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The New Generation of Millennial Entrepreneurs: A Review and Call for Research

Abstract

Entering the third decade of the new millennium, the millennial generation is stepping into their most productive stage of life. We have witnessed a number of exemplary millennial entrepreneurs, such as Mark Zuckerberg, founder and CEO of Facebook. The world's economy is evolving fast and presenting distinct entrepreneurial opportunities to millennials across the globe. It is critical that scholars of international entrepreneurship explore the new breed of millennial entrepreneurs and contrast them across generations and countries. Regrettably, the extant literature comes up short in fully addressing the new generation of entrepreneurs. We call for immediate scholarly attention on millennial entrepreneurs as they are in substantive ways unlike all earlier generations. We urge researchers to explore the unique characteristics of millennial entrepreneurs, their influence on entrepreneurial motivation, orientation, opportunity discovery and exploitation process, and the global ambition of their entrepreneurial ventures.

Key words: Millennial, entrepreneur, international entrepreneurship

The New Generation of Millennial Entrepreneurs: A Review and Call for Research

1. Introduction

1.1 The Millennial generation of entrepreneurs

"Samaira Mehta is a 10-year-*old girl growing up in Silicon Valley… She's the founder and CEO of a company called CoderBunnyz that's earned national media recognition and landed her speaker roles at nearly a dozen Valley conferences (and continuing)" (*Bort 2018).

Before becoming the founder and CEO of CoderBunnyz, Samaira Mehta invented a board game to teach coding to children when she was only 8 years old. This instructional tool was then adopted by 106 schools in the U.S. within a year of launch (Bort 2018). Born in 2008, Samaira is the youngest serious entrepreneur we know of. While post-millennial entrepreneurs like Samaira are still limited in number, the millennial entrepreneurs (born in the 1980s and 1990s) have had numerous success. Examples include: Mark Zuckerberg (born in 1984), co-founder, chairman and CEO of Facebook; Brian Chesky (born in 1981), co-founder and CEO of Airbnb; Katrina Lake (born in 1983), founder and CEO of Stitch Fix; and Kevin Systrom (born in 1983), co-founder and CEO of Instagram. Scholars still lack a comprehensive understanding of millennial entrepreneurs' characteristics and experiences. For example, how do these outstanding millennials differ from their parents and grandparents? Are millennials more entrepreneurial than all previous generations? How are they similar or different across countries?

Thus far, the millennial generation has shown a relatively lower level of entrepreneurial activity than previous generations. According to the U.S. Small Business Administration Office of Advocacy, in 2014 only 2% of millennials engage in self-employment, compared to 7.6% of Generation X (born in the 1960s and 1970s), and 8.3% of Baby Boomers (Wilmoth 2016). When turning age 30, the millennials also have a lower self-employment rate (4%) compared to Generation X (5.4%) and Baby Boomers

(6.7%). This lower entrepreneurship among millennials may be attributed to limited financial independence and work experience given their young age, and delayed start of career due to higher education. Despite these challenges, millennials may turn out to be the greatest entrepreneurial generation ever because of their acumen as digital natives in today's technology-centered world (Online MBA Page 2016). Millennials are the first generation that feels fully at home in the digital world (Rauch 2018). The above-mentioned millennial entrepreneurs and their companies share one commonality—they embrace technology, especially digital and information technology. Newer technological innovation and applications from millennials that leverage the Internet of Things, Block Chain, and Artificial Intelligence are poised to change the world dramatically.

Strauss and Howe (1991) first used the term "Generation Y" to describe the generation born between 1982 to 2000. Foot and Stoffman (1998) called the generation born between 1980 to 1995 as "Baby Boom Echo". A few other labels for this generation have also been suggested by various scholars, including "NetGen" (Burke and Ng 2006) and Nexters (Zemke, Raines and Filipczak, 1999). This particular generation of young people is characterized by the years in which they were born but more importantly, by the significant changes that occurred during their time. Among these are (1) the rapid development of technology, especially information technology and the internet, and (2) globalization--increasing connectivity of life and business worldwide, enabled by advanced communication and transportation technologies. In addition, social values changed and liberalization movements for minority groups such as the LGBT (lesbian, gay, bisexual and transgender), which encourage this generation to openly express their individualistic needs emerged.

Millennials have shown drastically different characteristics compared to previous generations regarding expectations about jobs and careers. Ng, Schweitzer and Lyons (2010) found that millennials have great career expectations that are mainly demonstrated in the following few areas. First, they value work-life balance and want to "make a life," not "make a living" (Zhang et al. 2007), without having to work long hours and sacrificing personal lives as their parents had done (Loughlin and Barling 2001).

Second, they expect good salaries and benefits and appear to exhibit a sense of entitlement that does not necessarily match their performance (Hill 2002). This sense of entitlement makes them expect good grades in school (Greenberger et al. 2008), or quick promotions and pay raises on the job (Erickson 2009), without proper justification or corresponding performance. Scholars believe that such sense of entitlement is the result of a pampered up-bringing (Twenge 2006), which accustomed millennials to instant rewards with minimum effort. Third, on the bright side, millennials tend to pursue a meaningful and fulfilling careers (Lancaster and Stillman 2002; Yang and Guy 2006) and prefer to join employers with higher corporate social responsibility (Price Waterhouse Coopers 2008). The millennial generation's sense of social responsibility also extends to consumer trends; millennials are willing to pay more money for a product if it is for a good cause, such as environmental protection and charity (Gaudeli 2009; Ng, Schweitzer and Lyons 2010).

Although a number of studies have been reported on millennials as employees in the workforce, research on millennials as entrepreneurs is very limited. We are in dire need of understanding how the fundamental characteristics of the millennials influence their entrepreneurial motivation, shape their entrepreneurial orientation, and facilitate or hinder their entrepreneurial success. Entrepreneurship is an arduous process that requires hard work, persistence, resilience and stamina. Will the entrepreneurial process go along with the ambitious, impatient and instant gratification nature of millennials (Ng, Schweitzer and Lyons 2010)? These are research questions worthy of scholarly investigation.

1.2. Changing global business environments for entrepreneurs

Millennials have distinctive characteristics from prior generations because they were born and brought up in a different time. When studying their specific psychological and behavioral attributes, we also need to consider the changing global business environment. Globalization is an age-old phenomenon. However, it had been accelerated unprecedentedly since the 1980s due to the liberalization of major former planned economies, improving trade environment, and the advancement of technology, especially

that for communications, logistics and transportation (Cavusgil et al. 2014). The forces of globalization had contributed to the rapid growth of various emerging markets, especially in the Asia-Pacific region, including China, India and others, in contrast to the stagnant development of western economies and Japan. The relatively free international flow of capital and the profit-seeking behavior of multinational enterprises alleviated the global income inequality to some extent, at the cost of certain job loss within advanced economies. The loss of low value-added and manufacturing jobs in their home countries appears to have served as a key motivator for the millennials to seek entrepreneurial ventures.

Contrary to their ambitious career expectations, the outlook for millennials in western countries is not so optimistic. A U.K.-based study by the Resolution Foundation suggests that millennials will be the first generation to earn less than their previous generation (Myers 2016). This pattern holds true for other higher income countries in Europe, and it is common for millennials to experience little or no income improvement compared with their parents' generation (Tomlinson and Rahman 2018). Focusing on children born between 1980 and 1991 in the U.S., Chetty and colleagues (2014) studied the intergeneration upward mobility of millennials from an economic perspective. They found an average of 3.4 percent increase in a child's income given a 10 percent increase in parent income (Chetty et al. 2014). This upward mobility measure varies in different geographic locations due to various social, economic, political and cultural factors, but the generally low correlation suggests that the millennial generation is not doing any better than their parents. Not only in western countries, but also the more developed economies in the east have shown worrisome trends among the millennial generation. For example, Japan is suffering from slow or negative economic growth, an aging population, and an entrenched deflationary cycle. The Japanese millennials are suffering from unemployment, highly stressful work environments and the consequential psychological problems. Approximately 1.2 percent of the Japanese population are the so called "hikikomori" – people who exhibit social withdrawal from normal life and spend most of their time at home (usually in a very small room) for months and years (Kato, Kanba and Teo 2018). In

2016, the Japanese cabinet estimated about 541,000 people with "hikikomori" within the age range of 15 to 39 years (Kato, Kanba and Teo 2018).

Things appear more optimistic in emerging markets where the economic activity has been robust, and a new middle class has emerged. Yet, emerging markets also face various social and environmental constraints. China is losing its population dividend due to its birth control policy in the last three decades. As the only child in their families, the Chinese millennials are the epitome of pampered up-bringing. Forty years after the country's economic reform, most of the low-hanging entrepreneurial economic fruits may have been taken, and fewer entrepreneurial opportunities remain for the Chinese millennial generation. In comparison, India is still enjoying a fast-growing economy with a young population. However, India also faces the limits of social and gender inequality, poverty and environmental pollution, which can serve as both hindrances and catalysts to entrepreneurship. For example, in reaction to public safety threats to females and lack of police service to address them, Indian entrepreneur Arvind Khanna launched a smartphone App (One Touch Response) providing 24/7 on-demand personal safety guard service, which has helped many civilians in need. While this represents the best of social entrepreneurship, there still remains a question of whether Indian millennials can fundamentally challenge traditional social systems and initiate disruptive entrepreneurial innovations. In all, the changing business environment worldwide requires us to study the millennial entrepreneurs with greater consideration of environmental factors. The rapidly transforming global environment itself also compels us to investigate this phenomenon in a timely manner.

2. Extant Literature

To arrive at a contemporary understanding of the extant entrepreneurship research, we carried out a thorough review of the literature published in the two leading peer-reviewed entrepreneurship journals—Journal of Business Venturing (JBV) and Entrepreneurship Theory and Practice (ETP) in recent years. We focused on the empirical studies with individual level variables and/or those

concentrating on entrepreneur individuals in an effort to identify which generation of entrepreneurs the researchers had been studying. The result of our literature review is summarized in Table 1. We discuss key findings and insights next.

2.1. Lack of research on the new generation of entrepreneurs

Regrettably, the extant literature on entrepreneurship comes up short in fully addressing the new generation of entrepreneurs. We have fallen behind in our understanding of and accounting for this megatrend. Despite the fact that millennial generation entrepreneurs have taken an increasingly important stage in global business, our research has not caught up with the new realities. Among the studies published in the two leading journals in 2017 and 2018, only one study appears to have addressed a sample of millennial entrepreneurs (Uy et al. 2017), although the sample size was small. Although this study was not designed to understand how millennial entrepreneurs differ from those from earlier generations, it does reveal some insights. In their study, Uy and colleagues (2017) utilized an experience sampling methodology, which was administered through a mobile phone text message survey system. This indicates not only a key difference between conventional and new research methods, but also one distinctive characteristic of the millennials—they are technology savvy and tend to live on their cell phones.

Nevertheless, we failed to gain any more exhilarating insights about millennial entrepreneurs from the literature. Even among the most recent empirical studies, the overwhelming majority still focuses on the older generations – entrepreneurs born in the 1950s, 1960s, and 1970s. The conclusion remains the same for studies published in previous years. Some may argue that entrepreneurship requires extensive knowledge, skills and experience, and that is why we expect entrepreneurs to be more mature. From research conducted over the last few decades, we indeed find that the typical mean age of entrepreneurs lies between 35-45, from research conducted over the last few decades. This period in life is

when most entrepreneurs have accumulated enough resources while still maintaining the enthusiasm, energy and courage for such an adventurous endeavor.

As shown in Table 1, there are a few other studies examining a younger group of participants in their 20s (Hockerts 2017; Muehlfeld et al. 2017; Davis et al. 2017; Bacq and Alt et al.). Nevertheless, these young participants are university students instead of true entrepreneurs. Some may say, if we want to study the millennial entrepreneurs, we can just wait a few years until they mature, and they will naturally fall into our sampling frame. Unfortunately, that thought could lead us to a substantial missed opportunity to extend our knowledge. As time passes and the millennial entrepreneurs mature, their environments change, and their cognition and behavior also change consequently. We would fail to capture the unique moment of time when they stand most distinct compared to earlier generations.

It is not that the reviewed studies have not reached any of the millennials entrepreneurs. We have observed a large divide of demographics and large standard deviations of age in these samples. For example, in their qualitative study, Smith et al. (2017) interviewed a group of 16 entrepreneurs. While the mean age of this small group is 36.1, their age spans from 23 to 63, with a large standard deviation of 12.76. Large standard deviation in age has been observed in most of studies that reported this measure (e.g. Ciuchta et al.2018; Mathias and Williams 2018; Wood et al. 2017). Age has often been used as a control variable in many studies, either showing non-significant or very small effect on the hypotheses. However, distinctive generational characteristics have been observed and cannot be further ignored. If treating age as a continuous variable does not reveal such differences, we should separate different age groups and test their moderation effects. It is critical that this issue is addressed in future research.

2.2. Cognitive and behavioral studies need generational background

The research questions investigated in the reviewed studies cover a wide range but fall into two main categories, or a combination of both: (1) cognitive characteristics and mechanisms; (2) behavioral characteristics and mechanisms. These two general research questions are intrinsically related because

cognitive development leads to behavioral patterns. Among the cognitive studies, research questions include: how entrepreneurial experience affects exploratory perseverance (Muehlfeld et al. 2017); how fear of failure mediates the relationship between obstacles and entrepreneurial activity (Kollmann et al. 2018); and how to understand entrepreneurial identity through metaphor and drawing (Clarke and Holt 2017). There is also a wide range of questions explored in behavioral studies. For example, how entrepreneurial motivational cues affect angel investor decisions (Cardon et al. 2017); and what antecedents predict the time to exit a distressed venture (Yamakawa and Cardon 2017). Researchers have also analyzed the impact of environmental factors on entrepreneurial cognition and behavior. These include: how institutional environment and political connections influence entrepreneurial investment (Ge et al. 2017); how labor market institutions affect preference to work in family firms (Block et al. 2018); and how institutional environments and poverty shapes the occupational identity of entrepreneurs (Shantz et al. 2018). Scholars have also combined cognitive and behavior perspectives jointly in research. For example, Hsu and colleagues (2017) studied how self-efficacy affects the entrepreneurial re-entry prospect; Fang et al. (2017) studied how failure velocity and emotional regulation affects learning behaviors of entrepreneurs from failure.

Age is an important consideration for cognitive and behavioral research. We see abundant examples in daily life and news stories how young people think and behave differently, and it is even reflected in their political opinions. For example, it is estimated that 73 percent of young people under the age of 24 voted to remain in the European Union in the 2016 Brexit referendum (Panjwani 2018). A total of 82 percent of young people aged between 18 and 24 would vote to remain if there were offered a second referendum (Curtice 2018). However, their parents and grandparents' generations have largely voted to exit. Doesn't this phenomenon alert us to address more generation issues in our research? Regrettably, our review suggests that previous research has not been able to track the cognitive and behavioral development in the long term or to compare the millennial generation entrepreneurs with their predecessors.

2.3. Absence of methodological rigor

A major difficulty we encountered in our review of literature is that many studies did not report complete information about their samples which limited our ability to gauge our current understanding about millennial entrepreneurs. Rarely do we see a study reporting a full range of demographic information, including age, age range, age standard deviation, and gender ratio. Another important observation from our review is that many authors fail to disclose the actual time of their empirical data collection. This not only creates difficulty in estimating the age of research subjects at the time of study, more importantly, it weakens our understanding of the research context and background, thus weakening the validity and generalizability of their research findings. In some cases, we were able to estimate the data collection time based on various inadvertent cues by combing information from the author's previous publication. Therefore, we indicated "maybe" in Table 1 to project our best guess on timing. For example, the only study (Uy et al. 2017) that we believe might have captured millennial entrepreneurs did not clearly specify the time of data collection. We were able to find clues of data collection from a previous article introducing their research method (Uy et al. 2010). We estimated the data collection to be in 2009 or after. Researchers should disclose all important information including the time of data collection. Good research is timeless, but it has to be rigorous.

2.4. Uneven distribution of research among different parts of the world

The countries of studies in previous literature shows domination by western developed countries. Out of the 43 studies summarized in Table 1, 17 of them focus on subjects in the United States, and 14 were carried out in European countries (United Kingdom, Germany, The Netherlands, Scandinavian countries and other European Union member countries). Only 9 studies represented the developing countries in Asia and Africa (including China, India, Bangladesh, The Philippines, Ghana, and Kenya). Our review reflects the general climate of research in all major business disciplines – dominated by studies on western and developed countries. However, it has been well recognized that the world's

economic growth has been shifting from the western to the eastern hemisphere, from the northern to the southern hemisphere. If we continue to ignore the dynamic business and entrepreneurship development in developing and emerging economies, we will lose valuable opportunities to generate new knowledge.

The new entrepreneurial development in emerging markets especially demands scholarly attention. Recently, in its transition to an innovation-driven economy, China has called for a mass innovation and entrepreneurship movement, providing essential resources to entrepreneurs through incubators and venture parks. It is estimated that some eight Chinese new business entities were registered every minute in 2015 (Xinhua News 2017), and 15,000 new firms were established every day in 2016 (State Administration for Industry and Commerce of the People's Republic of China 2017). Such national investment in entrepreneurship from top down is worth scholarly investigation. There is also the bottom-up entrepreneurial movement in emerging countries such as India, reflected by the large amount of frugal innovation among grass-root entrepreneurs. We are in dire need of distributing more resources into researching entrepreneurship in emerging and developing economies.

We can no longer overlook this new generation of entrepreneurs. It is of great urgency that we study the millennial generation of entrepreneurs of the world, before they grow old.

3. Where do we go from here? Future research

3.1. Understand the entrepreneurial motivation and orientation of millennials

Given their strong preference for social responsibility (Gaudeli 2009; Ng, Schweitzer and Lyons 2010), a question remains whether the millennial generation has a stronger motivation than other generations to address inequality, environmental protection and other social issues through social entrepreneurship. Moreover, we have yet to determine whether millennials will exhibit more nascent entrepreneurial activities from necessity, due to the narrower career development paths, loss of job opportunities brought by the migration of multinational corporations, and the glass ceiling of their home

market growth. We also need to examine a series of motivational factors that have been recorded in previous studies of entrepreneurship, such as need for achievement, locus of control, risk-taking propensity, egoistic passion and others. We need to verify if this set of motivational concepts found in studies of older entrepreneurs also applies the same way to the millennial generation.

We may also discover new facets of entrepreneurial motivation that have never been discussed previously. Certain issues are related to contextual environment, e.g., economic opportunity and condition may drive young people to get into start-ups. Policy incentives could be another one. Still another might be personal preferences such as the desire to operate independently and not at the behest of a boss. Social and economic problems may lead them to find ways to overcome these problems, and skills acquired through education may lead them to practice the knowledge they have acquired.

3.2. Understand how entrepreneurial motivation and orientation affects the opportunity identification and exploitation process for millennial entrepreneurs

After understanding the fundamental motivation for the millennial entrepreneurs, we need to understand how it affects their journey on discovering and exploiting entrepreneurial opportunities. First, different entrepreneurial motivations will determine the areas where they find opportunities. For example, when Barclay Okari taught at a girls' high school in south-western Kenya as a volunteer teacher, he discovered that girls would miss classes during their menstrual period due to lack of sanitary pads. He realized it as a social problem but also as an entrepreneurial opportunity. He founded the company Safi Pads, producing inexpensive, washable and reusable sanitary pads that helped millions of low-income African women (Nsehe 2014). There are also numerous examples of grassroots entrepreneurship and frugal innovations in emerging markets borne out of necessity. An example is Mansukhbhai Prajapati, an Indian potter who invented the first clay refrigerator utilizing the natural cooling function of clay without any conventional source of energy. He then founded Mitticool Clay Creation to produce low-cost clay

refrigerators, water filters and other home goods to serve bottom-of-the-pyramid consumers in emerging markets (Abrar and Nair 2011).

There are also negative examples of how entrepreneurial motivation influences the trajectory of an entrepreneurial venture. Elizabeth Holmes (born in 1984), was once acclaimed as the youngest self-made female billionaire in the world by Forbes, due to the high valuation of her company Theranos. She had boldly claimed to have invented revolutionary blood test techniques which were later proven to be fraudulent. Prior to the scandal, she had frequently appeared in various media, portraying herself as an ambitious, intelligent and diligent female entrepreneur, which indicates that she enjoyed such glamourous publicity. We have limited clues to understand her entrepreneurial intention. However, we wonder whether her egoistic pursuit for fame and fortune had led to the immoral and criminal behavior of her company. In conclusion, it is necessary for us to examine how entrepreneurial motivation influence the opportunity exploration and exploitation process for millennial entrepreneurs.

3.3. Understand the relationship between millennial entrepreneurs and technology

In the beginning of this article, we listed some exemplary millennial entrepreneurs, including Mark Zuckerberg (Facebook), Brian Chesky, (Airbnb), Katrina Lake (Stitch Fix), and Kevin Systrom (Instagram). These millennial entrepreneurs thrive predominantly in the information technology industry, especially related to the internet. When creating the term "NetGen" to describe millennials, Burke and Ng (2006) noted the most salient characteristics of NetGens as their aptitude with computers and technology, integrating technology into their lives and quickly adopting new ideas and platforms in technology. Millennials are also labeled as "digital natives" (Online MBA Page 2016), since they are the first generation that feel fully at home in today's digital world (Rauch 2018).

Millennial entrepreneurs leverage and exploit their insider understanding of their generation's life style and consumer habits in creating more innovative product and service offerings utilizing technology. They have demonstrated strong interest in creating and tapping into new business models and platforms in

today's digitized global economy, including new ventures that capitalize on the growth of the sharing economy, the gig economy, and e-commerce. Some notable examples include Grab (a leading ride share business in Southeast Asia co-founded by Malaysian millennial entrepreneur Anthony Tan); Stitch Fix (previously mentioned— a subscription-based styling and clothing business founded by American entrepreneur Kartrina Lake); and GO-JEK (a sharing economy SuperApp in transportation, food, logistics, and payments founded by Indonesian millennial entrepreneur Nadiem Makarim). Millennial entrepreneurs' significant involvement in fueling the growth of the digital economy worldwide opens up new and exciting opportunities for research in international entrepreneurship.

While technology promises boundless opportunities for millennial entrepreneurs, it has posed ethical and moral dilemmas for them as well. The previously mentioned, Elizabeth Holmes' scandal raises doubt about the credibility of "breakthrough" innovations and discoveries that appear in the news almost daily. While technology in many ways benefit all human beings, it can be a double-edged sword and produce negative effects. The discovery of nuclear power is such an example in the 20th century. More recently, we are faced with a diversity of ethical dilemmas of technology – artificial intelligence vs. the potential of being slaves to machines; genetic coding and cloning vs. the ethical controversies when applied to human beings; big data and cloud computing vs. people's privacy and property rights. It remains a critical challenge for the millennial entrepreneurs to develop their own ethical philosophy and deal with problems related to technology that their forefathers had never imagined.

3.4. Understand the relationship between millennial entrepreneurs and the natural environment

The millennial generation is more environmentally conscious and is willing to pay a premium for a product if it is for a good cause, such as environmental protection or charitable endeavors (Gaudeli 2009; Ng, Schweitzer and Lyons 2010). This fundamental change from their attitude of previous generations, together with other factors, has resulted in many changes in their consumer behavior. One

noticeable change is that the millennial generation has shown less preference towards property possession. In turn, this has led to the prospering "shared economy," spanning from shared housing (e.g. Airbnb), and shared cars (e.g. Uber), shared bikes (e.g. Ofo), to even shared clothes and shoes (e.g. Le Tote). A complex set of factors have contributed to the rise of the "shared economy," including the limited income and financial independence of the millennials. But many of them are intentionally curbing their over consumption tendency to avoid or reduce the waste and environmental pollution behind production and consumption. Millennial entrepreneurs can respond to such change in their peer customers' attitude and behavior, but they can also be opinion leaders and initiate such changes. For example, to provide an eco-friendly alternative to disposable plastic or wood utensils, Bakeys, an Indian startup company, invented the first edible cutlery product line with simple food ingredients including rice, wheat and sorghum. We need to better understand how millennial entrepreneurs perceive their relationship with the natural environment and how it affects the development of their sustainable businesses.

3.5. Understand the gender difference and role of females among millennial entrepreneurs

According to a 2019 report issued by SCORE (a nonprofit organization supporting small business in the U.S.) female respondents showed a slightly higher level of entrepreneurial activity (47%) than male respondents (44%) in 2017 (SCORE 2018). Though women-owned business and men-owned business do not differ significantly in terms of success rate, they do show noticeable differences in industries. Women are more likely to start businesses in healthcare (10%) or education services (9%) than men (both 5%), while men are significantly more likely to launch businesses in construction and manufacturing industries (12%) than women (4%) (SCORE 2018). Such gender differences in entrepreneurship may not seem surprising as we might have some presumption regarding the male dominance in certain industries. However, the question remains whether the landscape will shift toward a different direction, especially in high-technology-related industries. The majority of millennial entrepreneurs we listed in our earlier examples are all male from the information technology industry. In the male dominant technology world,

women have thus far appeared underpowered. Will such male dominance be further strengthened or weakened? The opening case about Samaira Mehta, the 10-year-old programmer and entrepreneur has given us some hope for change. With more millennial females receiving higher education and engaging in science and engineering jobs, we expect more female entrepreneurship in the technology sector. There remain many questions for future research regarding the gender difference and the role of females among the millennial entrepreneurs.

3.6. Understand the cross-country differences of millennial entrepreneurs and how national environments affect their entrepreneurial orientation and experience

While the millennial generation worldwide may share some essential similarities, we expect to see distinct characters of them across different countries. This is especially true for entrepreneurs, who are fundamentally impacted by the economic and social environments in which they reside. In recent years, we have seen interesting contrast in the pace of economic development between western developed economies and emerging markets. Consequently, millennial entrepreneurs have developed different mindsets and will face very different business opportunities in their home countries.

It is predicted that in 2019 the millennials will outnumber baby-boomers and become the most numerous cohort in the United States (Rauch 2018). The U.S. millennials have been labeled as "pragmatic idealists," after being traumatized by various terrorist events and the financial crises and observing their country's relative power in decline (Rauch 2018). Chinese millennials, in contrast, have been portrayed as increasingly independent, creative, audacious, and ready to change the world (BBC 2019), having enjoyed the country's reform dividend and the status of a rising super power. While millennials from western developed countries such as the U.K. and Japan may have a dimmer entrepreneurial outlook due to slow national economic growth, we expect to see more innovative grassroots entrepreneurs from emerging markets such as India. In conclusion, we need cross-country comparative studies to understand

the different characteristics and experience of millennial entrepreneurs, in relation to the institutional, cultural and social environments in which they reside.

3.7. Understand the global ambition of millennial entrepreneurs

We have previously discussed some pioneer millennial entrepreneurs and their companies -- Mark Zuckerberg (Facebook), Brian Chesky, (Airbnb), Katrina Lake (Stitch Fix) and Kevin Systrom (Instagram) – are thriving thanks to the ubiquitous internet. Given the global nature of the internet, these companies are typically "born-global" (Knight and Cavusgil 2004). When starting their business, they are not limiting themselves to the home market, but targeting the global market instead. Ofo is the pioneer dock-less bike-sharing company, founded by Chinese millennial entrepreneur Dai Wei in 2014. By the end of 2017, Ofo has launched bike sharing business in five overseas markets including Australia, France, Singapore, U.K., and U.S. As the Co-founder and CFO Austin Zhang states, Ofo's mission is to "unlock every corner of the world" (TechCrunch 2017). Due to various constraints including high global expansion cost, decreasing financial support from investors, management chaos, and difficulty in generating profits, Ofo faced life-death threat in 2018. After gradually withdrawing from several overseas markets, in January 2019, Ofo allegedly dissolved its international division (Moore 2019). Ofo's story urges us to understand the global ambition of millennial entrepreneurs and help them make their dreams come true, instead of going bust.

4. Conclusion

It is critical that scholars of international entrepreneurship explore millennial entrepreneurs and contrast them across generations and countries. Such a comparative study should reveal promising findings about their idiosyncratic motives, behaviors, networking patterns, financing ability, and actual success rates, as well as identify key lessons for future entrepreneurial endeavors. These issues are of interest not just to scholars but also public policy agencies that are eager to mobilize this new breed of entrepreneurs as a way of generating economic growth and innovation. It is also important to recognize

that entrepreneurial activity is not just an interesting phenomenon itself but is closely linked to other critical indicators of a society. Where we find entrepreneurial activity, we also find a rise in middle class consumers, productivity, innovation, a more equitable income distribution, and a more progressive society. Thus, the story of the entrepreneurial ventures of millennials are of interest from a broader perspective. It is hoped that the present paper will inspire others to pursue empirical investigations of this contemporary phenomenon.

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Table 1. Literature review of entrepreneurship research in leading entrepreneurship journals

Authors	Key research question	Journal	Methods	Sample/study subjects	Sample size	Mean entrepreneur /subject age	Gender ratio (male)	Country of study		Estimated years of birth of majority
Hockerts (2017)	antecedents of social entrepreneurial intention	ETP	quantitative, survey	Scandinavian business students	257	25.5	44%	Scandinavian countries, 25.2% international students	2013	Late 1980s
Hsu et al. (2017)	How self-efficacy affects entrepreneurial re-entry prospect	ETP	experiment	entrepreneurship students and nascent entrepreneurs	158	N/S	46%	United States	N/S	
Breugst & Shepherd (2017)	Effect of social conflicts on entrepreneurial affect	ETP	quantitative, survey	entrepreneurial team members in venture centers and incubators	112 individuals from 59 firms	31.71	90%	Europe	N/S	
Muehlfeld et al. (2017)	How entrepreneurial experience affects exploratory perseverance	ETP	experiment	individuals ranging from college students to real entrepreneurs	349 students 100 non student	23.6 (student) 39.7 (non-student)	76% non-student sample	Netherlands	N/S	
Baù et al.(2017)	antecedents of entrepreneurial reentry	ETP	longitudinal survey, quantitative	entrepreneurs who suffered failures	4761	46.71	63%	Sweden	2008	Early 1960s
Cardon et al. (2017)	How Motivational cues communicated by entrepreneurs affect angel investment decision	ETP	Videotaped entrepreneurial presentations coded by researchers	entrepreneurs who applied for angel investments	133	N/S	N/S	United States	2007-2009	

Davis et al. (2017)	How perceived product creativity and entrepreneurial passion influence crowdfunding performance	JBV	experiment	college students	102	22.6	62%	United States	N/S	
Smith et al. (2017)	how online social media impact entrepreneurs' social capital	JBV	qualitative, interviews	entrepreneurs (founders)	16	36.1	N/S	North American Pacific Northwest	N/S	
Wood et al. (2017)	How initial inaction decision affects subsequent action judgement	JBV	experiment	entrepreneurs (founders)	2 samples 143/ 101	34.47/ 37.18	79.7% /81%	United States	N/S	
Yamakawa & Cardon (2017)	antecedents predicting time to exit a distressed venture	JBV	survey	entrepreneurs	93	48.95(age at new start-up)	89%	Japan	2001	Late 1950s
Hessels et al. (2017)	how job control and job demand mediates the relationship between self-employment and work-related stress	JBV	longitudinal survey (Household, income and labor dynamics in Australia)	employed individuals currently "in paid work"	15834	38.77wage workers 46.6 self-employed	50% wage worker 64% self-employed	Australia	2013	Late 1960s for self-employed entrepreneurs
Kibler et al. (2017)	how general observers judge the legitimacy of entrepreneurial failure	JBV	conjoint experiment	general working age individuals (18-69)	601	47.18	50%	Germany	N/S	
Zhou (2017)	how institutional environment affect entrepreneurial reinvestment in a transition economy	JBV	national survey, secondary	private enterprises	1855	39.58	92%	China	1996	late 1950s

Gielnik et al. (2017)	The effects of entrepreneurship training	JBV	experiment	university students	227(125 treatment group)	N/S	77.50%	Kenya	N/S	N/S
Kautonen et al.(2017)	how late-career transition to entrepreneurship affects monetary and nonmonetary return to life	JBV	survey	elderly individuals aged 50-67	2851	55.75	47%	United Kingdom	2002-2011	early-Mid1950s
Kollmann et al. (2017)	How fear of failure mediates the relationship between obstacles and nascent entrepreneurial activity	JBV	experiment/survey	university students enrolled in an entrepreneurship course; nascent entrepreneurs	71/204/355	24.03 students /37.54 entrepreneurs /38 entrepreneurs	64.8% 57.8% 45.5%	Germany	N/S	late 1970s for entrepreneurs
Mueller et al. (2017)	How entrepreneurial passion and grit lead to venture performance	JBV	survey	entrepreneurs	204	55.73	79%	United States	N/S	
Cai & Winters (2017)	what's the difference in self-employment propensity between foreign born STEM and non-STEM workers	JBV	national survey, secondary	foreign-born college graduates age 25-61 who are employed or self-employed	49449(non-stem),32666 stem	42.9(Non-STEM), 41.3(STEM)	40% (non-Stem) 69% (stem)	United States	2015	early 1970s
Ge et al. (2017)	How institutional environment and political connections influence entrepreneurial investment	JBV	national survey, secondary	privately owned enterprises	3837	44.4	86% male	China	2006	early 1970s

Mathias et al. (2017)	how and why entrepreneurs redistribute their resources after harvesting their ventures	JBV	interview, qualitative	entrepreneurs	19	54.6	N/S	United States	N/S maybe 2015	maybe early 1960s
Uy et al. (2017)	The relationships among affect spin, entrepreneurial well-being and venture goal progress, and moderation effect of goal orientation on these relationships	JBV	ESM(experience sampling methodology)survey through text messages	study 1:entrepreneurs from a particular incubator, 11 nested business ventures; study 2: entrepreneurs from another incubator	63/34	between 19 and 23 years old	58.33% ;64.7%	The Philippines	N/S maybe 2009 or after	maybe late 1980s early 1990s
Clarke & Holt (2017)	How to understand entrepreneurial identity through metaphor and drawing	JBV	drawing, qualitative interviews	entrepreneurs	22	N/S	N/S	United Kingdom	N/S	
DiVito & Bohnsack (2017)	how entrepreneurial orientation affect sustainability of fashion firms	JBV	qualitative, interviews	sustainable fashion firms	24	N/S	N/S	Netherlands(18) United Kingdom, France, Germany, Belgium	2016	
Molecke & Pinkse (2017)	how do social entrepreneurs handle the increasing pressure to measure social impact with formal methodologies	JBV	qualitative, interviews	social enterprises who aim to aid the extremely poor in developing countries	22	N/S	N/S	India, China Chile, Ghana US, Pakistan Nigeria, Mali Kenya, Belize Mozambique South Africa, Tanzania, Liberia, Uganda	N/S	

Strohmeyer et al.(2017)	whether, how and why an entrepreneur's gender affect the firm innovativeness	JBV	national survey, secondary data	entrepreneurs	580	48.29	50%	Germany	2008	early 1960s
Kwon & Ruef (2017)	How does the labor market affect entrepreneurial performance and what can alleviate the imprinting effect of labor markets	JBV	longitudinal national survey of youth	entrepreneurs , individuals who owned a business during 1979 to 2010	1439	N/S	N/S	United States	1979-2010	between 1957-1965
Qin et al. (2017)	how the returnee identity of entrepreneurs interact with venture resources and determine entrepreneurial entry time	JBV	survey and interviews	technology firms in incubators in Beijing	388	36.39	N/S	China	2008 survey , 2016 interview	early 1970s
Wiklund et al. (2017)	How ADHD symptoms affect entrepreneurial preference and actions	JBV	surveys	MBA graduates	545	40.64	67%	United States	2016	late 1970s
Block et al. (2018)	how labor market institutions affect preference to work in family firms	ETP	secondary data, quantitative	general individuals	12746	41.25	38%	total 40 countries, European Union as majority	2012	early 1970s
Ciuchta et al. (2018)	how entrepreneurial coach-ability influences potential investor's	ETP	survey, video presentation	entrepreneurial coaches (investor, advisor or mentor)	48	47.63	73%	United States, Turkey	2015	late 1960s

	investment decision									
Fang He et al. (2018)	How failure velocity and emotional regulation affects learning entrepreneur's behaviors from failures	ETP	survey	entrepreneurs in the IT industry and their managers	142 pairs	47 entrepreneurs 40 managers	92%, entrepreneurs, 73.81%	United States Finland	2012	Mid 1960s
Bacq & Alt (2018)	How empathy predicts social entrepreneurship intentions	JBV	survey	university students	281	20.14/20.79	40%/ 35%	United States	2014-2016	Middle 1990s
Chen et al. (2018)	How psychological distance and structural process determines the abstractness of entrepreneurial action	JBV	longitudinal study, Interview and survey	entrepreneurs	350	37.63	68%	United States	1998-2003	early to mid 1960s
Mathias & Williams (2018)	how entrepreneurs' role transition affects venture growth	JBV	qualitative, interviews	entrepreneurs	45	42.73(computed)	N/S	United States	maybe 2014 **	maybe early 1970s
Sarkar et al. (2018)	How inequality affects entrepreneurial activity	JBV	National Socio-Economic survey	general working individuals, self-employed individuals	134665 general, 41% self-employed	39.1 general, 43.1 self-employed	82.2%/ 88.4%	India	2011-2012	late 1960s to early 1970s
Warnick et al. (2018)	How entrepreneurs' passion for product/service vs passion for	JBV	conjoint analysis	angel and venture investors	62	52	89%	United States	N/S	

	founding new ventures affect angel and venture investor's decision making									
Shantz et al. (2018)	How institutional environments and poverty shapes the occupational identity of entrepreneurs	JBV	interviews	entrepreneurs and community members	37 total 13 entrepreneurs	N/S	0% all women entrepreneurs	Ghana	N/S	
Walthoff-Borm et al. (2018)	Drivers and characters of firms seeking equity crowdfunding	JBV	secondary data quantitative	firms that sought equity crowdfunding for the first time	277	43.66	N/S	United Kingdom	2012–2015	early 1970s
Baron et al. (2018)	how the perception of being an underdog compels entrepreneurs to give briberies	JBV	quantitative, survey and interviews	nascent entrepreneurs	112	30.9	78%	China	2009-2010	late 1970s to early 1980s
Johnson et al. (2018)	How gender biases affect crowding funding decisions	JBV	experiment	Crowdfunding projects and amateur investors	73 investors	35.04	68%	United states	N/S maybe 2013	maybe late 1970s
Shahriar (2018)	How matrilineal and patriarchal societies influence entrepreneurial propensity	JBV	survey/experiment	indigenous community members	457/276	33.62	51%	Bangladesh	N/S maybe 2013	maybe late 1970s
Weinberge, et al. (2018)	How recovery from work stress influences entrepreneur’s creative idea generation on a daily basis	JBV	day construction method(daily report, experience sampling)	owner-manager or self-employed individuals	62	40.94	85.80%	Germany	2014-2015	early-mid 1970s