

Entrepreneurial Characteristics and Careers: American High-Tech Entrepreneurs

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The dramatic success of American entrepreneurs has long captured the interest of the nation. Entrepreneurs are perceived by many to illustrate the American Dream. In American Entrepreneur: The Fascinating Stories of the People Who Defined Business in the United States (2009), Larry Schweikart and Lynne Pierson Doti explore the history of American entrepreneurs and their impact on the American economy. To honor the research legacy of Lynne Doti, this paper will examine the characteristics and careers of high-tech entrepreneurs within the framework of our previous research on one of the entrepreneurs highlighted in their book by examining the early influences, reconnection, transformation, reflection, and death stages of Steve Jobs' career.

In their book *American Entrepreneur: The Fascinating Stories of the People Who Defined Business in the United States* (2009), Larry Schweikart and Lynne Pierson Doti explored the history of American entrepreneurs and their impact on the American economy. They followed entrepreneurs from early colonial times through the internet age and “the most important invention of the late twentieth century, the personal computer” (Schweikart & Doti, 2009, p. viii). Schweikart and Doti (2009) gave considerable attention to the impact that high-tech entrepreneurs have had on the American economy.

Moreover, the dramatic financial and business success of high-tech entrepreneurs such as Steve Jobs of Apple, Bill Gates of Microsoft, and Mark Zuckerberg of Facebook has captured the interest of millennials. The ‘entrepreneurial generation’ is a term given to the growing number of millennial students at American universities and colleges who express an interest in pursuing an entrepreneurial career (U.S. Chamber of Commerce Foundation, n.d.). Research suggests that half to two-thirds of millennials are interested in entrepreneurship (Buzz Marketing Group and the Young

Entrepreneur Council, 2011). Some research on entrepreneurial intentions suggests that millennials' impressions of entrepreneurial careers may be strongly influenced by the high profile success stories of entrepreneurs (Hurley-Hanson & Giannantonio, 2016). Other factors influencing millennials' intentions to pursue an entrepreneurial career include a stagnant economy, high unemployment rates, and the perception that jobs in the corporate sector will not offer millennials the opportunity to do work that is important to them, nor allow them to achieve greater levels of work/life balance than their parents experienced.

The large numbers of millennials interested in pursuing an entrepreneurial career has resulted in a dramatic increase in the number of college courses and university programs focused on entrepreneurship, illustrating how the economic principles of supply and demand affect academic offerings. Business schools are devoting resources to the creation of startup incubators, centers for innovation, and centers for entrepreneurship, such as Chapman's Ralph W. Leatherby Center for Entrepreneurship and Business Ethics which Lynne Pierson Doti was the Director of from 1999 to 2002.

Academic interest in entrepreneurship has exploded in recent years with the growth of Ph.D. programs, endowed chairs, and journals devoted to the study of entrepreneurs and entrepreneurship. These scholarly activities often focus on the definition of entrepreneurship, the characteristics of entrepreneurs, and the conditions that lead to entrepreneurial success. Schweikart and Doti (2009) contributed to this stream of research by asking two central questions about entrepreneurs. The first question, "Is there an entrepreneurial character?", asked what a typical entrepreneur is like. The second question, "Is there an entrepreneurial life pattern?", focused on the career and life stories of entrepreneurs across history. In an effort to honor the research legacy of Lynne Doti, this paper will consider the two questions posed in Schweikart and Doti's book by examining the characteristics and careers of high-tech entrepreneurs in the context of our work on entrepreneurial careers. We focused on the high-tech industry for two reasons. The first being the American public's fascination with these entrepreneurs. The second reason being how important the creation of the high-tech industry has been to the history of the American business economy. According to Schweikart and Doti (2009), "individual entrepreneurs, such as Steve Jobs and Steve Wozniak, were revealing a future in which the personal computer would change the way people worked and played" and "the revolution over which they presided was nothing short of spectacular", which changed our perceptions of entrepreneurs and entrepreneurship forever (p. 459, 366).

Entrepreneurs and Entrepreneurship

Definitions of entrepreneurs and entrepreneurship have long been debated in the management literature. Early theorists "accepted a definition of the entrepreneur as one who takes the risk to start a business", a phrase generally attributed to Jean-Baptiste Say, a French writer (accounting for the French origins of the word) who first defined production as composed of three factors: land, labor, and capital (Schweikart & Doti, 2009, p. 9). Entrepreneurship has been defined as innovation (Schumpeter,

1958), initiating, maintaining, and developing a profit-oriented business (Cole, 1965), making significant decisions about changes which affect the resources of a company (Sawyer, 1958), risk-bearing (Mill, 1848), ultimate formal authority within an organization (Weber, 1917), making changes in strategy for an existing firm that alter the state or pattern of resources deployment (Ginsberg, 1988), and the person who takes the risk to create material wealth in the economic realm (Schweikart & Doti, 2009). Other definitions of entrepreneurship include entrepreneurial activity that takes place within an existing company (Block & MacMillan, 2003; Guth & Ginsberg, 1990; Stopford & Baden-Fuller, 1994; Schendel & Hofer, 1979) and purchasing an existing business (Cooper & Dunkelberg, 1987; Wright, Robbie, & Ennew, 1997). An inclusive definition which permits a broad exploration of entrepreneurship is “a process by which individuals — either on their own or inside organizations — pursue opportunities without regard to the resources they currently control” (Stevenson, Roberts, & Grousbeck, 1989, p. 23).

More recent research on entrepreneurs has focused on identifying and classifying different types of entrepreneurs. Entrepreneurs can be categorized as novice and habitual (Plehn-Dujowich, 2009). Novice entrepreneurs form only one company, while habitual entrepreneurs start more than one firm (Wright, Westhead, & Sohl, 1998). Habitual entrepreneurs can be further classified into two types: serial entrepreneurs and portfolio entrepreneurs (Wright et al., 1998). Serial entrepreneurs start more than one firm, but they do not retain the previous firm. They leave or close their current entrepreneurial venture before starting a new one, creating a series of entrepreneurial ventures. Portfolio entrepreneurs start more than one firm, but they do not leave their previous firms, having more than one firm operating at the same time (Wright et al., 1998). In the United States, 10% to 20% of entrepreneurs are portfolio entrepreneurs, while in Europe, the number is higher at 12% to 25% (Carter & Ram, 2003; Plehn-Dujowich, 2009). In the United States, 12% to 15% of entrepreneurs are serial entrepreneurs, while in Europe, the number is higher at 18% to 30%.

Serial entrepreneurs can be further broken down into two categories: venture repeaters and opportunistic serial venturers (Wright et al., 1998). Opportunistic serial venturers are entrepreneurs who want to develop a new firm and are actively looking for opportunities. Venture repeaters usually start the next venture out of necessity or in response to their current situation. Reasons why they may have had to leave the company they founded include low company performance, being forced to leave the firm, and a desire to start a new venture. (Wright et al., 1998). Steve Jobs, who was forced to leave Apple, would be classified as a venture repeater entrepreneur.

Early studies of entrepreneurs can be traced back to the 19th century when books were written about business tycoons such as Astor and Vanderbilt. An entrepreneur was defined as any successful businessman and the assumption was that an entrepreneur was the owner of the firm. Early historians described the entrepreneur's motivations as material wealth, public recognition and esteem, and the welfare of society. His distinguishing qualifications were hard work and good luck (Livesay, 1982). More formal academic research on entrepreneurs is generally traced to the 1920s when N.S.B. Gras and his colleagues at Harvard attempted to relate the business executive to the management of the firm and the socioeconomic environment in which firms operated.

These Harvard academics produced a stream of case studies on business executives and firms (Livesay, 1982).

Some research on entrepreneurs has drawn from the fields of psychology and sociology. Studies on the psychology of entrepreneurs look at the distinguishing psychological characteristics of entrepreneurs. These characteristics have been correlated with entrepreneurial performance in an attempt to predict who will become a successful entrepreneur. The three factors most often studied in relation to entrepreneurs are psychological influences, personal characteristics, and the effects of previous experience (Brockhaus, 1982). Sociological theories of entrepreneurship examine how the environment affects entrepreneurship. McClelland (1961) felt that societies with a high need for achievement fostered entrepreneurship. Some factors studied in sociological research include the political climate (Shapero & Sokol, 1982), governmental policies (Singh, Tucker, & House, 1989), local, state, and federal taxation levels (Galvin, 1978), the cultural climate (Shapero & Sokol, 1982), the availability of venture capital (Shapero & Sokol, 1982), the availability of low-cost facilities or land (Quirt, 1978), and accessibility to transportation (Schary, 1979). Research on family (Borland, 1974), peers (Draheim, Howell, & Shapero, 1966), previous work experience (Cooper, 1971), and ethnic groups, classmates, colleagues, and mentors (Shapero & Sokol, 1982), have all been shown to have significant effects on entrepreneurs.

There is little research focusing on why people become certain types of entrepreneurs such as serial or portfolio entrepreneurs (Parker, 2014; Ucbasaran et al., 2008). Research has found that firms founded by novice entrepreneurs are less successful than firms founded by serial entrepreneurs (Holmes & Schmitz, 1996; Headd, 2003; Plehn-Dujowich, 2009). Out of the 1,426 billionaires in the world, 960 are self-made. Out of these 960, only 130 made money from a single business (Infographics, 2015). Serial entrepreneurs have also been found to remain entrepreneurs longer than novice entrepreneurs (Quadrini, 1999; Taylor, 1999; Burke, Felix, & Nolan, 2008; Blanchflower & Oswald, 1998). There is some evidence that serial entrepreneurs may be very focused on developing their idea, but may become restless once a venture is up and running. This may lead them to begin searching for their next venture (Dishman, 2013). Serial entrepreneurship may also be a way for these entrepreneurs to take their ideas to a new level. They may be able to turn their original idea into an entirely new business as Jack Dorsey did with Twitter (Dishman, 2013). Evan Williams, co-founder of Twitter, is another example of a serial entrepreneur who improved his ideas and created new ventures serially. He first founded the web application company Pyra Labs in 1999. Once he sold Pyra Labs to Google in 2004, he founded Odeo, a podcasting company. He sold Odeo in 2007 and then co-founded Twitter (Mark & Parker, 2011; Parker, 2014).

Entrepreneurial Character

The first question addressed in this paper “Is there an entrepreneurial character?”, asked what a typical entrepreneur is like. We explored this question by using a sample of current high-tech entrepreneurs and analyzed three sets of variables: demographics, family background, and work and non-work experiences (Hurley-Hanson & Giannantonio, 2015). Demographic variables included age, gender, and birth order.

Family background variables included having parents who were entrepreneurs, or an absent father and unsupportive mother. Work and non-work experience variables included education, age at first job, age at first job in a high-tech company, industry specific experience, early successes and failures, managerial experience, and other notable work and non-work experiences.

Demographic Variables

Although we hear a lot about young high-tech entrepreneurs in Silicon Valley such as Mark Zuckerberg, there are many examples of high-tech entrepreneurs who started their firms at a later age. Robert Noyce started Intel at 41. Craig Newmark founded Craigslist at 42. Niklas Zennstrom was 37 when he created Skype (Digital Synopsis, 2015). Many well-known stage and developmental career models such as Super (1980) and Levinson (1978) linked the stages of their career models to specific chronological ages. Some researchers have questioned whether specific ages should be linked to career stages (Leonard, Matthews, & Bowes, 1987). Previous research on entrepreneurship has illustrated that entrepreneurial careers can happen at many different ages (Katz, 1994; Shaver & Scott, 1991; Singh & DeNoble, 2003; Schweikart & Doti, 2009) including those who are over the age of 40 (Stangler, 2009; Wolverson, 2013). With the success of relatively young entrepreneurs such as Jobs and Zuckerberg, it may be necessary to rethink what the early career stage looks like for today's very young, very successful entrepreneurs. With entrepreneurial activity (and success) occurring even before the entrepreneur leaves college, it could be argued that the age norms associated with the early career stage do not accurately reflect the career experiences of high-tech entrepreneurs.

Age norms are defined as "widely shared judgments of the standard or typical age of a person holding a role or status" (Lawrence, 1988, p. 310). In organizations, age norms may accurately reflect how organizations operate, but in many organizations they have been found to be inaccurate perceptions of age distributions within the organization (Lawrence, 1996). While research has found that most companies are founded by older individuals, Steve Jobs defied entrepreneurial age norms. He started his first company, became a millionaire in his twenties (Wolverson, 2013), and was fired from the company he founded at thirty. In his thirty-year career, he started and sold numerous companies. Jobs' entrepreneurial activities occurred at several ages. The career paths of Steve Jobs, Mark Zuckerberg, and others that have followed in their footsteps, suggest that age norms for entrepreneurs are shifting, if not radically changing.

Research traditionally finds that men are more likely to start new firms than women (Reynolds & Miller, 1989). The biases that prevent the participation of women and other minorities in entrepreneurship need to be investigated. This seems to be especially true in the high-tech industry. Forbes' list of the Top 25 Hottest Tech Stocks revealed that none of the stocks had female CEOs, and only 13% (1.9% in technical positions) of senior managers were women. In Fortune 500 companies, only 16% (1.7% in technical positions) of senior managers were women. A Business Insider's list of the 40 Hot Start-ups in Silicon Valley and New York City showed 87 founders, of which only three were women (Kocialski, n.d.).

There has been some research on entrepreneurial birth order. Some studies have

found that high-tech entrepreneurs tend to be first-born children (Dvir & Pines, 2007). Kaplan's (2007) study of high-tech entrepreneurs found that 71% of the sample were first-born children. It was also found that many of the 29% who were not first-born children described themselves as "the child that the parents were counting on, a state of mind that could be called being first born psychologically" (Kaplan, 2007, p. 164). High-tech entrepreneurs usually have a high need for achievement, are dominant, and responsible. These characteristics may come from being the first-born and having parents who expected them to help and take on additional responsibilities when the other children were born.

Family Background Variables

There has been some research on the influence of having entrepreneurial parents on the career paths of entrepreneurs. Having a role model who is an entrepreneur may lead to the child pursuing entrepreneurship (Eccles, 1993; Aldrich & Kim, 2007; Uusitalo, 2001). Children may learn a large amount of information about starting and running their own business from having a parent who is an entrepreneur (Hundley, 2006; Lentz & Laband, 1989). Some families have a tradition of entrepreneurship such as the Nordstrom family. John Nordstrom started a shoe store in 1902. Eventually his grandsons "took the company public as one of the most successful and admired clothing and shoe stores anywhere" (Schweikart & Doti, 2009, p. 19).

For entrepreneurs with entrepreneurial parents, the success of their parents' ventures was positively related to them becoming an entrepreneur (Ayogyam, 2012). A study of female entrepreneurs in Turkey found the majority had entrepreneurial parents and that the fathers had a higher rate of being entrepreneurs than the mothers (Boz & Ergeneli, 2013). Schoon and Duckworth (2012) found that men with fathers who were entrepreneurs were more likely to become entrepreneurs than women.

Some research has examined the influence of an absent father on the choice of career. An absent father could mean having a father who was not present or involved in their life, who was never home, or was perceived as being missing or weak, or having no father figure in their life. Kaplan's (2007) research found that 59.5% of his sample of high-tech entrepreneurs reported a missing father of some type. Research and psychoanalytic theory have proposed that entrepreneurs may channel an absent father into creativity and thinking outside of the box (Dvir & Pines, 2007; Kets de Vries, 1996; Pines, 2003; Pines et. al., 2002). It is also believed that an absent father may lead to non-conformist activities and rebellion when dealing with authority. An absent father may create feelings of insecurity and low self-esteem. In an attempt to overcome these feeling, entrepreneurs may become high-achievers.

Some career research has examined the influence of an unsupportive mother on the choice of a career. Psychoanalytic theory has found that entrepreneurs reported their mothers to have been controlling, domineering, and unsupportive in their childhood (Dvir & Pines, 2007; Kets de Vries, 1996; Pines, 2003; Pines et al., 2002). Kaplan (2007) found that high-tech entrepreneurs rated their mothers as unsupportive, but indicated that their mother also controlled their stable households and pushed them to excel at school. This type of support may help entrepreneurs to feel they are competent and believe they have the ability to accomplish what they set out to do. This may

lead entrepreneurs to surround themselves with people who believe in them and are devoted to helping them achieve their dreams.

Work and Non-Work Experiences

Economists have often studied the rate of return from education (James & Alsalam, 1993; Larkins, 2001; Psacharopoulos, 1985; Sicherman, 1991). Economists argue that the labor market will reward the human capital investments individuals make in themselves with higher salaries and more promotions (Becker, 1964). Research on labor economics and careers has indicated that the returns from educational attainment in terms of pay, promotions, job satisfaction, and achievement of personal goals are significant (Baruch & Leeming, 2001; Judge et al., 1995; Psacharopoulos, 1985). In past studies, the positive effects of education have been attributed to factors such as quantity or years of education, quality of the educational institution attended, or subjects studied (Black & Smith, 2004; Hurley-Hanson et al., 2005).

Education is often used to illustrate the investments individuals make in themselves. Early organizational studies often looked at leaders and compared where they went to college. For example, Pierson (1969) studied leaders found in the Dictionary of American Biography and found a small number of schools had produced a large number of these leaders. Useem and Karabel (1986) studied top managers from 208 large U.S. corporations and found it was important to have a Bachelor's Degree from a top ranked college or a Master's Degree in Business in order to move into top corporate management. In fact, by the 1990s, almost 60% of CEOs had Master's Degrees in Business Administration (MBA) (Black & Smith, 2004). Most studies have found that education has a positive effect on entrepreneurship (Bruderl, Preisendorfer, & Ziegler, 1992; Gimeno et al., 1997; Holmes & Schmitz, 1996; Rees & Shah, 1986) and firm survival (Cooper, Javier Gimeno-Gascon, & Woo, 1994).

The influence of the age at which an entrepreneur holds their first job is an area deserving of further research. Popular anecdotal evidence suggests that many entrepreneurs enter the work force at an early age. These findings need to be corroborated with empirical research. Similarly, very little is known about the age at which an entrepreneur holds their first job in a high-tech company. While it is known that in their early careers Steve Jobs did coding work and that Steve Wozniak worked for Hewlett Packard, researchers have not examined the influence of early career experiences on high-tech entrepreneurs.

The industry experience of an entrepreneur may influence their success. Not unexpectedly, it has been found that having previous work experience in the industry in which a person started their firm had a positive effect on the success of a venture (Cressy, 1996; Bruderl et al., 1992; Cooper et al., 1994). It has also been found that when serial entrepreneurs create their next venture in the same industry as their previous start-up, it increases their probability of success (Gimeno et al., 1997; Plehn-Dujowich, 2009; Eggers & Song, 2015). In contrast, Sir Richard Branson and Elon Musk are two famous examples of entrepreneurs who change industries frequently and encountered much success. Richard Branson is a well-known serial entrepreneur who started successful ventures in different industries. In 1970, Branson founded Virgin Records, a discount record store in London. In 1972, he started a record label, and in 1984, he entered a completely different industry and started Virgin Atlantic Airways.

He has continued to create firms in many different industries (Parker, 2014). Elon Musk has also had start-ups in many different industries. He started PayPal to make digital payments possible. He then began manufacturing Tesla electric cars, and more recently started SpaceX, a venture in space exploration.

Some research has examined the role of failure on later success. Failures may provide information and knowledge for the entrepreneur which helps them to improve the performance of their subsequent ventures (Eggers & Song, 2015). Serial entrepreneurs have been found to perform better if they learn from their past venture experiences (Parker, 2013). Other studies have found that there are many factors that may influence whether the serial entrepreneur's performance improves after a failure. These factors include industry changes (Eesley & Roberts, 2012), number of ventures (Toft-Kehler, Wennberg, & Kim, 2014), time between startups (Parker, 2013), and entrepreneurial attribution for failure cause (Eggers & Song, 2015).

One unexplored set of variables which might influence the career paths of high-tech entrepreneurs is the category of other notable work and non-work experiences. Experiences which might be included in this category are international travel (e.g., Jobs' trip to India as a young man), hobbies and clubs (e.g., Wozniak's participation in the Homebrew Computer club), enrolling in certain college classes (e.g., Jobs' auditing a calligraphy class), dropping out of high school or college, and a variety of other notable work and non-work experiences that can shape an entrepreneur's career path and exert strong influences on their career decisions and career success.

Our study of high-tech entrepreneurs focused on the demographics, family background, and work and non-work experiences described above (Hurley-Hanson & Giannantonio, 2015). The demographic profile of the high-tech entrepreneurs in the study found the current average age of the high-tech entrepreneurs in the sample was 47.8, with only 10% of the sample being first-born children. There were no women high-tech entrepreneurs in the sample. The family background variables of the high-tech entrepreneurs revealed that nearly 31% of the sample had parents who were entrepreneurs. Absent fathers were found in 33% of the sample, and unsupportive mothers were found in 20% of the sample. The work and non-work experiences of the high-tech entrepreneurs revealed that almost all had some college experience, averaging 3.5 years. Virtually all of the entrepreneurs spent the majority of their career in the high-tech industry. About 56% of the sample had early start-up failures. A few examples of well-known entrepreneurs in the sample who had early failures included Richard Branson, Bill Gates, and Elon Musk. These three entrepreneurs all had their first venture fail. Mark Zuckerberg had two failures before Facebook (Digital Synopsis, 2015). Only 28% of the sample had managerial experience before they started their first high-tech firm. The average age they started their first firm was 24.5 years and the average age they started their first high-tech firm was 29.3 years.

Entrepreneurial Careers

The second question addressed in this paper, "Is there an entrepreneurial life pattern?" focused on the careers of entrepreneurs. Despite the growing research literature on entrepreneurship and the voluminous popular press on entrepreneurs,

there is limited research that has examined the careers of high-tech entrepreneurs. Traditional models of careers with their emphasis on progression through a series of defined career stages may not reflect the unique career trajectories of high-tech entrepreneurs. We developed a model of high-tech entrepreneurial careers and used the career path of Steve Jobs to illustrate the entrepreneurial activities that comprise the components of the model (Hurley-Hanson, Giannantonio, & Sudek, 2013).

Steve Jobs' life story and career path offer entrepreneurship scholars a modern day case study in which to explore high-tech careers. Few entrepreneurs have captured the world's attention as Steve Jobs did. His early career success, dramatic ouster from the company he built, and ultimate transformation of Apple into one of America's largest multibillion dollar companies encapsulates the American dream. There is great interest in Jobs' life story with sales of Isaacson's (2011) biography reaching over 379,000 in its first week of publication.

Traditional stage models of careers do not appear to fit the career paths that Jobs, Gates, Zuckerberg, and other high-tech entrepreneurs have followed because those models do not recognize that individuals may cycle through stages more than one time in their careers. Unlike traditional career models which have a linear progression, our model recognizes that some entrepreneurs (e.g., serial entrepreneurs), start different businesses which results in them cycling through the stages multiple times. There are five stages in the model: early influences, reconnection, transformation, reflection, and death.

The first stage of our model of high-tech entrepreneurial careers is *Early Influences* which includes demographic characteristics, family background variables, and work and non-work experiences. In examining the early influences that shaped Steve Jobs, variables that have been noted as influencing his career path include the impact of being an only child, having a father who was a master craftsman, taking a course in calligraphy, experiencing spectacular success and a very public failure at a young age, and membership in the Homebrew computer club (Isaacson, 2011).

The second stage in the career model is *Reconnection*. One life pattern that can be observed in the careers of some high-tech entrepreneurs is a return to one of the first companies that they founded. In some cases, the reconnection to their previous company came after a very dramatic and public ouster. For example, in 1985 Jobs was forced out of Apple, but returned in 1997 when the company purchased NeXT, the computer firm he started after his ouster from Apple. The Apple he returned to was a dying enterprise. Fourteen years later, at the time of his death, it had become the most valuable company in the United States. When Jobs returned to Apple he reconnected it to its true purpose, innovation. Jobs used Apple's organizational identity to build the company into one of the top firms in the country. Other examples of high-tech entrepreneurs who experienced the reconnection stage are Sir Terry Matthews who left Mitel in 1985 and acquired it back in 2000; Larry Page who co-founded and was CEO of Google from 1998-2001, and who returned as CEO in 2011; Jack Dorsey, the CEO of Twitter, who became Chairman in 2008, and returned to Twitter as Executive Chairman in 2011.

The third stage in the model is the *Transformation* stage. In this stage, the entrepreneur transforms the company from following its current strategic path to taking

the company in a new direction. For example, one of the keys to Jobs' success was his transformation of Apple from a computer company to a mobile device company. When Jobs introduced the iPad in his January 2010 Keynote, he formally announced that Apple was a mobile devices company (CircleID Reporter, 2010). This shift in strategy and redefinition of the company's mission was a dramatic transformation for a company that had launched the personal and home computer industry. Jobs transformed additional companies, as well as entire industries. He transformed Pixar from a computer division of Lucasfilm into an award winning computer animation film studio. He transformed the way that music was purchased, stored, and listened to through the development of iTunes and the iPod. He transformed software development and distribution with the creation of the App store, creating a cottage industry for thousands of app developers, and launching another generation of high-tech entrepreneurs. Another example of an entrepreneur who transformed his company was Michael Dell who transformed the way computers were sold by eliminating the middle man.

The fourth stage in the model is the *Reflection* stage. This stage may be triggered by thoughts of retirement, confronting a major health crisis, a desire to make a difference in the world, or an assessment of one's career successes and failures. The philanthropic work of Bill and Melinda Gates and Mark Zuckerberg and Priscilla Chan are examples of entrepreneurs in the reflection stage. In the case of Steve Jobs, his cancer diagnosis appeared to begin the reflection stage of his career. He began to speak to the media about his career and personal life. He chose to speak at graduations and other venues where he hoped to have an impact on people's lives and careers. He also agreed to have a biography written about him (Issacson, 2011). He opened up about career failures as well as successes in the hope of imparting wisdom that would help people to succeed.

In the reflection stage, Jobs appeared to consider his generativity needs (Erikson, 1963). In his personal life, he spent private time with his wife and children as well as his friends and colleagues. Jobs prepared Tim Cook for the day when he would no longer be able to run Apple because of his health. He worked very closely with Apple's board to prepare the company for life at Apple after he was gone. Steve Jobs worked to make sure the company would survive without him. He focused on choosing his successor and setting up the next products that Apple would introduce to the world. The three stories he told in his 2005 commencement address at Stanford were reflections on his life and legacy and lessons learned along the way.

Bill Gates is another example of an entrepreneur in the reflection stage. Not only does he talk about his need to help people in the world, he has donated a significant portion of his wealth to doing so. He has joined other wealthy people including Mark Zuckerberg and Warren Buffett who have taken The Giving Pledge which is a commitment to dedicate the majority of their wealth to philanthropy. Some high-tech entrepreneurs such as Lord Sugar and N.R. Narayana Murthy have written autobiographies or collaborated on biographies to help spread what they have learned in their careers in an effort to help others, suggesting that they too have experienced the reflection stage.

The fifth and final stage of the model is *Death*. Companies with strong entrepreneurial founders have to consider the impact that the death or exit of their company's founder will have on the long term viability of their firm. Steve Jobs faced the fifth stage of the

model by resigning from his duties as CEO of Apple and preparing for his death from pancreatic cancer. He died on October 6, 2011 at the age of 56. His death sparked very unique public reactions throughout the world. In the days following Jobs' passing, reflections on his legacy were noted by the worldwide media. BusinessWeek devoted an entire issue to him, something they had never done in their publishing history. Apple users around the world felt the need to note the passing of Steve Jobs. Apple stores allowed visitors to place Post-it notes around the store sharing their feelings on the loss of Steve Jobs. People were able to use Apple technology to create visual images to send around the world to mourn with other Apple customers and fans of Steve Jobs. This type of visual data may provide an important way for stories about the life of an organization and its founder to be remembered. On the one-year anniversary of his death, visitors to the Apple website were presented with a picture of Steve Jobs followed by a voice over video by Tim Cook. This visual image demonstrated a company mourning the loss of their founder and paying respect to him.

Another issue to consider in the death stage of entrepreneurial careers is the reaction of the financial markets. While the impact of losing the company's founder may be keenly felt and result in questions about the long term viability of all firms, these concerns may be more pronounced in entrepreneurial firms. Because of his inextricable relationship with Apple, questions were rampant about whether his death would also result in the demise of Apple. There have been many product launches since the death of Steve Jobs. Although most have been highly anticipated and have generated huge sales numbers, even a tiny slip from the top spot as the world's most valuable company leaves investors leery of Apple's long term viability and continued success. Although in reality this may have nothing to do with the death of Steve Jobs, many will attribute financial decline to the absence of Jobs.

Conclusion

This paper explored the two questions proposed by Schweikart and Doti in their book, *American Entrepreneur* (2009), by examining the characteristics and careers of high-tech entrepreneurs. In answer to the first question, "Is there an entrepreneurial character?", three findings stood out in our study (Hurley-Hanson & Giannantonio, 2015). First, in contrast to the young high-tech entrepreneurs highlighted in today's popular press and idolized by millennials, the average age of the high-tech entrepreneurs in our study was 47.8. The average age at which they started their first company was 24.5, and the average age they started their first high-tech firm was 29.3.

The highly publicized success stories of very young, very rich high-tech entrepreneurs may be contributing to the formation of entrepreneurial image norms. These image norms may be influencing millennials' entrepreneurial intentions. An image norm is the belief that individuals must present or possess a certain image, consistent with occupational, organizational, or industry standards, in order to achieve career success (Giannantonio & Hurley-Hanson, 2006). It has been noted that Steve Jobs' image when he was in his twenties did not fit the image norm of an entrepreneur. Jobs famously created his own unique image which consisted of a plain black turtleneck and a pair of faded blue jeans (Issacson, 2011). Jobs was an excellent example of an

image buster, a person who was so skilled and successful at their work that they were able to publicly and professionally present themselves with no concern for societal expectations regarding their appearance (Giannantonio & Hurley-Hanson, 2006).

Second, 56% of the high-tech entrepreneurs in our sample experienced early failures. A similar finding was noted by Schweikart and Doti (2009) in their book. They found that “American innovators and industrialists, inventors and business people have the capacity to come back yet again... Many entrepreneurs declared bankruptcy—some two or three times...” (Schweikart & Doti 2009, p. 8). They also found that “some of America’s greatest success stories resulted from abject failure. Automaker Henry Ford, banker A. P. Giannini, and department store founder Sam Walton all declared bankruptcy, had their first enterprises fail miserably, or were unceremoniously kicked out of companies they created before they attained ultimate success” (Schweikart & Doti, 2009, p. 13).

Third, the high-tech entrepreneurs in our sample came from many different backgrounds. This finding is consistent with Schweikart and Doti’s (2009) findings.

Many entrepreneurs grew up impoverished. Andrew Carnegie went from a “bobbin boy,” a child laborer in a textile mill, to one of the richest men to ever live in the United States. By contrast, J. P. Morgan sampled all the luxuries of his era in his youth, and his successful father arranged for his first job. He, too, amassed one of the largest fortunes in U.S. history (p. 8).

Schweikart and Doti (2009) also commented that “entrepreneurs come from all walks of life and backgrounds — from Harvard MBAs to penniless immigrants” (p. 8).

In answer to the second question, “Is there an entrepreneurial life pattern?” future research will be necessary to determine if our model of high-tech entrepreneurial careers is representative of the different categories of entrepreneurs identified in the management literature. Similarly, it is too soon to decipher if the life and career of Steve Jobs represents all high-tech entrepreneurs. What is clear from examining Steve Jobs’ career path and life pattern is that entrepreneurs need to plan for how their firms will survive once they are gone. Schweikart and Doti (2009) highlighted the importance of this, suggesting that in order for businesses to grow to the next level, they have “to operate beyond the constant input of a single individual on matters of detail”. They referred to moving “outside the personal, daily control of the founder” as the “Walton zone”, based on the story of Sam Walton (Schweikart & Doti, 2009, p. 456).

Schweikart and Doti’s (2009) book provided the underlying context for the research presented in this paper. Examining the characteristics of high-tech entrepreneurs has allowed us to look at the demographic, family background, and work and non-work variables that may characterize high-tech entrepreneurs. The model of high-tech entrepreneurial careers presented in this paper has allowed us to challenge the assumptions of career theories and expand our understanding of the life patterns of high-tech American entrepreneurs.

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