found that when a faculty member had poor teaching evaluations, it was almost always because of gaps in expectations between the faculty member and the students.

Students have a set of expectations about what they will learn, what will happen, and who I am as a Professor. Most entrepreneurship students expect to learn skills and competencies that are relevant and useful to creating an idea for a business, or running a new venture. On the other hand, I as a Professor, have a set of expectations about what students will learn about entrepreneurship, what they will take away from each class, and how they will demonstrate their competencies over the semester. I hope students will practice thinking in an entrepreneurial fashion, and show they can design and shape an entrepreneurial idea. If I don't properly communicate my expectations, and if I do not fully understand the students' expectations, there will be a misalignment. If there is a BIG gap between what I expect, what the students understand as my expectations, and what the students expect, then we will not have a productive learning journey.

I take one last look at my personal goals for this first session:

1. To engage students in entrepreneurial learning and discussion
2. To establish my credibility, yet reveal some of my personal side so students will feel our classroom is a safe space to participate
3. To make the students curious and motivated to return to class next week

I think about this as I am waiting the final minutes for students to get settled before I begin class. The music is still playing, but I adjust the volume up just a bit for the final 5 minutes.

It is now 6:30 p.m. I look around and see that everyone is somewhat settled. I notice more students seated towards the back the classroom, which is a stadium style with tiers – a typical case style classroom. I make a note that I will need be present in the back row as well as at the front of the room.

I shut the music off and turn the projector to "blank screen".

I ask, *"How many of you are Entrepreneurs"* I see a few hands go up. I move to the left side of the room and ask, "*How many of you want to be Entrepreneurs*?" I see more than half the class raise their hands.

> *"Welcome to our Entrepreneurship class! I am very pleased to meet each and every one of you, and I am looking forward to getting to know you, and helping you to explore your entrepreneurial passions and dreams!"*

I walk up the stairs on the left side of the room to the back of the class, and I say,

"*Can you name a successful entrepreneur*?" I wait several seconds, and see about 10 hands go up – I walk down to blackboard and call on students by name.

I write "Successful Entrepreneur" as a heading and write down the names of entrepreneurs that students call out with the predictable names:

Bill Gates
Steve Jobs
Sergey Brin
Jeff Bezos
Elon Musk
Jack Ma
Walt Disney
Richard Branson
Larry Page

I look to the back row on the right side which has a row of four women, and I ask: "*Are all successful entrepreneurs men?*" There is a short pause, and then I hear the following names:

Oprah Winfrey
The lady who created Spanx (Sara Blakely)
Sheryl Sandberg
Melinda Gates

I then ask, "*What led to their success?*"
I get another set of predictable responses from several students:

Risk taker
Innovative
Passionate
Creative
Visionary
Independent
Team builder
Confident
Determined
Leadership

I walk to the back of the room and ask: "*So, were these entrepreneurs like this in the beginning or did they gain these qualities over time?*" A discussion ensues and I let this go for about two minutes. I look at each person and listen carefully and fully to what they say.

I walk to the far left side of the room and I ask: *"Do these famous, or iconic, entrepreneurs really represent entrepreneurship?"*

There is a pause and then I continue, *"I am an advisor to a business that makes coconut oil in the Dominican Republic. Founded by Dany Dalet and Abel Gonzales, Solo Coco produces the only cold pressed virgin coconut oil in the Americas. The company is fair trade, free trade and employs 60 single mothers with children. More than 10 percent of profits are donated to education of the children of these mothers. The company hit more than $1 million in sales this year, and, Dany placed in the top 10 for the Chivas Regal Global venture competition for social entrepreneurs. Solo Coco is one of the few new companies that exports finished goods, rather than raw materials, from the DR to the US."*

So I ask again, *"Who is a 'successful' entrepreneur"*? A Latin-American student says she believes that Dany and Abel would be successful entrepreneurs. Another student mentions that success can be defined in different ways.

I think I have engaged the students into a conversation about what entrepreneurs "do" rather than "who they are"; and what it means to be a successful entrepreneur. If I can dispel the myth that students have to be born with qualities like those of Bill Gates or Oprah Winfrey, this will allay some of their fears and uneasiness, and they will be more open to being entrepreneurial. Also, I hope to move them away from focusing on success criteria at the start, and instead, open their thinking to different ways of practicing entrepreneurial actions leading to success.

This describes the first few minutes of my class. My behaviors were carefully prepared, and detailed. Preparing content is very important, but, I have learned that it is equally, if not more important, to focus on how we teach (our pedagogy and approach). Further, what we do in the first few minutes of class is of crucial importance and sets the tone for the entire class.

Why is this important? Students make up their minds whether or not they want to hear more within the first minute or two of the class. Studies about teachers making first impressions analyzed the non-verbal aspects of good teaching (Ambady & Rosenthal; 1993; Ambady, Bernieri & Richeson, 2000). They found that students made judgments about a teacher and whether they wanted to be in that class within a few seconds. Even more scary is that they often don't change their minds over the course of the semester. Several studies show that it takes less than ten seconds to form a first impression based on a face, and that up to 40 percent of the first impression is based on how you sound rather than what you say, while 55 percent is based on visual cues, how you dress, where you stand, if you shake a hand, or make eye contact (Mehrabian & Weiner, 1967).

This same phenomenon applies in the venture capital and angel investing contexts where investors will make snap judgments about whether or not they want to hear more from entrepreneurs in their pitches (Hoehn-Weiss, Brush & Baron, 2004). You can test this yourself: there are countless Entrepreneurship lectures on YouTube, and other online platforms. Visit a sampling of these and see how quickly you make a decision as to whether or not you want to hear more from any of these entrepreneurship professors.

Because the first few minutes are of crucial importance, not only do I carefully prepare the content of the class, the exercises, learning objectives and entrepreneurial frameworks, but also I spend equal time preparing every detail of my pedagogy. When I do this, my teaching ratings are better, and students' work better matches the level of my expectations for their performance. What is my recipe? I do the following:

1. Physical environment – I set the mood and try to create a pleasant sensory environment by paying attention to music, lighting, visual (slides, blackboard, any props or attention getters). I seek to create an engaging physical space.
2. Audience assessment – I think about the students. Why are they in this class? I try to remember that about 25 percent of the class really wants to be there, 25 percent probably would rather be somewhere else and 50 percent are somewhere in the middle. Who is in the class? Where are they sitting? What is on their minds when they walk into the classroom? What are their expectations? What are they afraid of? I try to remember that there are at least four different learning styles in this class, and that not everyone learns by listening (Kolb & Kolb, 2005).
3. The "hook" – what will I do to directly engage students in the topic of the day? How will I "hook" them into the conversation that is linked to the core learning objective? Will it be a prop? A video? A poll? I do this with the first three minutes of the class.
4. My behaviors and my personal tendencies – How do I look? Where will I stand? I work to be completely "present" in every conversation – listening intently to every comment. And, what do I need to remember not to do? We all have tendencies that do not work well (I speak too fast so I have to remember to slow down my speech and project). I seek to engage students and show my personal experience and passion for entrepreneurship.
5. I have learned that teaching entrepreneurship is not the same as teaching other subjects. In each class, we create experiences that allow students to practice being entrepreneurial (Neck, Greene & Brush, 2014). This requires that we pay just as much attention to "how" we

teach as "what" we teach so that the first few minutes create a WOW experience that keeps students engaged for the session. What I do in that first ten minutes matters more than I ever realized. It sets the tone and manages expectations for the remaining 2,510 minutes I'm with them in the classroom!

Sharon Alpi

Millikin University was founded by entrepreneur James Millikin. His vision for the University was for it to be a *place where the industrial and the practical resided with equal importance with the literary and the classical.* Today this tradition of learning is evident in the Millikin brand of Entrepreneurship through Performance Learning that spans all four schools; College of Arts and Sciences, School of Theater and Dance, Tabor School of Business and School of Professional Studies. Students participate in student-run ventures, ideation workshops, and interdisciplinary agile teams and collaborate to build ventures.

Building on this heritage of Millikin's founder, we wanted to develop an "ethic of entrepreneurship" rooted in our shared values and beliefs about how we accomplish our work in and out of the classroom. Our testimonials, narratives, and celebrations speak to the assumptions that we call our "ethic of entrepreneurship". At Millikin, this philosophy is carried out in the Center for Entrepreneurship's many programs and courses. We wanted our work to be self-evident in the manifestation of an entrepreneurship culture. The Center's mission is to *inspire, connect and advance entrepreneurs, aspiring entrepreneurs, and those who can positively influence entrepreneurs every day.* It is a physical place, a sanctuary if you will for thoughts and ideas that are nurtured and cultivated through

- Exposing students from every discipline to entrepreneurship both inside and outside their major.
- Providing the tools necessary for students to view self-employment as a viable career option.
- Identifying faculty from each College/School who will incorporate and champion entrepreneurship by developing courses and activities in their specific discipline.
- Providing infrastructure, financial support and leadership for faculty teaching entrepreneurship.

For our students who are in our entrepreneurship courses and cross disciplinary teams, we believe entrepreneurship strengthens their position to have the grit, inner strength and confidence to persevere.

Professor Peter Jamieson at the University of Melbourne, in his 2007 workshop on "Creating New Generation Learning Environments" suggested that knowledge is not "transferred" from teacher to student, but is personally constructed, adding that students' learning should involve students in ACTIVE construction of their own knowledge. He goes on to suggest that learning is fundamentally about changing the way an individual understands an aspect of the world they are learning about and how to make sense of it.

This notion of "active" construction of learning was the underlying principle for our development of student-run ventures as a pedagogical tool. These entrepreneurship laboratories are courses taught by Millikin faculty within the context of their own discipline. But decisions for the venture, including those related to operations, marketing and finances are made by students. This model allows students to experience first-hand the successes and failures of their decisions, with real money and relationships at stake.

It is important to learn how to ask questions, to organize data, to compute, and to write; but to make these skills meaningful, students need opportunities to use such skills in meaningful ways (Hibbard et al., 1996).

> *"Knowing how to succeed, how to fail, how to recover from a failure and not letting a success get to your head before having this be your real job is a definite positive to the course."* – Alex Scholinsky (B.A. Theater, 2012)

Since 2000, Millikin has charted a multi-disciplinary path in entrepreneurship education on campus beginning with the College of Fine Arts enrolling students from all majors – studio arts, music, theater, graphic design, and literary arts. This multi-disciplinary focus provides integrated learning opportunities for students to understand each other and come to know performance from many perspectives.

- Interchanges between disciplines uncover basic differences and areas of "ignorance" from all parties.
- Provides opportunity for all to learn and agree on a common way to communicate concepts to the class.
- Reduces barriers between majors.
- Faculty become coaches and learners.
- Artistic effort has commercial value.
- Avoid no.

> *"I learned how to work as part of a diverse group where everyone has different personalities and different projects they are working on, while we all have the same shared goal."* – Domoique Howell (Entrepreneurship Major, 2011)

"Every time a mistake was made, or something had to fail, real money was lost." – Chloe Day (B.A. Theater, 2011)

Entrepreneurship is a passionate expression of what we at Millikin have come to know as Performance Learning exhibited through our student-ventures which are:

- A laboratory of practice delivered as a course grounded in an academic discipline
- Student-centered with faculty, alumni, and practitioner coaching and mentoring
- Value driven
- Operating or performing in a community where students discover, design, produce, promote, and deliver
- Adaptive, offering ample opportunities for student experimentation
- An environment to experience risk with real opportunities to learn through failure.

"(Performance based learning) environments recognize that students must have a way of 'doing, seeing, feeling, and communicating things'" (Gibb, 1998, p. 3). Teaching and learning in a multi-disciplinary academic environment has been both challenging and rewarding. The following are some of the ways I ask students to engage with entrepreneurship.

Experience it – passive participation will lead to mediocre results.
Embrace healthy tensions – they lead to multiple right answers.
Don't come to know too soon – don't settle on what you already know, iterate.
Perform early and often – build confidence to succeed.
Authentic self – know what you value and how you value it.
Do something that matters – personally and professionally.
Cultivate soulful alliances – people who bring out the best in you and bring energy.
Engage deep and reflect on your efforts.

Maslow provides us language as frameworks for our student's reflections on entrepreneurship:

The people who have been living in a world which always told them what to do – which made life easy for them and told them what the next step was, and put them on an escalator so to speak – this world never

let them discover their weaknesses and failures, not to mention their strengths. (p. 107)

Highly evolved individuals assimilate their work into the identity of the self, i.e. work actually becomes part of self . . . (p. 132)

<div align="right">Abraham Maslow</div>

"*It is very interesting to take notes of peoples' strengths and weaknesses, and be able to watch everyone succeed and fail too.*" – Wade Tischauser (BFA Theater Administration, 2012)
"*I had pride in seeing my hours of work for the company produce results, and most importantly see the groundwork I had laid down be continued by new members of the company.*" – Bekki Lambrecht (BFA Design/Production, 2011)

> In designing and redesigning curriculum in a multi-disciplinary environment, helping faculty transition into a different and often uncomfortable role in the classroom requires that they use information of their discipline for relevant goals and purposes of cultivating an entrepreneurial mindset.
>
> <div align="right">(Caine et al., 2005).</div>

Embracing risk taking, pursuing innovation, and living with ambiguity and possible failure can be intimidating but my experience suggests that the student-venture experience helps both faculty and students develop an entrepreneurial mindset through the practice of their craft. Yes, it is messy! There is great opportunity for failure and a large time commitment beyond the ordinary classroom. The challenge of keeping the experience "fresh" for each new class is always there but the reward of seeing each new class experience ownership and venture creation is great.

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