

## Entrepreneurship Education Insights

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*About Jack M. Wilson: Jack M. Wilson is the President Emeritus of the University of Massachusetts and the Distinguished Professor of Higher Education, Emerging Technologies, and Innovation at UMass Lowell. Prior to coming to the University of Massachusetts he served as the J. Erik Jonsson '22 Professor of Physics Engineering Science, Information Technology, and Management at Rensselaer Polytechnic Institute – where he also served as a research center director, dean, and provost. At RPI he co-founded the Paul Severino Center for Technological Entrepreneurship with Mark Rice who later served as Dean and Vice Provost at Babson and WPI. In 1993 Wilson founded the ILinc Corporation with two new graduates from RPI. They took that company through three rounds of venture capital and then acquired Allen Communications and John Bryce Training, in a triple reverse merger with Gilat Communications from Israel. The resulting Company, Mentergy, was a \$500 million market cap company on NASDAQ in March 2000, a few weeks after the merger. Wilson has also served as a consultant to many large corporations (IBM, AT&T, etc) as well as an advisor to several high technology startups. He is past Chair of the Commission on Innovation Competitiveness and Economic Prosperity (CICEP) of the American Public and Land-grant Universities (APLU)—the national public research universities.*

***Education in Entrepreneurship is inherently a multi-disciplinary effort.*** That is a great strength of entrepreneurship, but it also provides significant challenges for entrepreneurship programs –particularly in large research universities. While it is desirable that my original profession of Physics be situated in a multidisciplinary context, it is not mandatory. Fields like physics, accounting, marketing, chemistry, mathematics, and many other traditional fields can be, and often are, taught in contexts in which the multidisciplinary nature is almost incidental.

Entrepreneurship cannot be taught effectively without a multi-disciplinary context.

There are other fields with analogous challenges. Environmental science, which began to elbow its way into research universities about five decades ago, challenged universities to redefine disciplines and made it more difficult to use the discipline specific criteria of appointment, promotion, tenure, and curriculum development that had served research universities so well for the first half of the twentieth century.

A multidisciplinary field challenges the usual serial canon of the established disciplines. Is the senior student in environmental science expected to know the same things to the same level as a senior in Biology? A senior in chemistry? A senior in physics? A senior in political science?

Or, is the student expected to master ALL of these fields? The new scholarship was even a more daunting for the new scholars –who were being evaluated for promotion and tenure. They found themselves being held to the standards of several departments simultaneously, and that represented a bar too high for many of them.

Entrepreneurship is often taught in Schools of Business –as it is in the Manning School of Business at UMass Lowell. Entrepreneurs are usually drawn from fields with undergraduate majors outside of business –with the largest plurality coming from engineering and with engineering and science making up the single largest group of entrepreneurs. For this reason, one will often find entrepreneurship being taught in engineering programs or even science programs. While this brings the programs closer to the source of the future entrepreneurs, it disconnects those programs from the source of skills and experience that is found in the schools of business –a set of skills that is often sorely lacking in the programs that create the most entrepreneurs.

Clearly it is the cross-fertilization of a discipline (engineering, science, medicine, nursing, music, art, etc) with the management skills and the principles of entrepreneurship that generates the most promise for creation of successful entrepreneurs. That cross fertilization essentially mandates that students from disciplines work with students from management in cross functional teams that work together on entrepreneurial ideas.

This means that a curriculum needs to provide courses where students of different backgrounds can meet and study and work together. For more traditional discipline oriented faculty this can be a problem. Advanced courses in Entrepreneurship cannot be saddled with so many pre-requisites that only one kind of student can possibly qualify to take the course. For the faculty member teaching the courses, this can be a challenge –because they cannot expect that every student would have the advanced understanding of concepts in accounting, finance, marketing, mathematics, or technical skills that they might like to expect in an advanced classroom.

Accrediting bodies found some of this challenging at first, but most have found ways to allow what is widely recognized as the desirable multi-disciplinary approaches that mix students of varying backgrounds. Not all faculty have reached the same rapprochement.

***Entrepreneurship is learned experientially.*** Although research has shown that nearly every subject is best learned through engagement, and especially experiential education, it is hard to imagine learning entrepreneurship without real exposure to entrepreneurs and entrepreneurial experiences –real or simulated. In order to accomplish this many programs –including our own - endeavor to provide mentoring opportunities and exposure to entrepreneurs in residence. For UMass Lowell, that is a work in progress but we expect that part of our program to grow.

One very successful experiential education program, mentioned earlier by Steve Tello, is the Difference Makers Program at UMass Lowell. In this program the students are given exposure to

entrepreneurship in the broadest context in their freshman year. Many chose to become involved in projects -most of consist of cross functional teams of students.

Entrepreneurship cannot be taught to students by lecturing them (telling them) about what entrepreneurship is and what entrepreneurs do. In some fashion, the students must have the experience of being in an entrepreneurial situation. It is well known that learning requires actual engagement and that means that a class full of students listening to a great lecturer –with many of the students drifting off.- is not a great class. A great class is one in which the students are engaged in doing interesting things and challenging one another with ideas. If anyone is drifting off in the great class –it should be the professor –not the students.

In our classes this means that students are required to present cases drawn from real entrepreneurial challenges –leading to class debate on issues. They need to do a semester long paper that uses the tools developed in the calls to analyze a new venture –with one they want to develop or one that they get connected to in some fashion. They hear from, and debate with, actual entrepreneurs who have created new business and faced challenges. Some of these have included Carol Vallone (WebCT, Horizon/Wimba, Educate-Online), John Pulichino (Swiss Army Knife luggage), Robert Pozen (MFS, Secretary of Economic Development), Raj Melville (Merrimac Valley Sandbox), Manijeh Goldberg (Privo Technologies –a new MIT spinoff) and many others. But even this level of engagement in class is not enough. Outside of class activities including internships and co-ops as well as participation in business plan competitions, accelerator projects, and the Difference Maker Competition are critical.

***Education in Entrepreneurship demands a diverse faculty.*** Successful entrepreneurship programs work hard to supplement more traditionally trained faculty, who have obtained their PhDs at prestigious institutions and have demonstrated their scholarly capabilities through peer-reviewed research, with faculty who have had actually experience as entrepreneurs, but may not be able to show a record of scholarly publication. Most institutions now have ways to hire both kinds of faculty, but the integration of the groups is not always smooth. The most respected programs have faculty that represent both kings of important experience –academic credentials and extensive entrepreneurial experience. In the ideal world, all of the faculty would have both sets of credentials, but in the real world that is a fairly rare circumstance. Thus the best strategy is to mix faculty with a spectrum of skills and experience. In some cases, the faculty members with the less traditional credentials are known as faculty of practice or clinical faculty and are hired, paid, and promoted with standards more appropriate to their backgrounds and skills.

In my experience as the co-founder of the Severino Center for Technological Entrepreneurship at RPI, where I also served as three different kinds of Dean and as provost, these non-traditional faculty members are often among the best and the most important faculty to the educational program. I would say that I have observed similar situations on the UMass campuses as well as in the great local programs like those at MIT, Babson, and WPI.

*Entrepreneurship is more of an Art than a Science –from business plan competitions to the lean launch pad.* Entrepreneurship today is in a state of flux as the field has recoiled from the prescriptive approach of the last decade in which the business plan and business plan competitions defined the science of entrepreneurship. The annoying fact that many, if not most, new businesses simply did not use business plans was viewed as something undesirable and needing to be corrected. As scholars looked at start-ups in a systematic fashion, they also observed that even those that did have business plans rarely executed those business plans in a linear fashion. In fact, most successful new businesses ended up on a trajectory that was not envisioned in the original plan. The ability of a new venture to change its business model dramatically in mid-course has come to be known as a **pivot**. This has led to many scholars abandoning the idea of the business plan altogether.

Steve Blank became the leading apostle of business plan rejection about five years ago.<sup>1</sup> In 2009 he wrote that *“In the real world, most business plans don’t survive the first few months of customer contact. And even if they did – customers don’t ask to see your business plan.”*<sup>2</sup> Steve advocated for the supremacy of business models and he enshrined the concept of the pivot as part of his mantra of the “Customer Development Process” with the concepts of *“minimum viable product (MVP),” “iterate and pivot”, “get out of the building,”* and *“no business plan survives first contact with customers.”* To be fair to many others in the field, his insights into the shortcomings of the business plan were not entirely new, and were probably more a reaction to the way the business plan had become unexamined enshrined dogma that hampered development rather than helped. The problem was not that doing a business plan was bad, but that too many people actually believed that the business plan was an actual “plan” in the sense that large companies create plans. Most of those who taught entrepreneurship already knew that the business plan was something that required regular testing and revision. I often told my students that the last step in the development of ANY plan was to step back and ask yourself what you were going to do when the plan did not go as planned. Blank made the significant contribution of pulling together the alternate approaches, rebranding it, and marketing it into key constituencies –with one of his students, Eric Reis. Their Lean-Launchpad<sup>3</sup> model of entrepreneurship now bills itself as the “evidence based entrepreneurship” model and Blank has even trademarked the latter term.

The National Science Foundation embraced Blank’s and Reis’ formulation of new venture development when they launched their iCore program a couple of years ago.<sup>4</sup> In many ways they viewed it as a more scientific approach to venture creation that used the method of hypothesis formation, quick testing, revision, further testing, and continuous refinement. Fields as disparate as science and creative writing would perceive this process as the continuous

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<sup>1</sup> <http://steveblank.com/about/>

<sup>2</sup> <http://steveblank.com/2009/05/07/business-plan-competitions-2/>

<sup>3</sup> <http://www.businessinsider.com/the-lean-launchpad--teaching-entrepreneurship-as-a-management-science-2011-3>

<sup>4</sup> [http://www.nsf.gov/news/special\\_reports/i-corps/](http://www.nsf.gov/news/special_reports/i-corps/)

refinement of drafts while writing. It is indeed the way the world works. We build new models of anything we study as we find out more and more detail through research. And so it is with entrepreneurship.

In the new model, the business model canvas, originally proposed by Alexander Osterwalder becomes the starting point.<sup>5</sup> (See an example below)

This transition continues to play out in entrepreneurship education programs across the country – as well as at UMass. The most used textbooks are built under the old paradigm. Business plan competitions continue to be held in spite of Steve Blank’s pronouncement that “I hate business plan competitions.” Just as physicists teach Newton’s Laws and the Einstein Theory of Relativity –which extends and alters Newton’s laws, entrepreneurship education needs to introduce students to the process of business planning as well as the limitations and alternative formulations, like Blanks, that have emerged. We also need to alert students to allowing any model (including Blank’s) to morph into a dogma that could constrain innovation.

***Entrepreneurship Education is essential to our region and the nation.*** When I chaired the Commission on Innovation Competitiveness and Economic Prosperity of the American Public and Land-grants Universities, we undertook several studies to ascertain the economic impact of the public research university on a region’s economy and developed a set of reports that helped university presidents identify, measure, and adopt best practices in regional economic development.<sup>6,7</sup> It is clear that the public research university is essential to robust regional economic development and the entrepreneurship and entrepreneurship education is an important part of that process.

***Entrepreneurship Education is Challenging, Exciting, and Vital.*** Because entrepreneurship education is comparatively new, potentially controversial, and extraordinarily vital, it is one of the most exciting possible fields in which to work. More established fields that have long been taught in particular ways have been very resistant to change to adapt to the world we live in today. Without a firmly entrenched canon, entrepreneurship education is moving rapidly to accommodate to the multidisciplinary nature of our environment. It needs to use the more engaging kinds of educational activities that research in the cognitive sickness has shown unequivocally leads to deeper learning. And it needs to be taught by faculty with diverse experiences.

That is what makes teaching entrepreneurship so exciting today.

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<sup>5</sup> <http://businessmodelgeneration.com/canvas>

<sup>6</sup> <http://www.aplu.org/page.aspx?pid=265>

<sup>7</sup> <http://www.aplu.org/document.doc?id=2777>

# The Business Model Canvas

Designed for:

Designed by:

Date:

Version:

<p><b>Key Partners</b> </p> <p>Who are our key partners? Who are our key suppliers? Which Key Resources are we acquiring from partners? Which Key Activities do partners perform?</p> <p><b>KEY RESOURCES</b> Distribution and logistics Network of sales and university Acquisition of particular resources and activities</p>	<p><b>Key Activities</b> </p> <p>What Key Activities do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue streams?</p> <p><b>KEY RESOURCES</b> Production Product design Infrastructure</p>	<p><b>Value Propositions</b> </p> <p>What value do we deliver to the customer? Which one of our customer's problems are we helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</p> <p><b>CHANNELS</b> Partners Partnerships Customer "Selling the old beer" Design Self-service Retail Clear structure Self-Rescue Accessibility Complementability</p>	<p><b>Customer Relationships</b> </p> <p>What type of relationship does each of our Customer Segments expect us to establish and maintain with them? Which ones have we established? How are they integrated with the rest of our Business Model? How costly are they?</p> <p><b>KEY RESOURCES</b> Partnerships Infrastructure Self-service Automated services Community Co-creation</p>	<p><b>Customer Segments</b> </p> <p>For whom are we creating value? Who are our most important customers?</p> <p><b>KEY RESOURCES</b> Data Network Infrastructure Community Multi-sided Platform</p>
<p><b>Key Resources</b> </p> <p>What Key Resources do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue streams?</p> <p><b>KEY RESOURCES</b> Physical Intellectual Infrastructure Structural assets Channels, data Human Financial</p>			<p><b>Channels</b> </p> <p>Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are our Channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</p> <p><b>KEY RESOURCES</b> A. Channels B. Distribution C. Purchase D. Delivery E. Support F. Billing G. Billing H. Billing I. Billing J. Billing K. Billing L. Billing M. Billing N. Billing O. Billing P. Billing Q. Billing R. Billing S. Billing T. Billing U. Billing V. Billing W. Billing X. Billing Y. Billing Z. Billing</p>	
<p><b>Cost Structure</b> </p> <p>What are the most important costs inherent in our business model? Which Key Resources are most expensive? Which Key Activities are most expensive?</p> <p><b>KEY RESOURCES</b> Cost structure based on products, the price value proposition, resource allocation, extensive sourcing Cost of sales (materials) - this includes provision value proposition Cost of sales (materials) - this includes provision value proposition</p> <p><b>KEY RESOURCES</b> Fixed costs Variable costs Economies of scale</p>	<p><b>Revenue Streams</b> </p> <p>For what value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How would they prefer to pay? How much does each Revenue Stream contribute to overall revenues?</p> <p><b>KEY RESOURCES</b> A. Channels B. Distribution C. Purchase D. Delivery E. Support F. Billing G. Billing H. Billing I. Billing J. Billing K. Billing L. Billing M. Billing N. Billing O. Billing P. Billing Q. Billing R. Billing S. Billing T. Billing U. Billing V. Billing W. Billing X. Billing Y. Billing Z. Billing</p>			