



Journal of Innovation & Knowledge

www.elsevier.es/jik



Empirical paper

Entrepreneurship education: Process, method, or both?



Dianne H.B. Welsh^{a,*}, William L. Tullar^b, Hamid Nemati^c

^a 441 Bryan School of Business & Economics, The University of North Carolina at Greensboro, 516 Stirling Street, Greensboro, NC 27402-1760, USA

^b 364 Bryan School of Business & Economics, The University of North Carolina at Greensboro, 516 Stirling Street, Greensboro, NC 27402-1760, USA

^c 425 Bryan School of Business & Economics, The University of North Carolina at Greensboro, 516 Stirling Street, Greensboro, NC 27402-1760, USA

ARTICLE INFO

Article history:

Received 26 December 2015

Accepted 27 January 2016

Available online 11 March 2016

JEL classification:

M00

M1

Keywords:

Entrepreneurship education

Process approach

Experiential education

ABSTRACT

Transformative changes are happening in Higher Education Institutions worldwide in entrepreneurship education. These changes are conceptual as well as technological due to the upheaval in the global, social, political, and technological environment. We argue that the process theory of Alfred North Whitehead best explains why entrepreneurship education does not always have the same results on our students in the classroom and after they graduate. In the education of entrepreneurs, we hold that it is change that is the cornerstone of reality—our entrepreneurship students are in the process of becoming something they previously were not. Implications and comparisons of the process theory applied to entrepreneurship education are discussed.

© 2016 Journal of Innovation & Knowledge. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

La formación en emprendimiento: proceso, método o ambos?

RESUMEN

Las instituciones de educación superior de todo el mundo están sufriendo cambios transformacionales en el área de educación en emprendimiento. Estos cambios son tanto conceptuales como tecnológicos debido a la revolución del contexto global, social, político y tecnológico. Nosotros defendemos que el enfoque de proceso es el que mejor explica por

Códigos JEL:

M00

M1

* Corresponding author.

E-mail address: dhwelsh@uncg.edu (D.H.B. Welsh).

<http://dx.doi.org/10.1016/j.jik.2016.01.005>

2444-569X/© 2016 Journal of Innovation & Knowledge. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Palabras clave:

Formación en emprendimiento
Enfoque basado en procesos
Educación basada en la
experiencia

qué la formación en emprendimiento no tiene los mismos efectos en nuestros estudiantes en el aula y tras su graduación. En la formación de emprendedores, afirmamos que el cambio se sitúa en que los estudiantes que quieren ser emprendedores están en proceso de convertirse en algo que no eran con anterioridad. El artículo analiza las implicaciones de la teoría del proceso aplicada a la formación en emprendimiento.

© 2016 Journal of Innovation & Knowledge. Publicado por Elsevier España, S.L.U. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Entrepreneurship education (EE) is in a state of transition. This is largely due to the fact that business schools, as well as Higher Education Institutions (HEI) overall, are in the middle of “transformative changes” both at the conceptual (new models of entrepreneurship education) and technological levels (eLearning, mobile devices, learning networks, entrepreneurship networks). This has been spurred by upheavals globally, socially, politically, and technologically (Welsh & Dragusin, 2011, 2013). Just pick up the latest issue (November/December 2014) of *BizEd*, the magazine of the American Association of Collegiate Schools of Business International (AACSB). It is filled with stories like, “How B-Schools Inspire Innovation,” “Setting off Sparks,” “Passion Projects,” reflecting the influx of innovation and entrepreneurship throughout the business school curriculum. In the same issue, articles abound on changing business schools, such as “Diversifying the B-School Model,” “Will Competency-Based Models Revolutionize Higher Ed?” and “Does Accreditation Spur Innovation?”

This study is based on the ideas of a process philosophy. Process philosophy as proposed by Alfred North Whitehead posits that each occasion of human experience is causally influenced by previous occasions of experiences, and also causally influences future occasions of experience. An occasion of experience consists of a process of apprehending other occasions of experience and reacting to them. This is the process in process philosophy. Such a process sequence is never deterministic. Consequently, free will is essential and inherent in this approach.

There have been a large number of psychological studies on the process of late adolescence. For instance, Steinberg’s widely used text *Adolescence* cites over 600 new studies added between the 1993 and the 1996 edition. Steinberg (2005) details the results of studies done in the area of cognitive and affective development in adolescence. This period of life is marked with great changes in the structure and function of the brain. The changes in function affect the response inhibition, calibration of risk and reward, and emotional regulation. Based on Steinberg’s work, middle adolescence has heightened vulnerability to risk taking and problems in regulation of affect and behavior. Late adolescence is marked by maturation of frontal lobes facilitates regulatory competence.

Our point is that the students who start in entrepreneurship majors and minors are often 17, 18, or 19 year olds. The period that we typically see our students in the succeeding two or three years is located right in the middle of this transition. Since in entrepreneurship education we are not just

imparting knowledge but rather a way of looking at problems and a life style, the adolescent development process is vitally important.

Nurmi (2004) offers a developmental model that proceeds Channeling, then Selection, then Adjustment, and last Reflection. Channeling includes mastering a developmental task and managing role transitions. For purposes of entrepreneurship students, the developmental task might be starting a successful lemonade stand or putting together a T-shirt business for a certain school occasion. The mastery of the task leads to approval by parents and significant others as well as helping to establish an adult identity. Managing role transitions would be at least imagining progressing from a small business that just returned some spending money to a business which would provide a livable income.

Selection includes setting personal goals and then applying cognitive strategies for their realization. The role that EE plays in this process is to give EE students cognitive strategies that will enable them to see their way to a successful business. As long as adolescents have personal goals but have no cognitive strategy for achieving them, the goals are just dreams. EE can show students the paths to their goals. Moreover, EE can provide problem solving techniques to help the student to figure out how the path to a business might work.

Adjustment includes coping, goal reconstruction, and causal attributions. When goal attainment is blocked, a person must find new ways of dealing with it and reconstructing the goal. The young person may cope by seeking support in solving the problem or reflecting on possible solutions to the blockage. Causal attributions are critical. One of the ways that EE can help students is to help them frame previous entrepreneurial efforts as being a success or a failure. By encouraging students to see success as caused by their own attributes or to see failure as caused by a hostile environment, EE can help students to manage their own self attribution and thus their self-efficacy.

Reflection involves building a self-identity and self-concept around an entrepreneurial life. The extent to which students see themselves as entrepreneurs and this is woven into the fabric of how they think of themselves, they are likely to engage in entrepreneurial behavior after they have graduated from college. An important part of reflection is the narrative. Adolescents tell stories about themselves as a way to create their adult identity. This is an important way to create self-coherence, a positive self-concept, and high self-esteem. Helping entrepreneurship students to outline and then fill in this narrative is also a part of effective EE.

We argue that the classical approach to educating entrepreneurship students where we concentrate on subject matter knowledge is not very effective. The evidence for this is

that college grades are not good predictors of entrepreneurial success. In the education of entrepreneurs, we hold that the change process in the student is the cornerstone of reality – our entrepreneurship students are in the process of becoming something they previously were not. Studies have consistently shown that entrepreneurs usually fail at one or two businesses and/or are fired from one or two jobs before they hit on the business that they make successful. Entrepreneurship education needs to prepare students with the idea that failure is part of the game and that leaving the university with a bachelor's degree in Entrepreneurship is just the first of a series of occasions or steps in becoming an entrepreneur. They must learn to see entrepreneurship as a journey rather than a destination: a sequence of occasions as opposed to an outcome. This must happen while the students themselves are in personal flux in both cognition and emotion (Steinberg, 2005). This process is not deterministic. It cannot be modeled with simple recipes. The process is idiosyncratic. Students bring their own personal trajectories to becoming an entrepreneur both in and out of the classroom.

Neck, Greene, and Brush (2014) argue that entrepreneurship education is a method versus a process. Their assumptions include that it applies to novices and experts, the method is inclusive meaning that it applies to multiple level of analysis that the method requires continuous practice, and that the method is for an environment that is changing and unpredictable (Neck & Greene, 2011, p. 62). We agree with all these assumptions. In comparing method with practice, Neck and Greene (2011), see entrepreneurship education as a method in that it is a set of practices compared to a process that has known inputs and predicated outputs; method as learning phases versus steps to complete; iterative versus linear; creative versus predictive; a focus on action versus a focus on planning; learning as an investment versus learning for a return that is expected or predictable; and collaborative versus competitive (Neck et al., 2014). We differ on our definitions of process and method with the authors but not the overall philosophy of entrepreneurship education (EE) and the importance of continuous practice in unique environments, interests, and majors the students.

Our model is based on the idea of serendipity. Students will be at different maturational levels even at the same age. There are opportunities for entrepreneurship learning and growth that will occur in different environments. These opportunities will benefit one specific student and perhaps no other student in the program. Serendipity must be built into entrepreneurship learning opportunities on and off campus. This is especially true as we teach cross-disciplinary entrepreneurship, that is, entrepreneurship education (EE) across campus. This is paying attention more to the process than the method: experience comes first, then learning. The point is that entrepreneurship is learning by doing and that is what we mean by process. It is idiosyncratic, more than any other educational endeavor. We know that grades are not a good predictor of entrepreneurship success once students graduate because being a good student and being a successful entrepreneur are quite different skill sets. We agree with Neck et al. (2014) that entrepreneurship education is not linear, it is iterative. Where we differ is that we see the idea of process as a flexible approach to reach not necessarily the same educational ends. Open systems

theory includes the principle of equifinality. This was made popular by Ludwig Van Bertalanffy in the book *General Systems Theory*. Following Hans Driesch, Van Bertalanffy proposes that you can end up in the same place with different input states and different paths. Thinking along these lines, educating great entrepreneurs must be a looser, more idiosyncratic process.

Training seeks to produce identical or nearly identical behaviors and cognitions. Entrepreneurial education must take advantage of individual differences among our entrepreneurship students rather than pound pre-determined ideas of what entrepreneurship is into the students. For example, our entrepreneurship students come from very different majors and backgrounds, from music to science to kinesiology. So entrepreneurship education has to build on the strengths students gain from those backgrounds rather than mold each student into a common end product.

Entrepreneurship education (EE) has advanced as a means to educate the new twenty-first century workforce by giving students the skills to take any area of study or discipline and be creative, innovative, and entrepreneurial. Through entrepreneurship education, flexibility, adaptability, and resilience are taught and applied so that success can be achieved as workforce demands change over time (Welsh, 2014). We should expect to find that entrepreneurship students taking a wider variety of business courses than other students because they recognize that they would need a variety of disciplines to be successful. Also, they must learn that entrepreneurs are the agents of creative destruction: they destroy old paradigms and invent new ones. They pioneer new processes and products. Entrepreneurs are agents of social and economic change.

In a study of international graduate students, EE was found to influence personal growth, confidence and identity development, new career intentions and learning applications (Rae & Woodier-Harris, 2013). *Creative Cross-Disciplinary Entrepreneurship: A Practical Guide for a Campus-Wide Program*, published in December of 2014, explains how to take entrepreneurship in a new model across campus in all disciplines. As Laukkanen (2000) explains, there is not one model but alternative strategies for university-based EE. This implies that entrepreneurs should have very different knowledge bases. However, building the motivation that is necessary for success as an entrepreneur should be the common thread in all the models.

Research on entrepreneurship education (EE) has abounded since the early 1990s (see Block & Stumpf, 1992; Charney & Libecap, 2000; Fayolle, 2005; Honig, 2005; McMullan & Long, 1987; Shepherd, 2004, among others) and even has been tested with high school students (Rodrigues, Dinis, Do Paco, Ferreira, & Raposo, 2012; Sánchez, 2013; Wilson, Kickul, & Marlino, 2007). Formal entrepreneurship education has been shown to have an impact on student entrepreneurial propensity and intentions, although it has been debated by a number of scholars (Lautenschläger & Haase, 2011; Peña, Morghan, Riggieri, Shipp, & Atta, 2010; Pittaway & Cope, 2007; von Graevenitz, Harhoff, & Weber, 2010). Matlay (2008) found a mismatch between graduate needs for EE and actual outcomes in terms of entrepreneurial skills, knowledge, and attitudes. Assessment studies are sorely needed (Welsh & Tullar, 2014)

that link EE to increasing entrepreneurial propensity and then calibrating it to real world entrepreneurship trajectories.

This paper takes a process approach to the study of entrepreneurship education based on Social Cognitive Career Theory and how it plays out across the four years of the college careers of students taking entrepreneurship courses. It follows the process of building the correct cognitive set. Social Cognitive Theory holds that portions of an individual's knowledge acquisition can be directly related to observing others within the context of social interactions, experiences, and outside media influences. When people observe a model performing a behavior and see the consequences of that behavior, they remember the sequence of events and use this information to guide subsequent behaviors (Bandura, 1986).

Entrepreneurship education

Recent comprehensive studies

Recently, there have been two comprehensive research studies that have looked at the impact of university EE, one that includes a longitudinal study and the other a meta-analytic study. Bae, Qian, Miao, and Fiet (2014) published a meta-analysis of 73 studies with a total of 37,285 respondents that found mixed results. The study looked at entrepreneurship education, defined as, “education for entrepreneurial attitudes and skills” versus entrepreneurial intentions, defined as “desires to own or start a business” (Bae et al., 2014, p. 218).

The researchers found a significant (albeit small) correlation between entrepreneurship education and entrepreneurial intentions, which was greater than between business education and entrepreneurial intentions. Also, the researchers controlled for pre-education entrepreneurial intentions, and found no significant relationship between post-education entrepreneurial intentions and entrepreneurship education. Future research should carefully control for entrepreneurial intentions pre-determined before the course is taken that could effect the impact of entrepreneurial education. The study found that intentions are more stable than previous studies have indicated and that entrepreneurship education, indeed, has little effect on entrepreneurial intentions. Cultural contexts did make a difference but other factors did not. The authors suggest that better constructs to measure may include entrepreneurial knowledge and skills, real behavior (experiential learning) and performance rather than entrepreneurial intentions.

Pardo (2013) suggests that there are two dramatically different teaching goals that usually are not acknowledged and separated: how to launch a business and how to develop entrepreneurial skills. Implications include pre-selection of students, voluntary or required assignments in the curriculum, and the methods of teaching. Indeed, EE at HEIs needs to be re-evaluated to consider conceptual, contextual, design and delivery differences (Matlay, 2006). Additionally, Hussain, Scott, and Matlay (2010) argue that the “one size fits all” EE model leaves out ethnic minorities so that they do not consider self-employment or family firm employment (Hussain & Matlay, 2007). The lack of tailoring of EE programs at universities to ethnic minority needs and interests would be better

served by “co-ethnic role models” that would include mentoring relationships (Van Auken, Fry, & Stephens, 2006).

Vanevenhoven and Liguori (2013) published longitudinal results from the entrepreneurship education (EE) Project that encompasses 400 universities in 70 countries. To date, this is the largest project on students and entrepreneurship education thus far. Social Cognitive Career Theory (Lent, Brown, & Hackett, 1994; Lent, Brown, & Hackett, 2000) is used as a basis for the study. Entrepreneurial intentions were measured using a modification of the survey by Thompson (2009), general self-efficacy was measured using Schwarzer and Jerusalem's (1995) scale, entrepreneurial self-efficacy was measured using the scale by McGee, Peterson, Mueller, and Sequeira (2009), entrepreneurial outcome expectations were measured using the scale by Krueger (2000), prior entrepreneurship exposure was measured with a modification of the Carr and Sequeira (2007) scale, subjective norms were measured using Kolvereid and Isaksen's (2006) scale, and entrepreneurial identity aspiration was measured using Farmer, Yao, and Kung-McIntyre's (2011 scale). The researchers also included measure aimed at the ecosystem of entrepreneurship at each university in the study. Measures were shown to be valid and reliable across aggregately and across the seven regions the researchers identified in the study: North America, South America, Eastern Europe, Western Europe, Africa, Middle East, and Asia-Pacific.

Phase I of the project found that focal measures transcended global contexts. In the full data set, Entrepreneurial Intentions, Entrepreneurial Self-Efficacy, and Entrepreneurial Outcomes Expectations were found to have positive significant correlations. Total entrepreneurship exposure and contextual factors showed significant positive correlations to Entrepreneurial Intentions, Entrepreneurial Self-Efficacy, and Entrepreneurial Outcome Expectations. The only regional differences found was that the subjective norm was not significantly correlated with Entrepreneurial Self-Efficacy in South America, the Middle East, and Western Europe or with Entrepreneurial Outcome Expectations in the Middle East (Vanevenhoven & Liguori, 2013).

A surprising finding is that for undergraduate education, the more a university collaborates with other universities and organizations on all levels (local, state, federal), the lower the motivation to go into entrepreneurship by undergraduate students (Vanevenhoven & Liguori, 2013). This finding held for all regions. Also, the number of entrepreneurship extra-curricular activities was not related to any of the motivational constructs utilized in the study (Vanevenhoven & Liguori, 2013). But for North America, Africa, South America, and the Asia-Pacific region, the relationship was not only non-significant, but also had a negative correlation (Vanevenhoven & Liguori, 2013). At the same time, the number of entrepreneurship course offerings did show a significant positive correlation with all the core entrepreneurship motivational constructs utilized in the study for all regions (Vanevenhoven & Liguori, 2013).

This is the most diverse sample to date of students across the world with the variety of psychometric entrepreneurship measures used. The authors encourage other academicians to pursue seven avenues of research included in the study to help better understand student needs as entrepreneurs and to design curriculum that meets those needs. While limited in

scope, we attempt to answer one research question that needs further investigation with our own database and that looks at comparing entrepreneurship students across their four years at one university in the Southeastern United States.

Comparable studies at the university level

A number of studies on EE have compared entrepreneurship students to those that are not entrepreneurially inclined. While not intended to be a comprehensive review, we have focused on some more recent pertinent studies comparing entrepreneurship students to non-entrepreneurship students. In 2011, one study examined first-year university students studying entrepreneurship and those not studying entrepreneurship in terms of entrepreneurial intentions. It found that entrepreneurship students in Johannesburg had stronger entrepreneurial intentions than non-entrepreneurship students, and a positive relationship was found between entrepreneurship education and entrepreneurship intentions as well as between entrepreneurship intentions and entrepreneurship role models (Muofhe & Du Toit, 2011). Students from two Turkish universities in their four year of study which identified themselves as either entrepreneurial or non-entrepreneurial were compared on six traits: need for achievement, locus of control, risk taking, ambiguity tolerance, innovativeness, and self-confidence. Results showed that all entrepreneurship traits were higher in the entrepreneurship self-identified students than in those that were not self-identified as entrepreneurial (Gürol & Atsan, 2006). Entrepreneurial intent was investigated with 316 undergraduate college students in Portugal. The study found that the greatest impact on entrepreneurial intention was entrepreneurship education, while the relationship to family background and demographics was weak. While the researchers' model had personal attributes, family, demographics, field of training, education, obstacles, motivation, and propensity to launch, the structural analysis showed only the personal attributes explain the motivation to launch a business (Raposo, Ferreira, Finisterra do Paço, & Gouveia Rodrigues, 2008).

Exposure to entrepreneurship coursework and faculty should, according to the theory, produce increasingly higher levels of self-efficacy, outcome expectations, and career exploration. The process of entrepreneurial education should be evident as we look across the years. If the educational program is successful we should see increasing attitudes, motives, and intentions as we look across the four years of university education.

Method

Sample

Participants in this study were students enrolled in business and entrepreneurship courses at a medium sized southeastern university. The sample is fairly large compared to the whole population. There were 671 students who completed all the instruments. We recognize the limitation that this sample is based on one university. However, we hold that what we

are interested in is precisely how students grow and change as a result of their coursework. This would obviously vary from university to university and college to college. Some programs would produce consistent change over the four years of entrepreneurship education and some would not. Thus, program effectiveness would be confounded within the sample.

Measures

This study employed the innovation scale, self-efficacy scale, and common measures of entrepreneurial intention. Innovation differentiates entrepreneurs from managers. Attitude toward the innovation has been shown to be a significant predictor of entrepreneurship (Ettlie & O'Keefe, 1982). Peter F. Drucker says: "Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service" (Drucker, 2006, P. 7). Drucker suggests that innovative opportunity exists where there is "an internal incongruity within the rhythm or the logic of a process" or a process need. According to Drucker, there is a dissonance between reality and the perception of reality in an industry. This offers innovative opportunities that an entrepreneur recognized and exploits. Entrepreneurial Innovation was measured using 17-item measure developed by Ettlie and O'Keefe (1982). Responses are indicated on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. The items were summed to arrive at an Innovation score and for our data set Cronbach's alpha was .83.

Self-efficacy is an individual's belief that he/she possesses the capabilities needed to accomplish a given task at a certain level of performance (Bandura, 1986). Self-efficacy has been shown to have a strong positive relationship with the development of intention to engage in the task and as a result the individuals might be more inclined to pursue that task (Bandura, 1986). Entrepreneurship self-efficacy is the belief that one possesses the necessary skills to function successfully as entrepreneurs and as a result makes one more likely to engage in entrepreneurial activities including pursuing entrepreneurial education (Boyd & Vozikis, 1994; Chen, Greene, & Crick, 1998; Fayolle, 2005). In this research, entrepreneurial self-efficacy was measured by 33-item measure developed by De Noble, Jung, and Ehrlich (1999). Responses are indicated on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Cronbach's alpha for ESE was .935.

Entrepreneurial intention is a conscious state of mind that directs attention toward specific object of becoming an entrepreneur and seeks pathways to achieve it (Bird, 1989). Entrepreneurial intentions are the single best predictor of entrepreneurial behavior, both conceptually and empirically (Krueger, Reilly, & Carsrud, 2000). Several empirical studies have found that a person's intention toward becoming an entrepreneur offer the best predictor of her actually engaging in entrepreneurship in the future (Delmar & Davidsson, 2000; Krueger et al., 2000). We used four items to measure entrepreneurial intention using Krueger et al. (2000). We asked students how interested they were in engaging in prototypical entrepreneurial activities. A 5-point Likert scale was used, ranging from 1 (very little) to 5 (a great deal). Cronbach's alpha for intention was .840.

Analysis

Data were analyzed by means of one-way ANOVA. If this had been a longitudinal study, it could have been a within design. However, the data are cross sectional, so participants are not seen across four years of their entrepreneurship education. We argue that the between nature of the ANOVA actually has a higher bar to reach significance since if we did have longitudinal data, participants would act as their own controls thus removing some individual differences from the error term.

Results

Table 1 shows the means and standard deviations of the four measures across all four years of students' careers. As can be seen from the table, there is a clear growth in the variables we use to measure entrepreneurial attitudes, motivations, and intentions. There is a clear upward trend in all four measures with the exception of one anomaly in Intention 2 where there is a drop from Junior to Senior.

The ANOVA in Table 2 shows that all these measures show significant growth across time. It is clear that at least in this program, the process of entrepreneurial education is increasing entrepreneurial attitudes, motives, and intentions. We argue that given the fact that college grades do not correlate well with entrepreneurial success that measures such as those in this study are the kinds of measures that should be used to assess entrepreneurship programs. We also maintain that the stronger the trend across the four years, the better is the program.

It is clear from Tables 1 and 2 that the entrepreneurship program is having an effect on the students who participate in it. While we do not have measures of student success in starting their own businesses, we can claim to have increased the attitudes, motives, and intentions of students in this program.

Table 1 – Variable means and standard deviations.

	Mean	Standard deviation
<i>Innovation</i>		
Freshman	43.72	8.56
Sophomore	55.00	14.07
Junior	54.87	14.34
Senior	58.53	14.79
<i>Self-efficacy</i>		
Freshman	77.67	25.24
Sophomore	104.56	41.00
Junior	109.40	37.07
Senior	118.35	37.02
<i>Intention 1</i>		
Freshman	1.94	1.11
Sophomore	3.52	1.53
Junior	3.52	1.57
Senior	3.65	1.48
<i>Intention 2</i>		
Freshman	2.17	1.30
Sophomore	3.44	1.31
Junior	3.28	1.25
Senior	3.65	1.34

Table 2 – Variable ANOVA across years.

	Sum of squares	df	Mean square	F
<i>Innovation</i>	3039.36		1013.11	
Between	29,980.62	3	194.68	5.20**
Within	33,019.98			
Total				
<i>Self-efficacy</i>	23,393.16		7797.72	
Between	206,829.00	3	1343.05	5.81***
Within	230,222.15			
Total				
<i>Intention 1</i>	41.87		13.96	
Between	339.15	3	2.20	6.34***
Within	381.02			
Total				
<i>Intention 2</i>	30.97		99.44	
Between	259.57	3	1.69	6.12***
Within	847.75			
Total				

** Significant at $p < 0.01$.
 *** Significant at $p < 0.001$.

Table 3 – Entrepreneurship majors compared to all other business majors.

	n	Mean	Std. deviation	t
Other business students	503	2.68	2.132	11.13***
Entrepreneurship students	168	4.84	2.315	

*** Significant at $p < 0.001$ level.

Table 3 shows something quite different. We argued that entrepreneurship students should take more courses than other college of business students. These data show that, at least in this case, entrepreneurship students take significantly more business courses than other business school students. It is in their interest to gain as wide a variety of skills as possible in order to start a business. Whereas other majors and concentrations in a college of business can focus on a narrow set of courses, students intending to start their own business know they must have a broad background.

Discussion

We have argued that entrepreneurship education must take a process focused approach to evaluating programs. Beyond cognitive declarative knowledge gained or educational objectives reached, there is the process of education. Entrepreneurship is a process of becoming. The outcome we should be interested in is career trajectory, not a one-slice-of-time outcome. We know that entrepreneurs tend to be fired at several jobs and/or fail in several entrepreneurial endeavors before they manage to create stable, successful enterprises. We must create persistence in our students so that they can continue on through occasions of failure and disappointment. One of the most successful entrepreneurs was Thomas Edison. Edison had a total of three months of formal education where he was an abysmal student. He was home schooled by his mother for the rest of his education. He was fired from

several jobs and failed over and over again at his experiments before he came up with successes, such as the light bulb and the phonograph. Before his death in 1931, Edison had been granted 1093 patents. It was his persistence and willingness to fail over and over on the road to success that made him an icon in entrepreneurship.

Conclusion

Entrepreneurship education, more than any other college of business concentration, major, or minor, either within business schools or across campus, must create the right attitudes, motives, intentions, and grit to meet failure with a determination to start over again and win. Whereas other curricula can focus on depth of knowledge in a particular subject area, entrepreneurship students must gain wide but not so deep knowledge of all the functional areas of business. We have shown that this particular university has a process that is increasing attitudes, motives, and intentions year by year. We argue that this is the proper way that entrepreneurship programs should be evaluated. Without the evaluation and assessment that our programs are effective, little progress will be made with the neither acceptance of entrepreneurship as a neither legitimate discipline nor acceptance in Higher Education Institutions of entrepreneurship as an integral part of the curriculum. In the end, this will have a major impact on our graduates' success.

REFERENCES

- Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). *The relationship between entrepreneurship education and entrepreneurial intentions: A meta-analytic review*. *Entrepreneurship Theory and Practice*, 38, 217–254.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Upper Saddle River, NJ: Prentice-Hall.
- Bird, B. J. (1989). *Entrepreneurial behavior*. Glenview, Ill: Scott Foresman.
- Block, Z., & Stumpf, S. A. (1992). *Entrepreneurship education research: Experience and challenge*. In D. L. Sexton, & J. D. Kasarda (Eds.), *The state of the art of entrepreneurship* (pp. 17–45). Boston, MA: PWS-Kent Publishing.
- Boyd, N. G., & Vozikis, G. S. (1994). *The influences of self-efficacy on the development of entrepreneurial intentions and actions*. *Entrepreneurial Theory and Practice*, 18, 63–77.
- Carr, J. C., & Sequeira, J. M. (2007). *Prior family business exposure as intergenerational influence and entrepreneurial intent: A theory of planned behavior approach*. *Journal of Business Research*, 60, 1090–1098.
- Charney, A., & Libecap, G. D. (2000). *Impact of entrepreneurship education*. *Insights: A Kauffman research series*. Kansas City, MO: Kauffman Foundation.
- Chen, C. C., Greene, P. G., & Crick, A. (1998). *Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?* *Journal of Business Venturing*, 13, 295–316.
- De Noble, A., Jung, D., & Ehrlich, S. (1999). *Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial action*. <http://fusionmx.babson.edu/entrep/fer/papers99/1/LC/IC%20Text.htm> Accessed July 2015
- Delmar, F., & Davidsson, P. (2000). *Where do they come from? Prevalence and characteristics of nascent entrepreneurs*. *Entrepreneurship and Regional Development*, 12, 1–23.
- Drucker, P. (2006). *Innovation and entrepreneurship*. New York, NY: Harper Business.
- Ettlie, J., & O'Keefe, R. (1982). *Innovative attitudes, values, and intentions in organizations*. *Journal of Management Studies*, 19, 163–182.
- Farmer, S. M., Yao, X., & Kung-Mcintyre, K. (2011). *The behavioral impact of entrepreneur identity aspiration and prior entrepreneurial experience*. *Entrepreneurship Theory and Practice*, 35, 245–273.
- Fayolle, A. (2005). *Evaluation of entrepreneurship education: Behavior performing or intention increasing*. *International Journal of Entrepreneurship and Small Business*, 2, 89–98.
- Gürol, Y., & Atsan, N. (2006). *Entrepreneurial characteristics amongst university students*. *Education + Training*, 48, 25–38.
- Honig, B. (2005). *Entrepreneurship education: Toward a model of contingency-based business planning*. *Academy of Management Learning and Education*, 3, 258–273.
- Hussain, J. G., & Matlay, H. (2007). *Vocational education and training in small ethnic minority businesses in the UK*. *Education + Training*, 49, 704–718.
- Hussain, J. G., Scott, J. M., & Matlay, H. (2010). *The impact of entrepreneurship education on succession in ethnic minority family firms*. *Education + Training*, 52, 643–659.
- Kolvereid, L., & Isaksen, E. (2006). *New business start-up and subsequent entry into self-employment*. *Journal of Business Venturing*, 21, 866–885.
- Krueger, N. (2000). *The cognitive infrastructure of opportunity emergence*. *Entrepreneurship Theory and Practice*, 24, 5–23.
- Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). *Competing models of entrepreneurial intentions*. *Journal of Business Venturing*, 15, 411–432.
- Laukkanen, M. (2000). *Exploring alternative approaches in high-level entrepreneurship education: Creating micromechanisms for endogenous regional growth*. *Entrepreneurship and Regional Development: An International Journal*, 12, 25–47.
- Lautenschläger, A., & Haase, H. (2011). *The myth of entrepreneurship education: Seven arguments against teaching business*. *Journal of Entrepreneurship Education*, 14, 147–162.
- Lent, R., Brown, S. D., & Hackett, G. (1994). *Toward a unifying social cognitive theory of career and academic interest, choice, and performance*. *Journal of Vocational Behavior*, 45, 79–122.
- Lent, R., Brown, S. D., & Hackett, G. (2000). *Contextual supports and barriers to career choice: A social cognitive analysis*. *Journal of Counseling Psychology*, 47, 36–49.
- Matlay, H. (2006). *Researching entrepreneurship and education*. *Education + Training*, 48, 704–718.
- Matlay, H. (2008). *The impact of entrepreneurship education on entrepreneurial outcomes*. *Journal of Small Business and Enterprise Development*, 15, 382–396.
- McGee, J. E., Peterson, M., Mueller, S. L., & Sequeira, J. M. (2009). *Entrepreneurial self-efficacy: Refining the measure*. *Entrepreneurship Theory and Practice*, 33, 965–988.
- McMullan, W. E., & Long, W. A. (1987). *Entrepreneurship education in the nineties*. *Journal of Business Venturing*, 2, 261–275.
- Muofhe, N. J., & Du Toit, W. F. (2011). *Entrepreneurial education's and entrepreneurial role models' influence on career choice*. *Journal of Human Resource Management*, 9, 1–15.
- Neck, H. M., & Greene, P. G. (2011). *Entrepreneurship education: Known worlds and new frontiers*. *Journal of Small Business Management*, 49, 55–70.
- Neck, H. M., Greene, P. G., & Brush, C. G. (2014). *Teaching entrepreneurship: A practice-based approach*. Northampton, MA: Edward Elgar Publishing, Inc.
- Nurmi, J. E. (2004). *Socialization and self-development*. *Handbook of Adolescent Psychology*, 2, 85–124.

- Pardo, C. A. (2013). Is business creation the mean or the end of entrepreneurship education? A multiple case study exploring teaching goals in entrepreneurship education. *Journal of Technology Management and Innovation*, 8, 1–10.
- Peña, V., Morghan, T., Riggieri, A., Shipp, S., & Atta, R. V. (2010). A survey of entrepreneurship education initiatives. Washington, DC: Institute for Defense Analyses. Retrieved from https://www.ida.org/upload/stpi/pdfs/d-4091_nsfinal0729_10.pdf
- Pittaway, L., & Cope, J. (2007). Entrepreneurship education: A systematic review of the evidence. *International Small Business Journal*, 25, 479–510.
- Rae, D., & Woodier-Harris, N. R. (2013). How does enterprise and entrepreneurship education influence postgraduate students' career intentions in the new era economy? *Education + Training*, 55, 926–948.
- Raposo, M. L. B., Ferreira, J. J. M., Finisterra do Paço, A. M., & Gouveia Rodrigues, R. J. A. (2008). Propensity to firm creation: Empirical research using structural equations. *International Entrepreneurship Management Journal*, 4, 485–504.
- Rodrigues, R. G., Dinis, A., Do Paco, A., Ferreira, J., & Raposo, M. (2012). The effect of an entrepreneurial training programme on entrepreneurial traits and intention of secondary students. In T. Burger-Helmchen (Ed.), *Entrepreneurship-born, made and educated* (pp. 77–92). Rijeka, Croatia: InTech.
- Sánchez, J. C. (2013). The impact of an entrepreneurship education program on entrepreneurial competencies and intention. *Journal of Small Business Management*, 51, 447–465.
- Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio* (pp. 35–37). Windsor, UK: NFER-Nelson.
- Shepherd, D. (2004). Educating entrepreneurship students about emotion and learning from failure. *Academy of Management Learning and Education*, 3, 274–287.
- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences*, 9, 69–74.
- Thompson, E. R. (2009). Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric. *Entrepreneurship Theory and Practice*, 33, 669–694.
- Van Auken, H., Fry, F. L., & Stephens, P. (2006). The influence of role models on entrepreneurial intentions. *Journal of Developmental Entrepreneurship*, 11, 157–167.
- Van Bertalanffy, L. (1968). *General system theory: Foundations, development applications*. New York, NY: George Braziller.
- Vanevenhoven, J., & Liguori, E. (2013). The impact of entrepreneurship education: Introducing the entrepreneurship education project. *Journal of Small Business Management*, 51, 315–328.
- von Graevenitz, G., Harhoff, D., & Weber, R. (2010). The effects of entrepreneurship education. *Journal of Business Venturing*, 25, 90–112.
- Welsh, D. H. B. (2014). *Cross-disciplinary entrepreneurship: A practical guide for a campus-wide program*. New York, NY: Palgrave MacMillan.
- Welsh, D. H. B., & Dragusin, M. (2013). The new generation of Massive Open Online Courses (MOOCs) and entrepreneurship education. *Small Business Institute Journal*, 9, 51–65.
- Welsh, D. H. B., & Dragusin, M. (2011). Entrepreneurship education in higher education institutions as a requirement in building excellence in business: The case of The University of North Carolina at Greensboro. *Forum Ware International Journal*, 1, 1810–7028 (special issue on International Society of Commodity Science and Technology).
- Welsh, D. H. B., & Tullar, W. (2014). A model of cross campus entrepreneurship and assessment. *Entrepreneurship Research Journal*, 4, 95–115.
- Wilson, F., Kickul, J., & Marlino, D. (2007). Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education. *Entrepreneurship Theory and Practice*, 31, 387–406.