EDUCATION AND STARTUP SUCCESS


by


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Abstract

EDUCATION AND STARTUP SUCCESS

Master of Digital Media, 2015

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This study is concerned with the relationship between entrepreneurship education and startup success. Its goal is to determine whether or not, education and the level of it, can increase the likelihood of the creation of a successful company. This study will be performed using a quantitative approach. The population of this study will consist of startup company founders and co-founders in the tech industry. The information about the founders will be gathered by collecting data on startups. This study will fulfill the gap of correlating if education, and which level of education, has the biggest impact on startup success.

Acknowledgements

I would like to express my very great appreciation to Dr. Sean Wise for all of his time this past year and exceptional guidance through the entire duration of my research paper. His commitment and guidance has been greatly valued and admired and without him it might have not been possible.

I would also like to extend many thanks to my parents, Inna Chram and Robert Kiss, my second reader, Dr. Joseph Paniculangara and lastly to my support system, Theo Ratelle.

Dedication

I dedicate my Masters Thesis work to my grandmother, Raisa Bila, the one who never lost faith in

me.

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Introduction

The research problem that is being addressed is whether or not education and the level of it plays an effect on how successful a startup company is. There have been many studies that explore each topic individually but none have made a correlation between the amount of degrees and the success of the founders' company. This literature and quantitative study will then fulfil the gap of correlating whether or not the higher education you have, will provide a founder with a more successful startup and what levels of education has the biggest impact on startup success. The sample will be not older than 7 years old, and will focus on the rising technology industry.

A study on the relationship between the amount of education and startup success is important for several reasons. First, it will show if education has any correlation with having an education and this would be very useful to an inspiring entrepreneur. Second, it may show the entrepreneur if the amount of schooling that they have is enough or maybe they would like to do more in order to achieve their goals. Third, a lot of research has been done on startups but not those in the tech industry, which may have different results and different insights, as this field is rapidly growing and expanding.

The purpose of this experiment study is to test the theory of education having a positive correlation with startup success that relates the amount of education, an independent variable to how successful a startup can be, the dependent variable. The examination of background information in the form of a literary review was important to this study because it showcases the strong current belief of more education equaling a better success rate in a startup but has not yet been done with tech startups. This study is controlling for 7 years of data ( 2008-2015) for

participants that have been funded and have their statistical database listed on

www.techstars.com. There is a total of 44 companies and includes 90 founders with 143 degrees

combined to answer the question: Does having education and numerous degrees lead to more

successful startup companies?

*Literary Review*

**Purpose**: The purpose of this paper is to connect education and the impact it can have on startup success.

**Approach**: Literature review

**Findings**: Entrepreneurial education does have a direct correlation with startup success.

**Practical Implications**: These findings will be useful for full and part times students, entrepreneurial minded individuals, professors teaching subjects that relate to entrepreneurship and the like.

**Keywords**: Entrepreneurship, Education, Entrepreneurs, Startup

Entrepreneurship is widely known as a key factor in the growth of economic development and what keeps the economy going in times of economic crisis. In the modern economy, where education plays a major role, teaching entrepreneurship has become favourable in the creation of new startups and SME's, as it gives a strong knowledgeable foundation of how to start and run a business successfully. [1] This review plays an important role in answering the research question: *Does Having an Education Make You a Better Startup Founder,* as it gives an in depth analysis of entrepreneurial education and how it acts as an aid in the growth of successful startups. Higher education costs keep rising, and it is important for students to know if what they are studying and how far they take their education, can benefit them in their entrepreneurial career. This research is

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[1] Conner, P.C. 1985. The facilitation and stimulation of entrepreneurship of young persons in Ireland through the youth enterprise program. In J.A. Homaday, E.B. Shils, J.A. Timmons, and K.H. Vesper, eds., Frontiers of Entrepreneurship Research. Wellesley, MA: Babson College, pp. 588-608.

done to answer those questions and draw a correlation between the amount of education a founder has and the success of a startup.

This literature review acts as the opening chapters to familiarize the reader with the topic of education and successful entrepreneurship. It explores different schools of thought on whether or not education actually plays an important role on startup success. It defines different psychological motives that drives entrepreneurs to succeed and covers varied literature on the topic. Entrepreneurship education is also covered, as it is an academic program that has only been around for a few decades and is a growing movement amongst academia.

Defined Terms

*SME (Small and medium-sized enterprises)* - Is defined as a small business with 1 - 100 paid employees and a medium-sized business with at least 100 and less than 500 employees.[2]

*Entrepreneurial Intent* -  is the determination and a targeted goal of becoming an entrepreneur and starting your own business. Ajzens theory of planned behaviour illustrates that there are three things that lead to an intent, and that intent is what in all cases leads to an action, or behaviour. [3]

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[2]"Key Small Business Statistics - August 2013." *Government of Canada, Industry Canada, Office of the Deputy Minister, Small Business, TourismÂ and Marketplace Services, Small Business Branch*. N.p., n.d. Web. 2 Aug. 2015.

[3] Ajzen, I. (1991) The theory of planned behaviour, Organizational Behaviour and Human Decision Processes, 50, pp. 179–211.
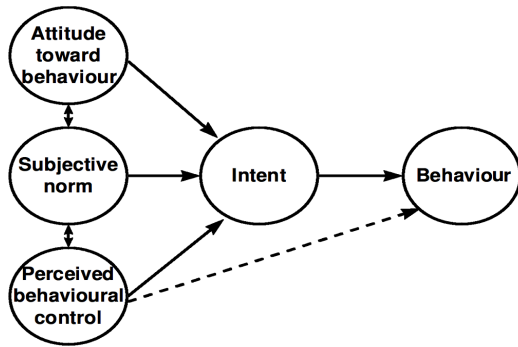
Figure 1. Ajzen's theory of planned behaviour (Ajzen, 1991)

*Startup ( Company)*  - A business that is built in the form of a company or partnership that with a scalable and repeatable business model. [4]

*Entrepreneurship Education* - Attempts to teach students through courses and hands on work the knowledge and skill set that will help students in launching a startup. [5]

*Knowledge Economy* -  is the use of knowledge to cause and create material and tangible and impalpable things.[6]


The Uneducated Entrepreneur


The myth of an uneducated and successful entrepreneur dates back to the civil war with a tale of Horatio Alger, who goes from "rags to riches" in a classic novel. These kinds of success stories is what fuels the media and it is still present today, with success stories of dropout founders such as Mark Zuckerberg and Steve Jobs always making the headlines. As much as the media pushes these stories, the men mentioned above are outliers and not the norm. This is often a

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[4] Blank, Steve (March 5, 2012). "Search versus Execute". Retrieved April 28, 2015.

[5] http://europa.eu/legislation_summaries/education_training_youth/general_framework/n26111_en.htm

[6] Amidon, Debra M.; Formica, Piero; Mercier-Laurent, Eunika, eds. (2005). *Knowledge Economics: Principles, Practices and Policies*. Tartu University Press. ISBN 9949-11-066-1

very important aspect that many aspiring entrepreneurs look up to and is a very misleading fact when comparing it to the modern day. [7]

Uneducated entrepreneurs might have been more common years ago, but in recent times, this is no longer the case (Douglass). Many years ago, it might have been a lot easier to start and operate a business, which would explain for all the uneducated entrepreneurs you hear about. Mayer and Goldstein's research along with Collins and Moore was cited by Robinson and revealed that "the formal educational level of entrepreneurs has been rising over the past fifteen years". (Douglass) This is due to the complexity of the modern "knowledge economy" and these numbers of educated entrepreneurs is not about to decrease. There are many rules, regulations, tricks of the trade and guidelines that are often taught and very useful to a young entrepreneur. This kind of useful information is often better learned before the beginning of a venture instead of having to find out about it down the road. Young uneducated entrepreneurs with a small budget can find themselves in a situation that is less favourable if only they knew the precautions beforehand. These little mistakes can prove to be costly and often can destroy the business. Licensing, registration, insurance etc can be overwhelming if not done and filled out correctly from the beginning. [8]

*Intent*

There are though, factors that connect the educated and uneducated entrepreneur and that is the entrepreneurial intent. An individual's entrepreneurial intent is an important variable that can predict their entrepreneurial behaviours and can be measured by an individual's expectation,

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[7] The role of incubator organizations in the founding of growth-oriented firms. Original Research Article. *Journal of Business Venturing, Volume 1, Issue 1, Winter 1985, Pages 75-86*

[8] Incubators and performance: A comparison of high- and low-growth high-tech firms  Original Research Article. *Journal of Business Venturing, Volume 4, Issue 6, November 1989, Pages 429-442*

preference, plan, behavioral action.( Z. X. Peng et al.) The outcomes from an empirical study done by Liñán et al. have confirmed that the recognized feasibility and recognized desirability are the main factors explaining entrepreneurial intention, as it has been reported many times before (Kolvereid 1996; Krueger et al. 2000; Liñán and Chen 2009; Liñán et al. 2010; Tkachev and Kolvereid 1999). Therefore it can be concluded that the contributing factors of successful entrepreneurs is always the intent. This is often the factor that is overlooked and almost always can explain why one company has been ran by a successful founder and the other has not.

The following quote about intent or the lack of, finds to be very controversial:  *"A study was created that showed entrepreneurs who did not have entrepreneurship education considered the entrepreneurial intentions to be innate, this was contrary to those who had entrepreneurship education, as they believed they were in charge of their own destiny and therefore had complete control over it."* This lead to the success of the startup. (Nilsson, T. 2012). [9] This essentially means that those who had entrepreneurial education saw the possibilities, had a drive and had the intent to run a successful company. It then means that by having entrepreneurial education, one gains the confidence and the assurance that they can to succeed and that they are the ones who are in charge of their future. If education did one thing and one thing only, the most important thing it could do is give its students confidence, assurance and drive. This belief that they are in charge of their own destiny is enough to separate the uneducated and educated entrepreneur. [10] An individual's attitude is the most important element when setting out on any venture. The willingness and drive is what often separates those who succeed and those who do not. Teaching

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[9] (Entrepreneurship education - does it matter? *International Journal of Business and Management, 7*(13), 40-48. Retrieved from http://ezproxy.lib.ryerson.ca/login?url=http://search.proquest.com/docview/1027215667?accountid=13631 )

[10] Matlay, H. (2008). The impact of entrepreneurship education on entrepreneurial outcomes. *Journal of Small Business and Enterprise Development, 15*(2), 382-396.

students that they are in control and giving them the right outlook, will then be beneficial in their entrepreneurial journey.

Preparing for Entrepreneurship

As mentioned above, intent plays a large role on how one's path in life and success is achieved. There is no doubt about the fact if a student or entrepreneur is already prepared when going into an educational institution that they want to become a successful entrepreneur when they are done, that this will be helpful. In the study done by Matlay, they state some interesting facts that coincide with multiple other research papers:

*"From the outset, all respondents in the sample were very interested in embarking, as soon as possible after graduation, on an entrepreneurial career that was deliberately chosen as an alternative to salaried employment in either small or large organisations. Not surprisingly, therefore, all respondents claimed to hold very positive attitudes towards entrepreneurship as an alternative career path. For 59 of the 64 undergraduates interviewed, preparation for an entrepreneurial career has begun before commencing their studies at university level. In their choice of careers, these respondents were influenced by a number of family and outside influences. Close family members as well as distant relatives had a particularly strong influence on the future careers choices of these budding entrepreneurs. Interestingly, these influences were both positive and negative in their outcome. Entrepreneurial family members and relatives influenced positively, and mostly by example, the career choices of these respondents. Their work ethic, commitment and rewards as well as perceived life styles appealed to these youths and pulled them towards an entrepreneurial career. Negative signals received from employed as well*

*as unemployed family members and relatives, and in particular their advice about what they should avoid pushed these future entrepreneurs towards an alternative career and a perceived secure and exciting lifestyle."* (Matlay)

Not only have they had very positive feedback about becoming entrepreneurs, but they also had some negative feedback from family members who were employed and unemployed. Most of their influencers have pushed positive outlooks on what it is to become an entrepreneur and that it is a great career alternative.

The Educated Entrepreneur

It is stated by Thomson that "The Canadian entrepreneur had an average of 13 years of formal education with approximately 20% of the sample having 10 or fewer years of education and over 33% reporting over 15 years of education. It was also reported in the U.S. that when they did a sample study of entrepreneurs they found that entrepreneurs had much higher levels of education than the average citizen who was not an entrepreneur." (Cooper and Dunkelberg). It is safe to conclude that on average the modern entrepreneur spends a significantly longer time educating themselves and thus is more successful in their entrepreneurial ventures.

Many entrepreneurs finish the traditional route of completing a degree and then either going on to further studies in higher education such as a masters degree, or additional courses in entrepreneurship. As mentioned previously once the entrepreneur has the intent of starting a

company, they pursue a path that will lead them to their startup. [11] Norasmah states, "Taking a more general view, the entrepreneurial attitude is appropriate to all individuals who want to succeed in life; and, indeed, it is often present in individuals, and should be explored in more detail."(Norasmah) [12] This attitude and intent is what many studies keep referring back to when correlating startup success. Teaching students confidence, tolerance to failure and the resilience to it, is crucial when educating an aspiring entrepreneur. In the entrepreneurial career there are many ups and downs, and entrepreneurs need to know that. They need to be educated that it is okay to fail, as long as they get back up and keep going.

Incubators and Accelerators

Over the last decade, a rise of incubators and accelerators has made it a lot easier for entrepreneurs to educate themselves specifically on the topic of entrepreneurship and how to start a company. These facilities or programs, have given entrepreneurs the knowledge, support and often skillset to grow their business. Accelerators can be defined as programs that have a timeframe in which the cofounder(s) work with a group of mentors to further them along in their venture. An incubator can be defined as a program for those in preliminary stages of company development and have no timeframe. Incubators often encourage coworking and set up entrepreneurs in a coworking space where members learn from one another. There have been very successful Accelerators such as Y Combinator DMZ, and Techstars and Incubators such as Idealab that have helped launch and grow very successful businesses.[13]

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[11] Garavan, T. N., & O'Cinneide, B. (1994). Entrepreneurship education and training programmes: A review and evaluation-Part 1. *Journal of European industrial training*, *18*(8), 3-12.
[12] Norasmah Othman Norashidah Hashim Hariyaty Ab Wahid, (2012),"Readiness towards entrepreneurship education", Education + Training, Vol. 54 Iss 8/9 pp. 697 - 708
[13]"Accelerators vs. Incubators: What Startups Need to Know." *TechRepublic*. N.p., n.d. Web. 2 Aug. 2015.

This economically forward way of thinking has benefitted Ryerson and its students in many ways. "In 2010, the university in downtown Toronto opened a 12,000 square-feet of co-working space for students, alumni and young entrepreneurs. This year, that incubator, dubbed the Digital Media Zone, will expand to 35,000 to 40,000 square-feet. Levy says during that time, 75 start-ups have worked out of the offices. Sixty-seven of those have become registered companies, creating more than 650 jobs."[14]  (Macleans Magazine) These are incredible numbers of startups and jobs created and proves that with a bit of help from universities, many successful companies can be launched, and many careers can be created.

Entrepreneurship as a Degree

Traditionally, universities taught students the skills needed to become an employee and introducing a discipline where a student is taught skills that will allow them to be self-employed is completely new. A four year degree in Entrepreneurship is a fairly new discipline and has been making headlines more and more in the last decade. Books have been written on the topic of Entrepreneurship many times and single courses have been available prior, but not as in depth as a four year degree. Ryerson University in Canada offers a degree in Entrepreneurship and Strategy at one of the largest entrepreneurship departments in Canada. This program is taught by experienced entrepreneurs and venture capitalists that have started over a dozen companies and helped hundreds of entrepreneurs raise over $2 Billion in financing. [15]

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[14] "Universities Encourage Entrepreneurship - Macleans.ca." *Macleansca*. N.p., 17 Mar. 2013. Web. 30 Apr. 2015.
<http://www.macleans.ca/work/jobs/universities-encourage-entrepreneurship/>
[15] Van Gelderen, M., Thurik, R., & Bosma, N. (2005). Success and risk factors in the pre-startup phase. *Small Business Economics*, *24*(4), 365-380

A degree in entrepreneurship is a program that is for students who already have the intent of becoming an entrepreneur and may already have their own idea of a business venture that they would like to pursue. For students who are not sure, who come from a different program or want to continue further studies in this discipline, are now able to take single courses in postsecondary education, part time studies or Master's level courses. This is a favourable route for those who are lacking knowledge about how they should go about when creating a business. This can include how to write a business plan, how and when the company can operate, what the next steps should be taken to start a company. (Liñán 2007) These kinds of introductory courses often cannot cover every aspect but prove to be extremely helpful in the initial stages of a company's development. One of the most important factors that need to incorporated is the methodology behind entrepreneurship instead of focusing on just one aspect of it such as the business plan as as one study by Carrier shows that courses consisting of only the business plan may have a negative effect on desirability of entrepreneurship therefore not producing any intent. (Carrier)

What is entrepreneurial education?

Entrepreneurship being one of the most important factors in the growth and development of our economy, plays a huge role in our society. Jobs and wealth are created by entrepreneurs who start out small. Many of these entrepreneurs who begin to grow their business, eventually grow and create companies that go on to employ a number of employees, therefore creating more jobs. These entrepreneurs always have one thing in common, an internal locus of control which is defined as belief of an individual that they can control events that are happening in their life. In other words they know and are aware of the fact that they have complete and utter control of

events that happen to them. Those who study entrepreneurship are exposed to this idea early on

and often express that they are often happier in what they do.[16]

Entrepreneurship allows for creative freedom, increased confidence and complete control

over ones life. This is why entrepreneurial education is the most important. Once the intent is

there, educating an entrepreneur can open up a world of opportunities and why in the last 20 years

Entrepreneurship education has been incorporated in almost all business school education, part

time study courses, programs that focus on youth and entrepreneurship and full academic degrees

now devoted to the subject.[17]

As stated by the National Content Standards for Entrepreneurship Education, benefits to

educating post secondary students in entrepreneurship include, but are not limited to the

following:

- Learning about the skills needed in a business startup

- How to maintain business longevity

- Gain knowledge of business closings vs. failure

- Gain the ability to find next level of training or access other resources

- Gain business management and operational skills

- Learning about a business plan and the lean canvas

- Changed attitude toward entrepreneurship as a means of making a living

- Changes in personal and career attitudes including

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[16]"Benefits of Entrepreneurship Education." *Benefits of Entrepreneurship Education*. N.p., n.d. Web. 01 Apr. 2015. <http://www.entre-ed.org/Standards_Toolkit/benefits.htm>.
[17] Phan, P. H., Wong, P. K., & Wang, C. K. (2002). Antecedents to entrepreneurship among university students in Singapore: beliefs, attitudes and background. *Journal of Enterprising Culture*, *10*(02), 151-174.

- Confidence and self-worth

- Ability to control one's own life

- Self awareness

- Self management/ personality responsibility

- Transfer of learning

- Motivation

- Teamwork

- Interpersonal communications

- Problem solving

- Creativity[18]

When teaching entrepreneurship, it is extremely important to use real life examples and scenarios when explaining complex and often new concepts. When relating them to businesses that students are aware of or created scenarios that explain a certain concept, relating it to real world examples is the key. Subjects that are often explored in entrepreneurship include:

- Ideas and the Ideation Stage

- How to Bootstrap a Business

- Building a Team

- Registering and Incorporating

- How to work on a low budget

- Business Analysis

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[18] "Benefits of Entrepreneurship Education." *Benefits of Entrepreneurship Education*. N.p., n.d. Web. 2 Apr. 2015. <http://www.entre-ed.org/Standards_Toolkit/benefits.htm>.

- Competitive Strategy

- Marketing

- Sales

- Strategic Selling

- Management

- How To Get Funding[19]

**More education equals more money**

Even in the startup world and self-employed sectors, many studies show that the more schooling one has (this is defined by how many years), the more money an individual is paid in the end. The more schooling one does should then likely increase their probability of earning more money in the end. This is very likely and has been studied and proven when it comes to undergraduate degrees. There is a gap of literature that is missing when it comes to the same comparison but with Master's degrees and PhD degrees. It does look like pairing education with some extensive experience in the work field is often what makes a very strong skill set and an asset in the workforce. If the education that one is pursuing in turn makes them an expert in a particular field, higher earnings are bound to occur. [20]

In this study, true success is measured by the company being acquired and therefore the ideal status. Many variables are at play when it comes to being able to achieve this. Besides great people skills, knowing the right players, being at the right place and having a company that is

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[19] "TalkShoe™." *TalkShoe™*. N.p., n.d. Web. 03 Apr. 2015. <http://www.talkshoe.com/se/professorjuliano/materials.html>.

[20] Robinson, P. B., & Sexton, E. A. (1994). The effect of education and experience on self-employment success. *Journal of business Venturing*, *9*(2), 141-156.

offering something extremely valuable and attractive, one must position themselves in way that is attractive to prospective buyers. This can be either a skill that is taught in school or something that an individual or a company founders acquires on their own and is an asset to have when trying to make more money.

Tech Education

In the last two decades, technology has exploded with what it can provide for the average person. In the first days of google, eBay and so forth, it would cost hundreds of thousands of dollars to even begin creating a minimum viable product. That doesn't even include a fully functioning prototype. Many seed investors, personal financing etc, and years upon years of hard work would often times end in no monetary return. Fast track to 2015, and things are a bit different. Online tools to create websites for free, code that is available for anyone to take, workflow maps, software that can be used to create interactive and responsive websites, torrents and even arduinos. Creating a business online has never been easier before. Thousands of hours of tutorials online, websites with forums that can answer almost any question one seeks. The World Wide Web has really exploded with what it offers and all you need is a wifi connection. [21]

Besides what is readily available to you on the webpages of a google search, companies and startups have focused in on this specific niche in itself, technology education; also know for short as EdTech. Bringing education for a fraction of a cost, often even free to its user. Companies such as Newton, TutorGroup and 2U are just 3 out of hundreds that offer services

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[21] Robinson, P. B., & Sexton, E. A. (1994). The effect of education and experience on self-employment success. *Journal of business Venturing*, *9*(2), 141-156.

such as online tutoring, mentoring, courses and collaborations with universities to get a degree, diploma or certificate. Another great example of free education, is Coursera, an online platform which allows you to take courses for free or for a little amount to get a certification. Its never been easier to learn absolutely anything, and through the studies that have been done it is therefore limited to only one type of education, may it be secondary or postsecondary. [22]

Summary

Having an education on the subject of startup development and entrepreneurship sets up the entrepreneur in a position to succeed. A study was done by Matlay on the impact of entrepreneurship education on entrepreneurial outcomes and this study concluded that:

*"Entrepreneurship education had a positive impact upon entrepreneurial outcomes related to the career aspirations of the 64 graduates in the research sample. For instance, over the ten years period under scrutiny, none of the graduates became unemployed or acquired employee status. Furthermore, for a large proportion of the sample, there was a relatively speedy progression from self-employed status to micro and small business ownership. Only eight respondents were still self-employed after ten years from graduation. Similarly, at the end of the ten year period, nine graduates were involved in partnerships, having settled into powerful positions at the level of managing or senior partner." (Matlay)*

This study is one of many that follows entrepreneurial academics post graduation and shows a remarkable success rate of its graduates. This is therefore one of many successful

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[22] Robinson, P. B., & Sexton, E. A. (1994). The effect of education and experience on self-employment success. *Journal of business Venturing*, *9*(2), 141-156.

entrepreneurial outcomes that has been studied and proven.  The lessons learned about starting and running your own business better prepares the entrepreneurs and sets them up for success, therefore having a higher success rate in startups founded and jobs created. This in itself makes education in entrepreneurship very much worth the times and money.[23] This study will further explore the correlation between startup success and certain degrees to answer the question of *"Does Having an Education Make You a Better Startup Founder?"*

Many studies also have shown that an MBA degree becomes very helpful to an entrepreneur especially if entrepreneurship courses are offered in the program, along with the ability to major in the subject specifically. [24]  This is therefore directly linked with success of each candidate. One does have to take into consideration that unlike most other educational programs, MBA's have a student prerequisite of being in the workforce for a number of years. This is a great example which has many variables that are at play and does positively relate a postgraduate degree to startup success.

All the research that has been gathered so far states a similar outcome, more education equals more successful startups and entrepreneurialism. It does have some literature gaps of not focusing on what type of education. Most of the research states education, but never categorized it or clarifies which exact type of education each study was focused on. What this says, is that it could be postsecondary education, but it might be college education, bachelors degree, certificate etc. One study clarifies by what they mean by education, and explains that it's measured by years, meaning how many years of education. It does not go on to say if this includes elementary school,

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[23] Harry Matlay, (2008),"The impact of entrepreneurship education on entrepreneurial outcomes", Journal of Small Business and Enterprise Development, Vol. 15 Iss 2 pp. 382 - 396

[24] Harry Matlay, (2008),"The impact of entrepreneurship education on entrepreneurial outcomes", Journal of

high school, university etc. [25] This is the gap in literature that is covered in this research study. No research has shown if and what degrees have a direct relationship and impact on entrepreneurial success. This is a critical point missed as it would benefit entrepreneurs to be, in choosing a degree that would eventually lead them to their success. By conducting this study, an answer will be given to those who are interested in becoming successful entrepreneurs and can help them in making a decision as to what academic path they should take.

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[25] Robinson, P. B., & Sexton, E. A. (1994). The effect of education and experience on self-employment success. *Journal of business Venturing*, *9*(2), 141-156.

Hypothesis

Quantitative Hypothesis

**H1** More education is strongly related to how successful a startup company will be.

Due to a strong predicted correlation, it should visually look like Figure 2, below. It should show that the more degrees one acquires the more successful the startup would be. X in the graph below representing the amount of degrees from least to most and Y representing the success of a startup from 0 - 2 (0 for Failed, 1 for Active and 2 for Acquired).
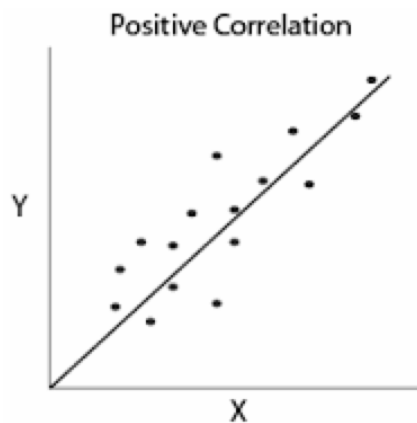


Figure 2

Methodology

This study is concerned with the relationship between entrepreneurship education and startup success. Its goal is to determine whether or not, a level of education can increase the likelihood of the creation of a successful company. This study will be performed using a quantitative approach. The population of this study will consist of startup company founders and co-founders. The founders will be gathered by collecting data on startups that have been founded from 2008 - 2015. Their educational backgrounds will then be gathered using online platforms such as Facebook, company biographies, LinkedIn, Twitter etc. To determine the sample size for the study, reference will be made to work by Cohen et al, 2001.[26] The goal is to collect more data than needed for the sample and have a random selection between all the founders based on the area in which their company is based in. All of the final founders will then be randomly selected to represent each area, and then correlations will be made.

This literature and study will then fulfill the gap of correlating whether or not the higher education you have, will provide a founder with a more successful startup and what levels of education has the biggest impact on startup success. So far, there are many works on relating that entrepreneurial education is found to be helpful with the creation of a successful venture, but there needs to be more information on whether other degrees can have similar impact. This is the gap that is going to be filled by this research paper as in the end it will show if there is in fact a positive correlation with the amount of degrees one have and how successful they are.

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[26] Cohen, L., Manion, L. and Morrison, K. (2001), Research Method in Education, 5th ed., RoutledgeFalmer, London.

The data collected for this study includes two variables, the first being the measure of success in a startup company which is a discrete variable. The second variable used in this study is the education that a founder has, which is an ordinal variable.

The hypothesis has a direction as it is predicted that education will have a positive impact on the success of a startup and therefore the hypothesis is one-tailed. Since we are testing the correlation between two data sets, the most common way of doing so is by the Pearson Correlation. By testing it through this statistical method it will show the relationship between the two variables.[27]

Population and Sample                                                           Figure 3

The population sample that this study is based on came from the TechStars database. Information was collected from 44 companies and includes 90 founders with a total of 143 degrees. TechStars keeps a database of statistics on every company that they have ever funded and its visual breakdown is shown below in Figure 3. It includes their current status, funding raised, founder specifications etc.

Overview

| Status | Number of Companies | Percentage |
| --- | --- | --- |
| Active | 419 | 75.63% |
| Acquired | 75 | 13.54% |
| Failed | 62 | 11.19% |

| Impact | |
| --- | --- |
| Average Funding per Company | $3,224,729 |
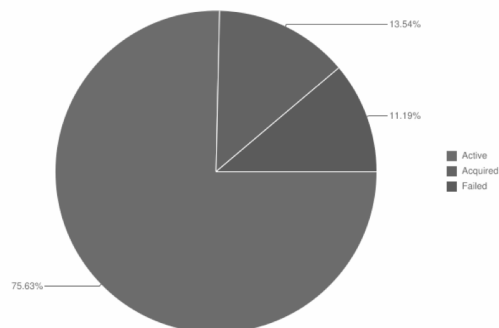
The population list is published and the sampling design for this population sample is a single-

[27] Cohen, L., Manion, L. and Morrison, K. (2001), Research Method in Education, 5th ed., RoutledgeFalmer, London.

stage sampling procedure. There is direct access to the names of the founders and company statistics therefore the sampling was done directly.

The selection process for the population sample was a random sample and involved stratification in order to have the sample reflect the true proportion in the population. The characteristics used to stratify the population was gender and education levels. 90 individuals were selected this way from the TechStars database to represent the population.

Definitions

In this study, success was defined and coded based on the company status, which was defined as acquired. Success is something that almost always and by everyone can be interpreted in a different way, but for this study the success of a company was based on whether or not the company has failed, it was active or it has been acquired. That being said, just because a company has been bought out or has failed does not in every case mean that it is successful or not as it can be subjective, but for this study with the statistics available, success has been defined as such.

The three company status' that are being used are Failed, Active and Acquired. The first, failed, can be defined as a company that has either closed down or stopped operations, or it has called bankruptcy. The second, active, can be defined as a company that is still running and operating at the moment. The third, acquired, can be defined as a company who has been bought out by someone else or another company. These three statuses and measures of success are coded as Failed ( 0 ), Active (1) and Acquired ( 2).

Tech startups, which is what this study is focused on, refers to any startup company that is in the technology industry and online business. All the companies that are funded on TechStars and are profiled on TechCrunch are companies that are created in this sector and what our sample is based on. This does not include small business owners such as restaurants, cafe's, clothing boutiques etc.

Education in this study is represented by 3 numbers. 1 being a Bachelor degree, 2 being a Masters degree and 3 being a PhD. 0 represents no education at all, but has not been used as not one of the founders in the sample had no education at all.

Instrumentation

After the data was collected and was input into a new database in excel, two instruments were used to test the validity of the hypothesis: the first being the Pearson Correlation Coefficient Calculator and the P Value from Pearson Calculator.[28]

*Pearson Correlation Coefficient Calculator*

The Pearson correlation coefficient used to measure a linear correlation between two variables such as *X* and *Y*. This correlation calculator is commonly used to measure the degree of linear dependence between two variables.[29]

*P Value from Pearson (R) Calculator*

[28]Pearson Correlation Coefficient Calculator." *Pearson Correlation Coefficient Calculator*. N.p., n.d. Web. 1 Aug. 2015.
[29] "Basic Concepts of Correlation." *Real Statistics Using Excel*. N.p., n.d. Web. 1 June 2015.

After a hypothesis test in statistics is performed, a *P*-value helps determine the significance of the results. A hypothesis test is used to test the validity of a claim that is made about a population, in this case stating that the more education a founder has, leads to success in a startup company.  With the hypothesis test, the researcher uses a *P*-value to tell you how strong the evidence is and what its actually saying.[30]

---

[30] "What a P-Value Tells You about Statistical Data." - *For Dummies*. N.p., n.d. Web. Feb.-Mar. 2015.

Procedure

Below is the procedure of how to collect relevant data to this experiment and calculate if there is a correlation between the two variables. This is an example only, in order to follow step by step.

1. Go onto the database that is readily available online at www.techstars.com. Click on their portfolio section. There will be a list of all the companies that TechStars has funded and will look like Figure 4 below.

| Company | Funding | Status | Nexus |
|---|---|---|---|
| [+] AccelGolf | $390,000 | Acquired | Cambridge, MA |

Figure 4

Right away information is available on what the company is called, how much funding they have received, their status and where they are based. Open up their profile at the [+] sign and you will get even more background information on the company itself.



| Company | Funding | Status | Nexus |
|---|---|---|---|
| [-] AccelGolf | $390,000 | Acquired | Cambridge, MA |

View Crunchbase profile

AccelGolf helps users with their stroke tracking, range-finding, and personalized improvement of their golf games. The company showed off their BlackBerry and iPhone applications and explained that the heart of their system is really the community of avid golfers who are now connecting and building their own social network. AccelGolf offers personalized improvement tips by analyzing strokes of golfers who are just slightly better than you, and presenting areas for improvement based on your past performance. AccelGolf suggests which club to use, and where to place the shot, based on your past performance on a specific course. In one example the company showed the iPhone application calculating odds based on past performance for landing a risky shot over a sand trap on a dog leg left. AccelGolf already has 70% of all golf courses loaded in their system. They use the GPS on your phone to determine your position and calculate distance to the pin.

Figure 5.

Click, View Crunchbase Profile link. This will take you to the individual Crunchbase company profile where you will gather the rest of your information. The information that is available to you is how much money has been raised, from how many rounds of investments, how many investors and what field this company is in shows in Figure 6.
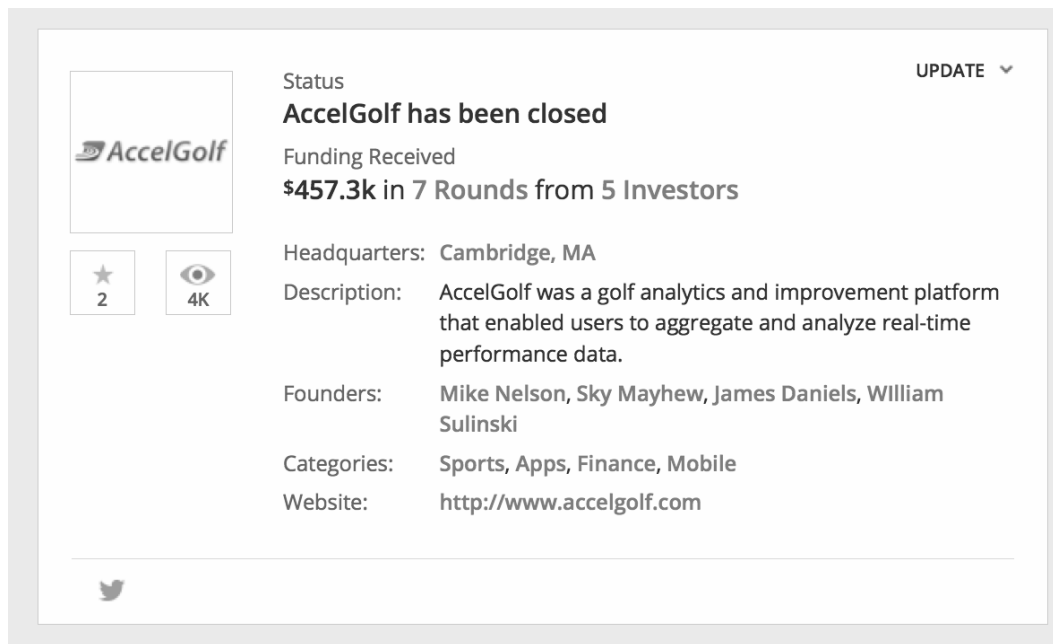


Figure 6

2. Open up an Excel worksheet and create columns titled:

Company Name, Years Founded, Founders, Education Level, Company Status, Company Status Coded, Education Level, # of Founders and Average Education

3. From the two sites you have opened already, gather the information listed and input the data. From the above examples it would look like Figure 7.

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| | Company | Years Founded | Founders | Education Level | Company Status | Company Stat. Coded | Education Level | # of founders | Average Edu |
| | **AccelGolf** | 2008 | | | Aquired | | | | |
| | | | Mike Nelson | 1 - BS, Mechanical Engineering | | | | 1 | |
| | | | Sky Mayhew | 1 - Finance, Computer Science | | | | 1 | |
| | | | James Daniels | 1 - Mathematics, Computer Science | | 2 | 1 | 3 | 1 |

Figure 7

4. If educational information is not listed on TechCrunch, please refer to each individual's LinkedIn profile in order to gather the correct data. You would do this by clicking each individuals name on the CrunchBase website and then following through to a link of their individual profile on Crunchbase as shown in Figure 8.
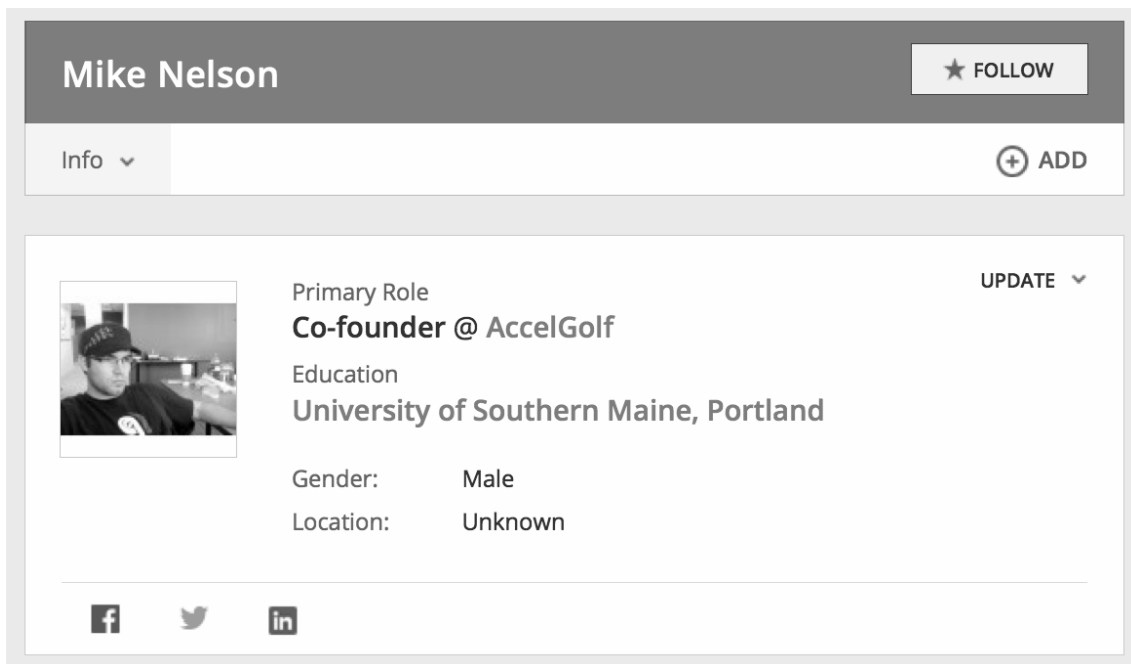


Figure 8

5. As you can see, Mike Nelson does not have his education specifics listed here. Click on his personal LinkedIn link and scroll down. You can see that he did go to University of Southern Maine and it should match up with his LinkedIn profile. Gather the information, cross reference to make sure you have the correct person and the correct data. It should look something like the example below in Figure 9, when you've found it on LinkedIn.

Figure 9

6. Repeat the above steps until you have collected enough data to have a sample.

7. Go to http://www.socscistatistics.com/tests/pearson/Default2.aspx and calculate the

Pearson Correlation Coefficient using the online calculator. This will give you a visual of the data

and exact statistics.

To run the test, you will have to input your X and Y

Values into a chart similar to Figure 10.. In this case they are

the Company Status and the Average Education.  You would input the

data into these two sections. From there you would get the breakdown

of your statistical results.

X Values     Y Values

Figure 10

8. You will then need to collect the P value and you will need the R and N score. Scroll

down to the bottom of your statistical analysis and you will find the information at the bottom,

which will be displayed like Figure 11.

```
X and Y Combined
N = 44
Σ(X - Mₓ)(Y - Mᵧ) = -0.591

R Calculation
r = Σ((X - Mᵧ)(Y - Mₓ)) / √((SSₓ)(SSᵧ))

r = -0.591 / √((8.977)(17.876)) =
-0.0466

Meta Numerics (cross-check)
r = -0.0466
```

Figure 11

8. To calculate the P value, go to

http://www.socscistatistics.com/pvalues/pearsondistribution.aspx and input your data.

Results

Data Analysis

To analyze the data, the Pearson Correlation Coefficient Calculator and the P Value from Pearson (R) Calculator will be used. This is a very common and trusted statistical method of measuring correlations. The steps in doing so will be as follows:

- State the hypotheses

- Figure out what your sample is going to be

- Make a selection of an appropriate test or tests to be used to analyze the data.

- Collect the data that is going to be used (in the manner described above in the procedure section)

- Calculate the Pearson Correlation Coefficient from the data

- Create a Graph in Excel to visually represent the data

- Calculate the P-value from the P Value from Pearson (R) Calculator

- Figure out whether or not to reject the hypothesis based on findings

- Interpret the results

Findings

Below is the X and Y values and a graph to represent the findings as Figure 12, which will be

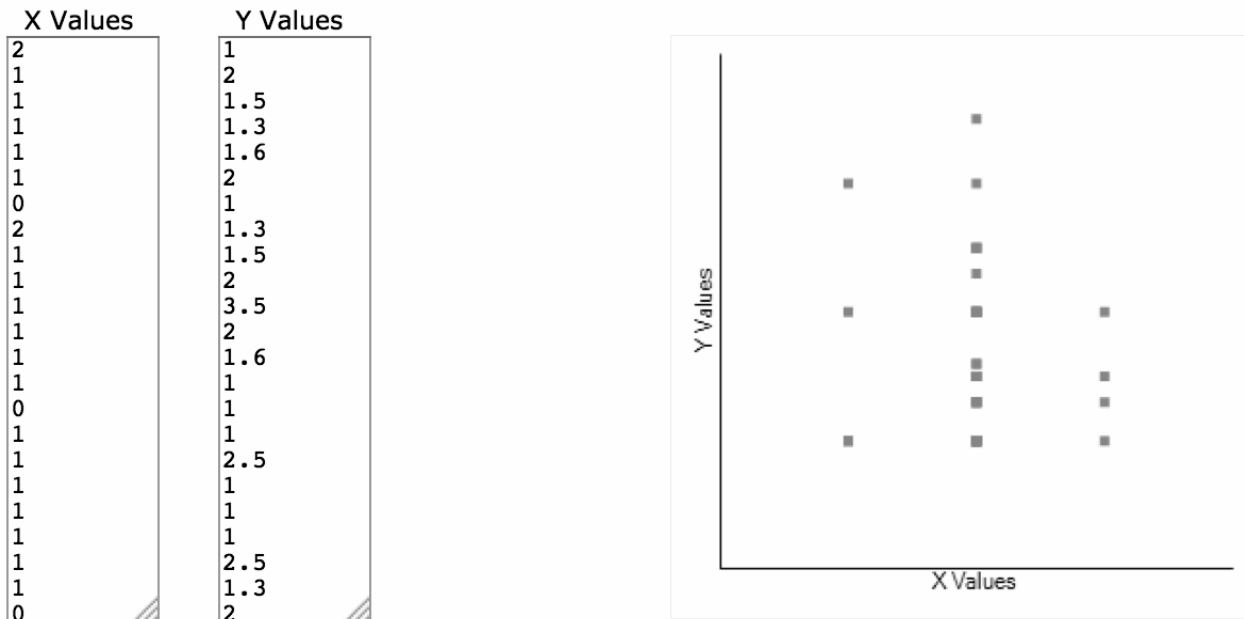explained further below, after collecting data and running the analysis tests on it.

| X Values | Y Values |
|----------|----------|
| 2 | 1 |
| 1 | 2 |
| 1 | 1.5 |
| 1 | 1.3 |
| 1 | 1.6 |
| 1 | 2 |
| 0 | 1 |
| 2 | 1.3 |
| 1 | 1.5 |
| 1 | 2 |
| 1 | 3.5 |
| 1 | 2 |
| 1 | 1.6 |
| 1 | 1 |
| 0 | 1 |
| 1 | 1 |
| 1 | 2.5 |
| 1 | 1 |
| 1 | 1 |
| 1 | 1 |
| 1 | 2.5 |
| 1 | 1.3 |
| 0 | 2 |



Figure 12

Table 1

| $X - M_x$ | $Y - M_y$ | $(X - M_x)^2$ | $(Y - M_y)^2$ | $(X - M_x)(Y - M_y)$ |
|-----------|-----------|---------------|---------------|----------------------|
| 1.023 | -0.609 | 1.046 | 0.371 | -0.623 |
| 0.023 | 0.391 | 0.001 | 0.153 | 0.009 |
| 0.023 | -0.109 | 0.001 | 0.012 | -0.002 |
| 0.023 | -0.309 | 0.001 | 0.096 | -0.007 |
| 0.023 | -0.009 | 0.001 | 0.000 | 0.000 |
| 0.023 | 0.391 | 0.001 | 0.153 | 0.009 |
| -0.977 | -0.609 | 0.955 | 0.371 | 0.595 |
| 1.023 | -0.309 | 1.046 | 0.096 | -0.316 |
| 0.023 | -0.109 | 0.001 | 0.012 | -0.002 |
| 0.023 | 0.391 | 0.001 | 0.153 | 0.009 |
| 0.023 | 1.891 | 0.001 | 3.576 | 0.043 |
| 0.023 | 0.391 | 0.001 | 0.153 | 0.009 |
| 0.023 | -0.009 | 0.001 | 0.000 | 0.000 |
| 0.023 | -0.609 | 0.001 | 0.371 | -0.014 |
| -0.977 | -0.609 | 0.955 | 0.371 | 0.595 |
| 0.023 | -0.609 | 0.001 | 0.371 | -0.014 |
| 0.023 | 0.891 | 0.001 | 0.794 | 0.020 |
| 0.023 | -0.609 | 0.001 | 0.371 | -0.014 |
| 0.023 | -0.609 | 0.001 | 0.371 | -0.014 |
| 0.023 | -0.609 | 0.001 | 0.371 | -0.014 |
| 0.023 | 0.891 | 0.001 | 0.794 | 0.020 |
| 0.023 | -0.309 | 0.001 | 0.096 | -0.007 |
| -0.977 | 0.391 | 0.955 | 0.153 | -0.382 |
| 0.023 | 0.891 | 0.001 | 0.794 | 0.020 |

This is an image of the data that was collected and then turned into Table 2 below.

R Score: -0.046

*N*: 44

Significance Level:

○ 0.01
◉ 0.05
○ 0.10

The P-Value is 0.766847. The result is *not* significant at p < 0.05.

Table 2

| Result Details & Calculation | Key |
|---|---|
| *X Values*<br>$\Sigma$ = 43<br>Mean = 0.977<br>$\Sigma(X - M_x)^2 = SS_x = 8.977$<br><br>*Y Values*<br>$\Sigma$ = 70.8<br>Mean = 1.609<br>$\Sigma(Y - M_y)^2 = SS_y = 17.876$<br><br>*X and Y Combined*<br>N = 44<br>$\Sigma(X - M_x)(Y - M_y) = -0.591$<br><br>*R Calculation*<br>$r = \Sigma((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}$<br><br>$r = -0.591 / \sqrt{((8.977)(17.876))} = -0.0466$<br><br>*Meta Numerics (cross-check)*<br>r = -0.0466 | *X*: X Values<br>*Y*: Y Values<br>$M_x$: Mean of X Values<br>$M_y$: Mean of Y Values<br>$X - M_x$ & $Y - M_y$: Deviation scores<br>$(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared<br>$(X - M_x)(Y - M_y)$: Product of Deviation Scores |

The value of R is -0.0466. Although technically a negative correlation, the relationship between your variables is only weak (*nb.* the nearer the value is to zero, the weaker the relationship).

The value of $R^2$, the coefficient of determination, is 0.0022.

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| | Company # | company status | Education Level Coded | Aggregate Edu y1 | # of founders y3 | Average Edu y2 | |
| 1 | | | | | | | -0.05 |
| 2 | 1 | 2 | 1 | 3 | 3 | 1 | |
| 3 | 2 | 1 | 2 | 10 | 5 | 2 | |
| 4 | 3 | 1 | 1 | 3 | 2 | 1.5 | |
| 5 | 4 | 1 | 1 | 4 | 3 | 1.3 | |
| 6 | 5 | 1 | 3 | 5 | 3 | 1.6 | |
| 7 | 6 | 1 | 2 | 2 | 1 | 2 | |
| 8 | 7 | 0 | 1 | 1 | 1 | 1 | |
| 9 | 8 | 2 | 1 | 4 | 3 | 1.3 | |
| 10 | 9 | 1 | 2 | 3 | 2 | 1.5 | |
| 11 | 10 | 1 | 2 | 4 | 2 | 2 | |
| 12 | 11 | 1 | 4 | 7 | 2 | 3.5 | |
| 13 | 12 | 1 | 2 | 4 | 2 | 2 | |
| 14 | 13 | 1 | 1 | 5 | 3 | 1.6 | |
| 15 | 14 | 1 | 1 | 1 | 1 | 1 | |
| 16 | 15 | 0 | 1 | 1 | 1 | 1 | |
| 17 | 16 | 1 | 1 | 3 | 3 | 1 | |
| 18 | 17 | 1 | 2 | 5 | 2 | 2.5 | |
| 19 | 18 | 1 | 1 | 3 | 3 | 1 | |
| 20 | 19 | 1 | 1 | 2 | 2 | 1 | |
| 21 | 20 | 1 | 1 | 1 | 1 | 1 | |
| 22 | 21 | 1 | 2 | 5 | 2 | 2.5 | |
| 23 | 22 | 1 | 2 | 4 | 3 | 1.3 | |
| 24 | 23 | 0 | 2 | 2 | 1 | 2 | |
| 25 | 24 | 1 | 2 | 5 | 2 | 2.5 | |
| 26 | 25 | 0 | 3 | 3 | 1 | 3 | |
| 27 | 26 | 1 | 2 | 4 | 2 | 2 | |
| 28 | 27 | 1 | 1 | 3 | 3 | 1 | |
| 29 | 28 | 1 | 1 | 3 | 2 | 1.5 | |
| 30 | 29 | 2 | 2 | 2 | 1 | 2 | |
| 31 | 30 | 1 | 2 | 2 | 1 | 2 | |
| 32 | 31 | 1 | 3 | 3 | 1 | 3 | |
| 33 | 32 | 2 | 1 | 3 | 2 | 1.5 | |
| 34 | 33 | 1 | 1 | 1 | 1 | 1 | |
| 35 | 34 | 1 | 2 | 4 | 3 | 1.3 | |
| 36 | 35 | 1 | 1 | 2 | 2 | 1 | |
| 37 | 36 | 1 | 4 | 7 | 3 | 2.3 | |
| 38 | 37 | 1 | 2 | 3 | 2 | 1.5 | |
| 39 | 38 | 0 | 1 | 2 | 2 | 1 | |
| 40 | 39 | 1 | 1 | 1 | 1 | 1 | |
| 41 | 40 | 1 | 1 | 4 | 3 | 1.3 | |
| 42 | 41 | 1 | 2 | 2 | 1 | 2 | |
| 43 | 42 | 1 | 1 | 2 | 2 | 1 | |
| 44 | 43 | 1 | 1 | 1 | 1 | 1 | |
| 45 | 44 | 1 | 1 | 4 | 3 | 1.3 | |
| 46 | | | | | | | |
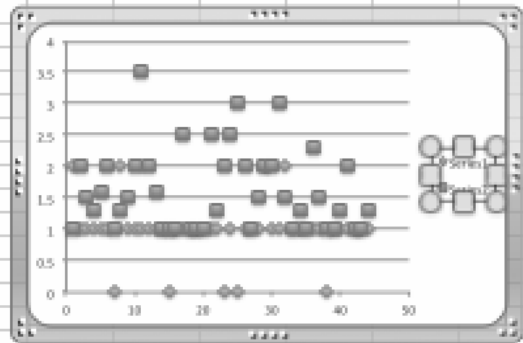


Table 3

Analysis

**H1** More education is strongly related to how successful a startup company will be.

Based on the predicted hypothesis the visual distribution of data should have looked similar to the graph on the right. It shows a strong positive correlation, as in Figure 13.
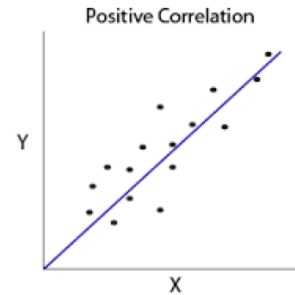


Figure 13

The graph that we have gotten from the statistical analysis, is the one to the right. This graph shows weak relationship between the variables, that is technically negative. This also shows that there is not a significant correlation. Although my graph does not look the same as the one predicted, it does not mean that the results are incorrect.

The level of significance refers a judgment after where a decision can be made regarding the value stated in a null hypothesis. This study shows that the level of significance is $p > 0.05$ and therefore not significant, where the p value is the probability of obtaining the sample outcome.
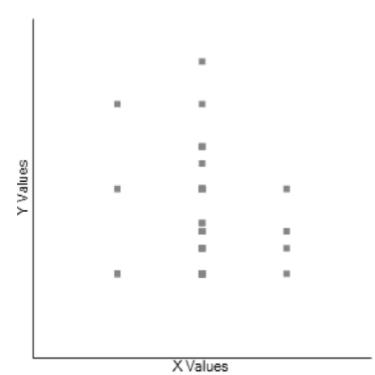


Figure 14

Figure 15

| | | Decision | |
|---|---|---|---|
| | | **Retain the null** | **Reject the null** |
| **Truth in the population** | True | CORRECT $1 - \alpha$ | TYPE I ERROR $\alpha$ |
| | False | TYPE II ERROR $\beta$ | CORRECT $1 - \beta$ POWER |

A decision can be made based Figure 15 in order to not make an error. We still believe that the null hypothesis could be valid and that there just might be an error in the data collection. So we do not reject or approve the null hypothesis. More studies need to follow.

There is a strong relationship between sample size and power, and by increasing the sample size we can decreases standard error, thereby increasing the power and the results. This could have been one of the reasons, not having enough data to map out and therefore has given a not strong result. In a following study, not only can more individuals be included in the sample, but have the data collected from a few different sources, and different countries. Sampling other incubators and accelerators from different parts of the world will not only increase sample size but it will diversify the sample in itself for a more well rounded outcome. Increasing the size of the sample is definitely something that would need to to happen in the following study. Another factor that was noticed, was that in the entire sample there were only 2 females, and that was spread across the entire database.

Limitation of Findings

After completing this research, it was found that there were a couple study design limitations. These included a small sample and the fact that most of the sample came from the United States. This could have limited the research findings as more data would be ideal. Therefore, more research needs to be done with a larger sample, and one that includes companies from other parts of the world.

Findings Explained

Total

18 Engineering - 20%

27 Computer Science - 30%

12 MBA - 13%

8 JD (law) - 9%


Companies that were acquired

2  Engineering - 20%

6 Computer Science - 60 %

JD/BA - 10 %

MBA - 10%


Companies that failed

1 Computer Science - 20%

3 BA marketing - 60%

MBA - 20 %


      Although the hypothesis was neither rejected nor accepted, the data did have some very interesting things to say. It was found that the least amount of education that a founder had either successful or not, was a 4 year bachelor degree. This in itself states that the study may just have had some flaws. In the data it was recorded that 30 % of the participants had a computer science degree. When it comes to tech startups, having a degree in computer science is optimal as you do not have to depend on anyone to create what you envision. This is a great bonus because a

programmer, if hired can get very expensive. By being the one who is creating the code and the framework of the online business, you also are able to have most of the control and say in how it looks, interacts and works. This is probably the reason why 60 % of the founders in the companies that were acquired all had computer science degrees. This in itself proves that if one seeks to create a tech startup, having or being a programmer will bring you closer to success. Computer science grads are now considered to be at the forefront of technology, since they alongside engineers are the ones responsible for making it. This makes it not surprising that the runner up, is an engineering degree.

At 20% of total degrees, engineering came second. Many of the founders had both Engineers and Programmers working alongside. This does not come as a surprise, as many backend programming can get so complicated that engineers are the ones to figure out a market need. Many startup also offered never before had products which had been developed by engineers and it is why this degree and profession came in second. Engineering degrees offer an education on how things are built and created. When it comes to an emerging field of technology, arduinos, sensors, products that are not yet on the market are almost always created by engineers. In the companies that were acquired 20% of the founders held an engineering degree.

At 13% total,  MBA was the third most had degree amongst the founders. MBA's require a background of work experience of a few years, and teach subjects from entrepreneurship to international business where one can choose a topic of focus based on their interest and school. It would have been interesting to see which topics each founder specialized, but that information was not available. Based on many previous studies, students who focused on entrepreneurship were said to be more likely to enter the startup world and become self-employed. For that reason,

it would have been helpful to see if it was true in this case. In the companies that have been acquired and therefore deemed successful, 10% of the founders held an MBA.

A law degree trailed a the 4th most had degree by the founders and was at 13%. Depending on what their company sectors were, law always comes as a useful tool when needing assistance, patent solutions, product development and services. Except for one of the companies listed in the study, all Law degree holders worked as part of a team that made up their company. In the companies that were acquired and therefore determined as successful, 10% of founders had a law degree. Based on the data collected, having 4 founders with one of each degree, computer science, engineering, MBA and a law degree could have potentially lead to a theoretically successful company.

Taking a look at the companies that failed, 0 founders had an engineering degree, which based on what they were trying to provide with their startup might have been difficult to do. Only 20% of the company founders held a computer science degree, which is the second lowest, since it only equals to 1 member. In the tech industry, if not well educated by other means that have been mentioned previously, it can be very difficult to try and create something without having any programming skills. Even very basic skills can be proven to helpful. Therefore it is safe to assume that the founders in the companies that failed had to outsource the building of their online programs and interface, all except one. This leads us to assume that they were working alongside someone else while building their startup and had to rely on someone else in order to see do any analytics, statistics and evaluation of their database or software. MBA degree holders also were at 20%, or, only 1 person and similar things can be said with them. In a field that is as fast growing, and developing as the technology field, having a strong business background is an asset but could

be still lacking the technical aspect when creating a new product that is ready to be marketed. Last, something that was very unexpected to see was that 60 % of the founders who had failed held a marketing degree. This is interesting to see since a marketing degree has not showed up at the top of the lists anywhere else. This leads us to believe that while having great knowledge of how to get a product out to market and know everything about digital marketing and online sales, lacking the technical knowledge can come as a downfall. That is of,course unless you work in a partnership with someone who has those skills in order to create a startup. These numbers, although surprising at first make it safe to conclude that having founders in the same company with different educational background can come as an asset.

One very interesting fact about the data results was that not one of the founders had 0 education. This ultimately means that every single person at least had an undergraduate degree. This in itself shows us many different aspects of the field and qualifications of each member itself. Since the tech industry is an emerging field, one cannot even break into it without at least having some formal education on a given subject. The degrees and amounts of degrees varied so vastly and were so broad that it shows us a pattern of its own, every entrepreneur that has been entered and funded by this company has had at least 4 post secondary years of education. This totals 16 years of education in total as opposed to 12 years of just secondary education. The sample included founders and companies from mainly North America but also had companies that were from South America and Europe. This is because TechStars is an American based company and therefore is easiest to access by those in North America.

In the companies that did fail, 80 % of them were single person run startups. Knowing this fact alone, is incredibly useful for further studies because it tells us that there is more of a chance

in having a company fail, when it is run by one person. This could have many possible reasons for failure, since operating a startup alone can be a difficult task to manage. Even if the lone founder can manage all of the tasks themselves, it's only a  matter of time before they would get overwhelmed. There are so many ups and downs in the world of startups that you need someone by your side who can lift you up when you've hit a low. Not being able to collaborate with other individuals, and brainstorm puts one at a disadvantage because they are running of the opinions of just one person, themselves.  Being able to work with others is also an advantage one has, and a disadvantage if one cannot collaborate. Receiving constructive criticism, sharing ideas, and talking through your strategies is very important and cannot be achieved if one is working on their own. If coming from a very niche field, for example marketing as this was the degree that had the most failed companies in this study. You can conclude that the combination of the particular niche field, and running a company on your own can close you off from a lot of useful ideas, information and collaborations. A founder that is coming from such a degree would need to create their tech startup, and would most definately need help. Depending on how complex an idea is, someone who does not know programming could not execute an original idea based company. Even hiring someone who did know how to program, could be a difficult task if you had to outsource it. Just like in any other field there are good programmers and there are bad programmers, and for someone to hire and judge those skills that is not a programmer could be very tricky, if not even impossible and could lead to failure. This is why there is a strong relationship between computer science degree graduates and those in the sample who have had successful outcomes. Once again though, having just one degree in computer science at the same time will not be the answer to success.

Since 75 % of companies who had been acquired had more than 2 team members, you can conclude that in contrast to 80% of companies failing having only 1 member, it is beneficial to start a company with 1 or more other individuals who have the opposite skill set then you. By having multiple team members there then becomes a support system, someone to ideate with and knowledge that the other lacks. Its a way of getting many more things done in a efficient way, so even if you had 2 team members who possessed a Computer Science degree and an MBA, you could then have full control of how to make your idea into reality. You could create a business around it and at the same time you would have someone who specialized in business and how to make this product or service be accessed by the market and how to monetize on it. By having 2 or more members who each have a degree in a particular field, a much stronger startup can be created.

Another factor that could have had some effect on the sample is that it was taken only from 2008-2015. This is reflected in the large amount of companies that have a status of "Active" meaning that they have neither failed or have been acquired but are still operating. Since these companies have not been around for even a decade, they might be still in early stages or customer acquisition, even though they have been around for 3 years of development and raising funds. By not having all the companies at a more mature stage, might have been the reason to having a weak correlation. In a further study a sample can be collected that is dating further back for example from the years 2002-2012. This would give a decade of data and is not too far back that the information cannot be attained.

After reviewing the data, it can be said that for someone who would like to begin a career in entrepreneurship in the technology sector the 4 best degrees to choose from as seen in this data

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sample are, Computer Science, Engineering, and MBA, or a Law Degree. The average of each

company's degree's was 3.25 which means on average each startup had 3.25 degrees total. The

amount of degrees that occurred the most (mode) was 3 and the median value was also 3. Which

means that most companies had 3 degrees each on average and that 3 degrees was the amount that

occurred the most also (mean). When looking at the statistics of each individual team member, the

average educational level was 1.6 and the amount of degrees that was most common for each

individual was 1. This means that when taking the average of the entire sample, most people have

1.6 degrees but the number that appears most frequently is 1 degree. All of these statistics were

calculated using a Mean, Median and Mode calculator online as shown in Figure 16.



Figure 16

Threats to Validity

When creating a much longer study that would require a survey and a prolonged period of time, as suggested previously of 10 years, there are than factors that threaten how valid your thesis is. When dealing with individuals for an extended period of time, things like mortality can get in the way. Circumstances such as this can create unknown outcomes for the researcher. Events can also occur during this time that can influence the outcome such as historical events, catastrophic events, etc. Or even in the selection process, certain characteristics that individuals chosen for the study have make them more likely to succeed or fail. For example, the startup world is mainly dominated by men, and therefore there are not enough females to represent them as a whole.

Next Steps

A further study can and is suggested to be done with a much larger sample for the data collection. Using databases that are around the world also would be helpful in making the sample not bias. Similar if not the exact steps can be followed as in this study in order to gather more data and for statistical analysis to be done. Collecting data on the types of education and the levels of schooling and number of years of education in total could also be recorded as it is a helpful tool in knowing how many years each individual has spent studying after high school. Collecting this much data would take much more time, and creating the surveys along with waiting to retrieve them back would be time consuming. This would be a great topic to pursue for further studies in a PhD program as the time frame would be more suiting.

The purpose of the survey can provide rapid data collection with detailed answers about each individual education level, any extra curricular course or certificates that have been take, time spent in school along with work experience. A longitudinal survey would be created as the information would be gathered over an extended period of time. It would be a self-administered questionnaire that would include school records. The easiest way of doing this would be creating a website that each individual would log into and fill out the questionnaire. Since most of the subjects would not be in just one place at the same time, interviews would be hard to do, therefore make it most convenient and cost effective to create it online for free and administer it.

Population

A survey can also be implemented in order to accumulate more insight data. From the online data we could not tell certain details such as if the founder did additional courses, online training, seminars, workshops or certifications. All of these things play a large role in showing inside details and things that otherwise could be missed. Creating a survey that is sent out to each individual would make it helpful in gathering this data. To do this survey an ethics review would be also necessary and would need to be obtained. In this survey, asking whether or not each candidate has been out of school between starting a company would also be useful information that could tell the reader how much time had passed, or if they began running it right after graduation or during school.

Conclusion

In conclusion, although the results of the hypothesis testing found could not be accepted or rejected, some very interesting relationships were found. This information can be used as a tool when considering to start a company and gives an inside glimpse of some statistics of what works and what doesn't. It was discovered that the there was a greater chance a company succeeded when it was operated by more than 1 individual, preferably 2 or more. Out of the companies that did fail, 60% were on their own and did not have partners. Having a computer science degree also came as a great asset, as out of the companies that succeeded, 60% of the member attained this educational background. Even though the correlation might not have been a strong one, the hypothesis is neither accepted nor rejected and is an opportunity for further study as it has not been proven yet.

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