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A confident culture for creativity? Creative self-efficacy and innovation behavior moderated by perception of culture: Millennials versus generation Xers

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A Confident Culture for Creativity?
Creative Self-Efficacy and Innovation Behavior Moderated by Perception of Culture:
Millennials vs. Generation Xers

A Dissertation Presented to the
Faculty of the Department of Management,
Kellstadt Graduate School of Business
DePaul University
In Partial Fulfillment of the Requirements for the Degree of
Doctorate in Business Administration

By
Karen Bartuch

May 2018

Dissertation Committee and Approvals

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Acknowledgements

Biography

The author, Karen Bartuch, is a lifelong resident of Chicago. She received her Bachelor of Arts in Psychology degree from Northwestern University in 2000. In 2010, she received her Master's degree in Communications from DePaul University where she was selected as the "Outstanding Graduate of the Year" by the faculty.

In her professional career, Karen spent almost a decade as a Chicago Police Officer in a variety of assignments including patrol, gang team, Intelligence and Counter-Terrorism and most notably as a policy adviser for the superintendent of police (chief executive officer). She successfully transitioned to the private sector joining Motorola Solutions, Inc. (MSI) in 2011, her work included developing advanced analytics solutions for law enforcement. In 2016, she joined PwC (among the top four consulting firms in the world) where she led innovation for her team developing new client facing solutions as well as internal optimization projects. In 2018, she joined Sandstorm Design to lead Strategy and Research (a role that is a direct result of the DBA program). She is an avid volunteer with organizations such as Girl Scouts and serves on the board of the Chicago Police Foundation.

Research areas of interest include gender, humor, innovation and communications.

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Abstract

Innovation is a strategic priority for many companies today and some are more successful at it than others. This study aims to understand what factors affect the innovation behavior of employees. Specifically, this study examined the perceptions of creative self-efficacy (CSE) in individuals and their innovation behavior. In addition, individual perceptions of culture for innovation within their organization were measured to determine how culture affects the relationship between CSE and innovation behavior. According to social cognitive theory (SCT), an individual's *behavior, cognitions* and the *environment* influence each other in a dynamic fashion.

Given the prevalence of millennials in the workforce and the many perceived differences of that group, two generational cohorts, millennials and Generation Xers were examined in relation to CSE, perceptions of culture and innovation behavior. CSE was found to have a significant impact on innovation behavior but perceptions of culture for innovation was not found to significantly moderate that relationship. Generational differences in relation to innovation were not found to be significant; in fact, the two groups were found to be quite similar. This is important for organizations to understand to recruit and hire the right employees to effectively innovate and to create an environment that motivates employees to engage in innovation behavior.

Keywords: innovation, creativity, creative self-efficacy, culture, innovation behavior, millennials, generation Xers, generations

"Invention, my dear friends, is 93% perspiration, 6% electricity,
4% evaporation, and 2% butterscotch ripple."
-Willy Wonka

Introduction

Innovation is a strategic priority for many companies. IBM, for example, declares it is in "a constant state of innovation,"[1] and even implemented "Think Fridays" as a way for employees to spend time on creative thinking. This dedicated time is spent on activities such as developing new ideas, reading, or even learning a new skill[2]. In 2016, IBM garnered a record number of patents (8,088)[3] and coincidentally achieved $79.9B in revenue that same year, much of this due to its dedication to innovation and especially the encouragement of employees to engage in innovation behavior. Google, early on in its inception, encouraged employees to spend 20% of their time on innovation. This time allotted for tinkering led to many of Google's most notable and profitable advances such as Gmail and AdSense[4]. When Google went public in 2004, the founders Larry Page and Sergey Brin wrote a letter (commonly dubbed the Google 2004 IPO letter) to investors saying: "We encourage our employees, in addition to their regular projects, to spend 20% of their time working on what they think will most benefit Google. This empowers them to be more creative and innovative."[5] Google closed out 2016 with just over $89 billion in revenue much of it due to innovations that employees voluntarily created during that "20%" timeframe and because of Google's overall organizational support at every level of revolutionary innovation. Whirlpool Corporation, during the hiring selection process, brings their Master of Business Administration (MBA) candidates to a multi-day assessment exercise. The purpose of

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[1] https://www.ibm.com/ibm/us/en/?lnk=fab
[2] http://www.techrepublic.com/blog/tech-sanity-check/ibm-the-greatest-innovator-you-never-hear-about/
[3] http://fortune.com/2017/01/09/most-patents-2016/
[4] http://www.huffingtonpost.com/2013/08/16/google-20-percent-time_n_3768586.html
[5] https://abc.xyz/investor/founders-letters/2004/ipo-letter.html

the assessment is to ensure candidates are capable of innovation behavior since innovation at the

individual employee level has historically been critical to Whirlpool's success.[6] Whirlpool is

dedicated to creating the future by "making the best appliances through constant innovation".[7]

The brand Whirlpool is synonymous with innovation and they closed out the first quarter of 2017

closed with revenue growth of four percent. Innovation appears to be an important and

influential contribution to organizational performance. Therefore, managers are likely to value

and encourage behaviors that lead to innovation in their teams and organizations.

The foundation of all innovation is creative ideas, and it is individuals or groups who

generate, promote, discuss, modify, and ultimately realize ideas (Janssen, Vliert & West, 2004).

Innovation has been found to be positively related to organizational benefits such as improved

overall performance (Matzler, Abfalter, Mooradian and Bailom, 2013), successful market

expansion, brand enhancement and differentiation, improved work environment, better customer

alignment, improved efficiency, and increased company value (De Tienne and Mallette, 2012).

Innovation has also been found to be a critical component of an organization's long-term success

(Amabile, 1997) and a sustained competitive advantage (Amit and Shoemaker, 1993). Because

business is rapidly changing and technology is enhancing exponentially on a daily basis,

companies cannot continue to deliver the same products and services and expect to remain

relevant or continue to achieve success or growth. Innovation is one of the best methods for

companies to maintain their significance and competitive edge. And innovation starts with the

individual employee which is the focus of this study.

Despite these proven benefits, not all organizations invest in or dedicate resources to

innovation, and some companies are just better at it than others. Many times, an organization or

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[6] https://hbr.org/2015/04/the-5-requirements-of-a-truly-innovative-company
[7] https://www.whirlpool.com/services/about-us.html

leader preaches innovation as a priority and an activity they want employees to engage in but the actual execution of innovation is lacking especially when creating environments that foster, reward and support creativity. There can be many organizational culture-related reasons for this disconnect such as lack of leadership support, resistance to change, risk averse culture, to name a few (Klein and Sorra, 1996). Typically, it is a small number of employees such as those in Research and Development units that are the ones focused on innovation. It is not surprising, then, that in a poll conducted by McKinsey & Company, 94% of the managers surveyed said they were dissatisfied with their company's innovation performance (Capozzi, Kellen and Somers). Firms that successfully innovate tend to have employees engaging in innovation throughout the organization, not just a select few.

There are many factors that can and do affect innovation both at the individual and organizational level. At the individual level, one's own confidence in their creative ability, "creative self-efficacy", is a factor that plays a role in individual innovation behavior (Farmer & Tierney, 2002). The authors added to previous research which found that self-efficacy is important for performance. Their study extended that research to show self-efficacy also applies to an employee's creative capacity but the extent to which that occurs is dependent on the environment (Farmer & Tierney, 2002). This study aims to further this research and examine creative self-efficacy and how the environment affects innovation behavior. Innovation behavior is defined as the processes of idea generation, idea promotion, and idea implementation (Holman et al., 2012). Innovation is often a result of an effort that goes above and beyond and employee's outlined job roles and responsibilities. Therefore, it is essentially up to the individual to develop an idea and then follow through with that idea. Even when Google and IBM carve out time to innovate, it is up to the individual to initiate the innovation behavior - to engage in idea

generation, promotion and implementation each requiring a significant amount of effort. Coming up with an idea and carrying the idea forward can be a monumental effort. If an individual isn't confident in their creative ability then it is likely they will avoid innovation related activities as they involve creativity. Putting forth novel ideas opens an individual up to scrutiny and judgment so for those individuals with low creative self-confidence this can be a daunting task. *This study will examine how an individual's confidence level in their own creativity, creative self-efficacy, affects their innovation behavior*.

Within an organization, culture - specifically how an employee perceives the culture when it comes to innovation - is an important factor affecting innovation behavior of an individual (Amabile, 1997, DeTienne & Mallette, 2012). Existing research has examined creative self-efficacy and culture separately, but not the effects of one's creative self-efficacy as it relates to perceptions of the culture for innovation and ultimately innovation behavior. *This study will examine how perceptions of culture for innovation affects the relationship between individual creative self-efficacy and innovation behavior*.

In addition to creative confidence and culture potentially affecting innovation behavior, the makeup of the workforce is changing rapidly. In January 2017, Bloomberg reported that Baby Boomers (individuals born between 1945 - 1965) are retiring at rapid rates.[8] At the same time, more and more millennials (individuals born 1981 or later) are entering the workforce. More than one third of American workers today are millennials and they recently surpassed Generation X (individuals born between 1965 and 1980) to become the largest share of the American workforce (Frye, 2015). Research conducted by Pew Research Center on the U.S. Census Bureau data also confirms that millennials have surpassed all other generations and now

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[8] https://www.bloomberg.com/news/articles/2017-01-06/older-americans-are-retiring-in-droves

make up the majority generational group in the workforce in the United States (see Figure 1:

U.S. Labor Force by Generation, 1995-2015).[9]

Figure 1: U.S. Labor Force by Generation, 1995-2015

U.S. Labor Force by Generation, 1995-2015

In millions

Note: Annual averages plotted 1995-2014. For 2015 the first quarter average of 2015 is shown. Due to data limitations, Silent generation is overestimated from 2008-2015.
Source: Pew Research Center tabulations of monthly 1995-2015 Current Population Surveys, Integrated Public Use Microdata Series (IPUMS)

PEW RESEARCH CENTER
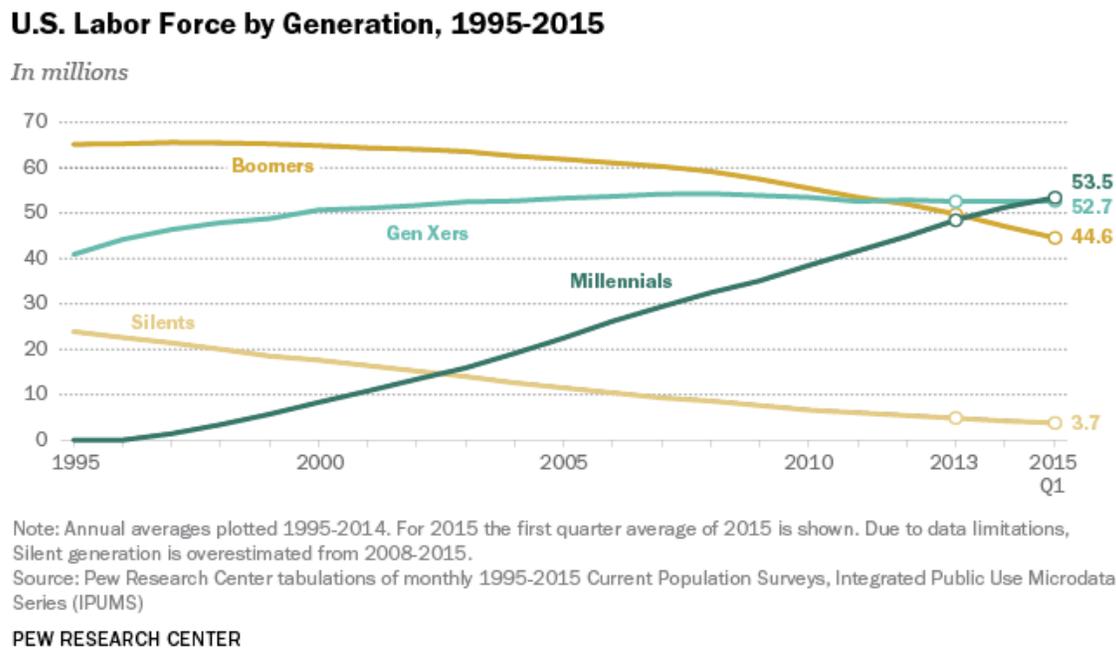
This new flock of employees are undoubtedly being called upon by their employers to

innovate. For example, research has shown that the millennial generation has greatly different

attitudes towards work relative to other generations (Gursoy, 2008). Stewart (2017) found that

millennials prefer to work in teams, desire frequent and open communication with their superiors

as well as frequent feedback. Millennials were also found to be risk averse (Gursoy, 2008).

These real and perceived differences are leaving many organizations and managers (who tend to

be more tenured and therefore older) questioning how to lead and influence each group. Because

of the increasing millennial prevalence, perceived or real differences and organizational

frustration it is important to understand if there are in fact differences and what factors affect

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[9] http://www.pewresearch.org/fact-tank/2015/05/11/millennials-surpass-gen-xers-as-the-largest-generation-in-u-s- labor-force/

millennials when it comes to innovation. Innovation is too important to an organization's long-term success to ignore any of these factors. Research has been done on millennial attitudes towards work as well as their preferred culture and environments but not as it relates to views of their own creative self-efficacy or innovation behavior. *This study will examine the differences in creative self-efficacy, perceptions of the culture for innovation and innovation behavior of the millennial generation compared to other generations, including Generation X, Baby Boomers, and the Traditionals/Silent Generation.*

Literature Review

Why does an individual within an organization engage in innovation behavior? This question is based on the premise that engaging in innovation behavior is a deliberate choice. Creativity is the first step in innovation and is defined as "...the production of novel, appropriate ideas in any realm of human activity, from science, to the arts, to education, to business, to everyday life...it is the first step in innovation which is the successful implementation of those novel, appropriate ideas" (Amabile, 1997: 40). Creativity involves the generation of novel and useful ideas (idea generation) but innovation requires the implementation of these ideas into new products and processes (Sarooghi, Libaers & Burkemper, 2015). Idea generation and idea implementation are very different and require different employee skill sets. Idea generation requires experimentation, disrupts routine and challenges common assumptions (Rosing et al., 2011). In contrast, idea implementation requires a process, efficiency, goal orientation and routine execution (March, 1991). Given those differences, it is important to understand what is the impetus for an individual employee to engage in innovation behavior. Unless an employee is in a role that specifically focuses on innovation behavior, employees are not necessarily compelled to engage in innovation behavior and in fact, this is often a choice made by the

employee (Ford, 1996). If an organization wants to encourage innovation, it is essential to understand how to make that happen. This study aims to uncover more understanding of this topic related to creative confidence, culture and innovation behavior.

Social Cognitive Theory

According to social cognitive theory (SCT), coined by renowned Stanford psychologist Albert Bandura, an individual's *behavior, cognitions* and the *environment* influence each other in a dynamic fashion. Because of this, SCT provides a useful and comprehensive framework to examine individual action and its outcomes (Hmieleski and Baron, 2009). Further, SCT provides a helpful theoretical context to investigate how cognitive and environmental factors interact to explain behaviors - and for this study, innovation behaviors. In terms of cognitive factors, creative self-efficacy will be examined and in terms of the environment, how an employee perceives the organizational culture for innovation will be examined.

SCT outlines the "triadic reciprocality model" in which behavior, cognitive/other personal factors and environmental events all operate as interacting determinants of each other (Bandura, 1986). According to Bandura:

"...most external influences affect behavior through intermediary

cognitive processes in that cognitive factors to a certain extent determine

which environmental occurrences will be observed, what meaning will be

derived from them, whether they leave any lasting effects, what valence and

value they will have, and how the information they communicate will be

organized for future use" (Bandura 2001: 265)."

Because this study is looking at the effects of an individual's self-perceptions as well as culture on their innovation behavior, affective events theory (AET) also provides a good

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theoretical foundation for this study. AET is a model developed by Weiss and Cropanzano (1996) that explains the relationship between an employee's *internal influences* such as cognitions, emotions or mental states and how they respond to events that occur in their *work environment* that ultimately affect their *behavior and performance*. In this study, AET will be applied to examine how creative self-efficacy (an employee's internal influence) relates to an employee's perception of culture for innovation (work environment) and the innovation behavior of the employee. AET suggests that an employee's affect and attitudes link context features and work events to behavioral outcomes (Walter, 2009). Therefore, for the purposes of this study, an employee's perceptions of their own creative ability should affect their innovation behavior. In addition, the way that employee perceives their work environment can strengthen or weaken that relationship. If a person is very confident in their creative ability but their work environment is very unsupportive towards innovation, then they might not want to engage in innovation behavior. Conversely, if the individual is creatively confident and the environment very favorable for innovation, then their innovation activities may increase at a much higher rate. If an employee is average when it comes to their creative confidence, a supportive and strong innovative environment could be the tipping point that nudges that employee to innovate. For companies, looking to have their employees innovate, this is extremely important to understand.

Hypotheses Development

Creative Self-Efficacy & Innovation Behavior

As noted above, an important early step in the innovation process is creativity. Teresa Amabile (1997) defines creativity as:

> "...simply the production of novel, appropriate ideas in any realm
>
> of human activity, from science, to the arts, to education, to business,

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> to everyday life. The ideas must be novel—different from what's been
>
> done before—but they can't be simply bizarre; they must be appropriate
>
> to the problem or opportunity presented (Amabile, 1997: 40)."

Individuals with higher confidence in their creative ability (i.e., creative self-efficacy) have been found to be more creative (Tierney and Farmer, 2002). This study will add to this research as it takes that one step by further by examining if in fact those employees then go on to engage in innovation behavior.

This study will look at creative self-efficacy (CSE) as a cognitive factor in Bandura's SCT model and in Weiss' and Cropanzano's (1996) AET model. In order to understand CSE, the concept of self-efficacy in general must first be examined. Bandura (1986) defines self-efficacy as:

> "people's judgments of their capabilities to organize and execute
>
> courses of action required to attain designated types of performances.
>
> It is concerned not with the skills one has but with judgments of what
>
> one can do with whatever skills one possesses" (Bandura, 2001:269)."

Self-efficacy is extremely important in business as well as to an individual's career performance and success. According to Bandura (1989: 123) "individuals assess their own self-efficacy to determine a level of motivation, as reflected in how much effort they will exert in an endeavor and how long they will persevere in the face of obstacles. The stronger the belief in their capabilities, the greater and more persistent are their efforts". This is critical to innovation within an organization where new ideas are often met with resistance or are pushed to the bottom of the priority list. Individuals assess their personal and situational resources and constraints to make personal efficacy judgments. This self-efficacy judgment influences one's motivation and ability

to engage in specific behaviors (Bandura, 1997). These same efficacy judgments are made regarding CSE.

In an organization, one's assessment of their capability (self-efficacy) can be influenced by individual information, work tasks and others in the work environment (Gist & Mitchell, 1992). Much of employee's knowledge and behaviors are generated from the organizational environment in which they operate as well as their unique personal characteristics (Stajkovic & Luthans 1979). One's belief in their ability to perform, their "self-efficacy" (Bandura, 2001), also affects one's behaviors. An individual's self-efficacy assessment can affect whether or not a person decides to do a certain task or not and the intensity with which they perform the task. Given that innovation within an organization often involves setbacks, roadblocks and advocating an idea forward, which requires resilience in self-belief especially after failures, it is important to understand the relationship between one's own creative self-efficacy and perceptions of their organizational culture for innovation. Although employee creativity is recognized as a critical part of an organization's ability to be innovative (Amabile, 1988) and thrive in dynamic environments (Baer & Oldham, 2006), creative engagement in work settings can be challenging (Ford, 1996). Accordingly, Bandura and Locke (2003) noted that "a resilient sense of efficacy provides the necessary staying power in the arduous pursuit of innovation and excellence" (p. 97). Self-efficacy specific to a given activity domain is most instrumental in predicting performance in that domain (Bandura, 1986). When it comes to SCT, "social" refers to the environmental influence of one's thought and action, whereas the "cognitive" portion refers to the individual's motivation and action. In applying AET, a model is proposed where the relationship between CSE (attitude) and innovation behavior is strengthened or weakened by an individual's perception of the culture for innovation (environment).

Tierney and Farmer (2002) introduced the concept of creative self-efficacy in 2002 as a process similar to that deployed for self-efficacy (Gist & Mitchell, 1992). The authors define CSE as "...the belief that one has the ability to produce creative outcomes" (Tierney & Farmer, 2002: 1141). Their study tested the construct of creative self-efficacy and developed a three-item scale to measure creative self-efficacy. Tierney and Farmer also found that CSE and the ability to engage in creative behavior may differ among individuals within an organization and various environments. Specifically, Tierney and Farmer looked at the effects of job tenure, education level, job complexity, job self-efficacy (the belief in one's ability to perform their job) and supervisor support on CSE and creative performance among white collar (i.e., employees from a high-tech firm) and blue-collar workers (i.e., employees of a manufacturing division of a large consumer product company). The CSE scale was developed from research on self-efficacy and creativity. The authors started with a 13-item scale which was reduced to three after extensive analysis (confirmatory factor analysis resulted in an alpha above .80). Overall, the results of the study found that CSE was positively related to creative performance and a positive relationship was found among job self-efficacy, job complexity, supervisor support and CSE. Creative effort is typically an activity above and beyond an individual's job role. It is also usually quite demanding with a high risk of failure therefore needing time, attention and persistence in order to drive it - especially within an organization (Mathisen & Bronnick, 2009). According to Tierney and Farmer (2002), creative self-efficacy is a crucial precursor to creative effort and performance including idea generation specifically. Therefore, it is important to understand how an employee's CSE relates to environmental factors which ultimately influence one's innovation behavior.

In addition to SCT and AET, it is important to note the componential theory of creativity

for this study. Creativity is not an activity reserved only for certain people, contrary to conventional wisdom (Amabile, 1997). In contrast to this thinking, the componential theory of creativity assumes that all humans with normal capacities are able to produce at least moderately creative work in some domain, some of the time—and that the social environment (the work environment) can influence both the level and the frequency of creative behavior (Amabile, 1997). Given that the social environment plays a large role in an individual employee's creativity, this study examines one's perception of their organizational culture for innovation as moderator on the relationship between CSE and innovation behavior.

Ng and Lucianetti (2016) studied CSE and innovation behavior in relation to organizational trust and perceived respect and found a positive moderated-mediation relationship. The study consisted of a survey of over three hundred employees from 60 organizations in Italy at three different time periods. The survey measured organizational trust and perceived respect as well as the proposed mediators of creative, persuasion and change self-efficacy. Psychological collectivism was measured as a potential moderator. The study found that organizational trust and perceived respect are positively related to creative, persuasion and change self-efficacy. Until this study, research had not examined innovation behavior from the agentic perspective. Because innovation requires heavy investment of effort over a long period of time (Bandura, 1989), it is important that employees have a resilient sense of self-efficacy and therefore advantageous for organizations to be able to influence it positively. My study will add to this research by examining CSE, additional dimensions of perception of culture for innovation and innovation behavior.

Innovation Behavior

Innovation behavior consists of three separate components: idea generation, idea

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sponsorship and idea implementation (Scott and Bruce, 1994, Janssen, 2000 and Holman 2012), as illustrated in Figure 2 below. *Idea generation* refers to the creative portion of the process which involves the development of novel and useful ideas (Amabile, 1997). *Idea promotion* involves finding supporters of the idea and selling the idea to others (Janssen, 2000). *Idea implementation* is the behaviors involved in turning ideas into new products or services; it is the realization of ideas within the workplace (Janssen, 2000). As discussed, innovation behavior requires a high level of resilience as this process can involve setbacks, roadblocks and even failures along the way. Having confidence and belief in creative ability or creative self-efficacy is also important to this process. As a result, the following is hypothesized:

Hypothesis 1: Creative self-efficacy positively relates to innovation behavior.

Figure 2: Innovation Behavior

Innovation Behavior:		
Idea Generation	Idea Promotion	Idea Implementation
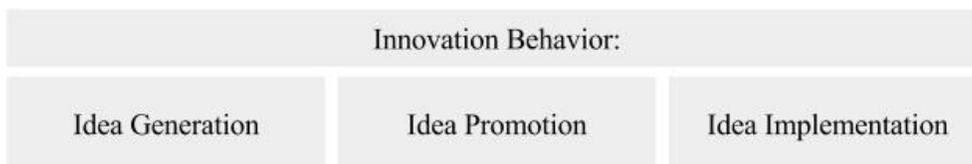
Perceptions of Culture to Support Innovation

Culture is a key factor influencing organizational effectiveness (Zhang, Yang and McLean, 2010). Organizational culture is defined as the set of values and beliefs that provide norms of expected behaviors that employees might follow; it is a strong force although typically unwritten and intangible (Schein, 1992). Because of this, culture is a powerful way to drive organizational outcomes (Hogan & Coote, 2014). Further, Tierney and Farmer corroborated existing theory (e.g., Amabile, 1988; Woodman et al., 1993) portraying creativity as a dynamic phenomenon that should materialize in work settings under the right cultural conditions (Tierney, 2011). The transformation of creative ideas into new products or services is affected significantly

by institutions, cultures, organizations and external environments (Sarooghi et. al., 2015). This study will examine how employees with high or low CSE are influenced by their perception of the culture for innovation in their organization and how that translates into innovation behavior. For instance, a high CSE employee with a supportive environment will potentially exhibit greater innovation behavior, whereas if the environment was not supportive, the high CSE may not translate into innovation behavior because it is too risky or outside the norm. The culture of an organization affects how an employee behaves over and above formal rules and regulations (O'Reilly, Chatman, & Caldwell, 1991). This becomes particularly important in regard to innovation as it is typically an effort that goes over and above one's normal work duties and is often a choice by the employee.

Schein defines culture as "…tacit assumptions about how the world is and ought to be that a group of people share and that determines their perceptions, thoughts, feelings, and, their overt behavior" (Schein, 1996). Much of what makes up culture is unseen and is not necessarily consciously available. Schein related there are three different layers to culture that must be examined – some more overt than others. The layers that make up culture are norms, values and artifacts (Schein, 1992).

A significant amount of research has been done related to culture, and a smaller subset is focused on the characteristics and outcomes of a culture for innovation. Hogan and Coote (2014) examined culture, innovation and performance. Building on the work of Edward Schein (1992), who argued that culture has several layers that should be analyzed, Hogan and Coote conducted an extensive survey on law firms that explored the relationship among culture, innovation and performance. The measures included were values and norms, artifacts (the three layers of culture as noted by Schein), innovation behaviors and firm performance which they adapted from

previous scales related to culture. *Values* are the standard used to determine right and wrong within an organization (Dose, 1997)." *Artifacts* are stories, rituals, language, and arrangements (Hogan & Coote, 2014). Values, norms and artifacts make up the multiple "layers" of culture that Schein refers to. The study found that "…distinct layers of organizational culture (partially) mediate the effects of values that support innovation on firm performance" (Hogan & Coote, 2014). The study found that increased performance is not due to just values supporting innovation; rather, norms, artifacts and innovation behavior also play a role. Implications for practice include the importance of organizational culture to motivating and encouraging innovation among employees. Further, understanding which values, norms and artifacts foster innovation can assist organizations with embedding those into the culture.

Farmer, Tierney and Kung-McIntyre (2003) examined creativity and elements of the work environment with an application of role identity theory. Role identity is how one sees themselves in relation to a specific role (Burke & Tull, 1977). Farmer et. al. (2003) found that creativity among employees was strongest when a high creative role identity was combined with an environment that valued creative work. This study highlighted how an individual's view of themselves paired with their environment impacts their creativity. The results, consistent with role identity theory, showed that when an employee perceived the culture to support innovation (specifically, when employees perceived their coworkers to expect them to be creative), their role identity as creative was stronger. In addition, when Taiwanese employees were exposed to U.S. culture (which is considered to be higher in innovation), the employees engaged in more creative behavior. However, they did not extend the study to look at an individual's innovation behavior. The present study aims to show that an individual employee's view of themselves and their environment affects their innovation behavior.

Bandura's (1986) model refers to the mutual influence between three sets of factors: personal factors (e.g., cognition), the environment, and behavior. Culture is considered an environmental factor in this model. According to SCT, personal and contextual factors come into play when determining one's self-efficacy. Tierney and Farmer (2002) found that the influence of CSE extends into an employee's propensity to be creative in their work and that how this occurs is unique to a setting. This study aims to look at both personal factors (one's own creative self-efficacy) and contextual/environmental factors (culture) as they relate to innovation behavior. The model proposed in this study applies Affective Events Theory which explains the relationship between an employee's internal influences such as cognitions, emotions or mental states and how an employee responds to events that occur in their work environment that ultimately affect their behavior and performance (Weiss & Cropanzano, 1996). CSE is a good starting point for the model as it is a strong factor that influences innovation behavior, and it is also malleable to a certain degree (Scott & Mumford,2004). Positive perceptions of culture for innovation have been linked to greater innovation behavior, but the three variables of CSE, perception of culture for innovation and innovation behavior have not, as far as could be determined, been studied together. In this study, it is anticipated that the main effect of CSE on innovation behavior is moderated by levels of perception of culture for innovation. For individuals who report lower levels of the perceived culture for innovation, there is a less positive relationship between CSE and innovation behavior. For those individuals that report higher levels of perceived culture for innovation, there is a more positive relationship between CSE and innovation behavior.

> *Hypothesis 2: The relationship between creative self-efficacy and innovation behavior is strengthened by a culture for innovation.*

Millennials in the Workplace

Labels such as "baby boomer", "millennial", and "Generation Xer" are commonly

adopted to describe individuals born in a particular timeframe, although there is not definitive

agreement on when each generation starts and ends as far as birth years (variance of a just a few

years). A meta-analysis by Costanza et. al. (2012) categorized generations as outlined below

which is similar to how the U.S. Census Bureau (2014) defines generations[10]. This study will

focus on the differences between millennial and Generation X employees.

- Traditionals or Silent Generation: born before 1945

- Baby Boomers: born 1945 - 1964

- Generation X: born 1965 - 1980

- Millennials: 1981 or later

Today, more than one third of American workers are millennials and in 2015 they

surpassed Generation X to become the largest share of the American workforce (Frye, 2015).

Given the prevalence of millennials in the workforce, which is on the rise, and their growing

presence it is important to understand the differences between the generations whether the

differences are real or perceived.

The study of generational differences goes back to 1953, when Karl Mannheim proposed

the theory of generations that posited that generations are cohorts of individuals born in a similar

time period that share values and beliefs largely defined by similar social and historical

environments (Mannheim, 1953). Schuman and Scott (1989) further tested Mannheim's theory

and found that "...generational effects are the result of the intersection of personal and national

history". For example, generation Xers experienced …"economic uncertainty, the beginning of

the AIDS epidemic and the end of the Cold War" whereas the millennial generation was marked

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[10] https://census.gov/newsroom/pressreleases/2014/cb14-219.html

by "...Columbine, 9/11, celebrity scandals and various technology platforms such as the Apple iPod and iPhone" resulting in different values and beliefs among each generation (Gibson, Greenwood & Murphy, 2009: 2). Generation Xers prefer to rely on their entrepreneurial effort, independence and creativity while millennials are more comfortable with technology and desire constant communication and feedback (Gibson et al., 2009).

There are many perceptions and stereotypes when it comes to the different generations and especially when it comes to millennials. Typically, millennials have been raised by extraordinarily involved parents who coached on the sidelines and often intervened on their children's behalf (Raines, 2002). Twenge (2009) found that these efforts have produced a generation that is high on self-efficacy and is unusually self-assured. When it comes to job satisfaction, a meta-analysis conducted by Costanza, Badger, Fraser, Severt and Gade in 2012 found that older generations are slightly more satisfied with their jobs than younger generations, while older generations were somewhat less likely to leave their jobs than younger generations. No relative differences on job commitment of older vs. younger generations were found. Researchers have found that millennials prefer team-based workplaces, close contact and communication with superiors and frequent feedback when compared to other generations (Myers & Sadaghiani, 2010; Stewart, 2017). Gursoy (2008) found that millennials want to avoid risk. Millennials have also been found to seek feelings of involvement - which is necessary for organizational attachment - else they get bored easily which results in more turnover (Alsop, 2008). Millennials are motivated to have an impact on their organization (Myers & Sadaghiani, 2010). Lastly - and more obvious - millennials are at ease with various forms of technology.

Organizations are made up of employees from more than one generation; therefore, it is important to examine the differences to determine how to embrace them to get the best possible

outcomes for the individual and the organization. Numerous studies show that millennials exhibit needs and values dissimilar to their older colleagues (Stewart et al., 2017). Millennials have been found to be less committed to their organizations and do not place as much emphasis on "work" when compared to older generations (Myers & Sadaghiani, 2010). Boomers tend to do more than what is asked although many find themselves questioning if the sacrifices, particularly those related to family, were worth it (Stewart et al., 2017, Myers & Sadaghiani, 2010). As discussed, innovation behavior is often an additional effort by the employee which can certainly be affected by one's attitude toward work as well as the belief in one's capability of performing the work. When employees of any generation see how their contributions are valued, they are more open to commit to the organization (Stewart et al., 2017). Given that, an employee's perception of their organizational culture can potentially play a large role in the innovation behavior of a millennial employee.

In addition, Twenge (2009) found millennials to be high on self-efficacy and unusually self-assured. This study adds to this extant research by exploring how millennials and Generation Xers rate themselves on CSE. Since CSE is related to self-efficacy, higher ratings of creative self-efficacy by millennials were anticipated as a result of this study.

Hypothesis 3a: Millennial employees will have higher ratings of creative self-efficacy compared to Generation Xers.

Given the many differences between millennials and other generations especially when it comes to attitudes toward work, level of engagement, and preferred communication methods, to name a few, it is expected that the differences in the perceptions of their organization's culture for innovation will have an effect on their innovation behavior. Hypothesis 2 states that the main effect of CSE on innovation behavior is moderated by levels of perception of culture for innovation. In addition to perceptions of culture, this study explores the effect that the

generational cohort has on that relationship (a moderated moderation, see Figure 3). It was

hypothesized that the generational cohort of millennials would strengthen the relationship

between culture and CSE and innovation behavior.

> *Hypothesis 3b: The relationship between creative self-efficacy and innovation behavior is affected by perceptions of a culture for innovation differently for millennials compared to other generations.*

Figure 3 summarizes the hypotheses.
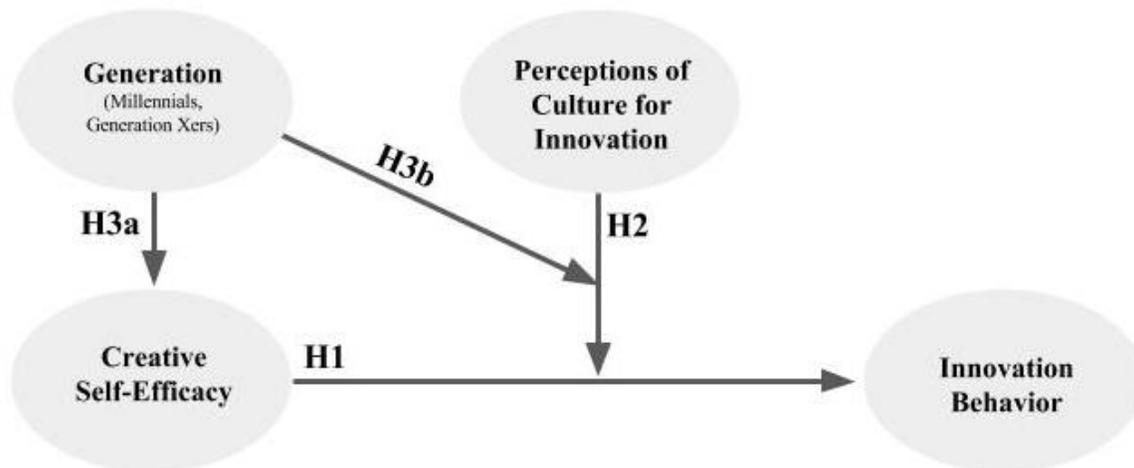
Figure 3: Summary of hypotheses

METHOD

Overview

      Two parallel studies - one targeting millennial participants and one targeting generation

X participants - were run simultaneously, with each evaluating the participants' creative self-

efficacy, their perceptions of culture for innovation and their innovation behavior. The evaluation

of each of these items was through a survey hosted on the commonly used survey platform,

Qualtrics. In one batch, the selection criteria included participants born after 1981 (millennials)

and the second batch included only participants born 1965-1980 (Gen X). If the criterion was not met, the participant was not allowed to proceed with the survey. Administering the survey separately ensured equal numbers of participants in each generational group.

Research Participants

Participants were over 18 years of age, reside in the United States, speak English as their native language, are currently employed and are registered as "workers" on Amazon's Mechanical Turk (MTurk) or as a "member" on the Cint platform. MTurk is an online labor market where "requesters" can post jobs that workers can then choose to do for pay. MTurk has grown increasingly popular with behavioral researchers since its launch in 2005, a result of the website's streamlined process of study design, participant recruitment, and data collection. With over 200,000 workers currently engaged around the world, the site also offers access to a large, diverse, and stable participant pool. Research indicates that MTurk is a valid source of data for behavioral science researchers: MTurk respondents are often more representative of the U.S. population than in-person convenience samples, and the data obtained are at least as reliable as those obtained via traditional methods (Berinsky, Huber, & Lenz, 2012; Buhrmester, Kwang, & Gosling, 2011; Mason & Suri, 2011). Cint is an online platform that hosts 40 million registered members worldwide and offers an online insights exchange platform that connects community owners to researchers, agencies and brands, for the sharing and accessing of consumer data. [11] The survey took an average of twenty minutes to complete, and participants were financially compensated $2.00 in total for its completion. This is in line with expectations of payment (prior to 2011) for MTurk workers and Cint members, with $1.00 for a 30-minute study being considered a reasonable rate of pay (Barger, Behrend, Sharek, & Sinar, 2011).

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[11] https://www.cint.com/about/

A total of 293 individuals participated in this study. In order to achieve a medium effect size, 150 participants were needed, this was determined by conducting a power analysis. Categorical descriptive statistics are reported in detail in Table 1. Range, means, and standard deviations for descriptive variables are included in Table 2; correlations and intercorrelations for these variables are included in Table 3.

Insert Table 1

Participants were fairly evenly split among millennials (n=151, 51.5%) and Generation Xers (n=142, 48.5%) with the median age at 35 (ranging from 22 to 52). Participants were asked which generational cohort they most strongly identify with, and participants selected Generation X (n=115, 39.2%), millennial (n=87, 29.7%), "I don't know" (n=58, 19.8%), baby boomer (n=15, 5.1%), silent generation (n=13, 4.4%) and "other" (n=5, 1.7%).

Participants were evenly split amongst males (n=146, 49.8%) and females (n=145, 49.5%) and two individuals reporting as "other" for their gender (n=2, .7%). The majority of the participants were white (n=217, 74.1%) with much fewer black (n=35, 11.9%) and Hispanic (n=21, 7.2%) participants. Many of the participants possess a bachelor's degree (n=124, 42.3%). For reference purposes, the U.S. Census Bureau reported that in 2015 nearly 1 in 3 adults (33 percent) held a bachelor's or higher degree (Ryan and Bauman, 2016). Most of the participants have between 5-12 years of professional experience following high school (n=132, 45%)], work at an organization with 100-500 employees (n=96, 33%) and in the other services (except public administration) (n=47, 16%), professional, scientific or technical service (n=33, 11.3%) and retail (n=26, 8.9%) industries. The participants were split nearly evenly among Cint (n=147, 50.2%) and MTurk (n=146, 49.8%).

Creative Self-efficacy

Creative self-efficacy is an individual's belief in his/her ability to be creative. The three-item creative self-efficacy scale developed by Farmer and Tierney (2002) was used to measure creative self-efficacy, for example "I feel that I am good at generating novel ideas". Farmer and Tierney have not published the scale items in their entirety, Dr. Pamela Tierney was contacted via email to obtain the scale. Permission to use the scale was granted under the agreement that the scale is not to be published fully in any materials in accordance with the copyright of the scale. The scale includes three items that cover novel idea generation, solving problems creatively and developing the ideas of others. Responses to the scale were indicated on a 5-point Likert scale (1 = "strongly disagree" 5 = "strongly agree"). The reliability of this scale measuring an individual's creative self-efficacy, is over .87, well above the accepted threshold of .70 (Santos, 1999).

Perceptions of Culture for Innovation

This construct measured the participant's perception of their organization's culture in regard to innovation. The scale is adapted from Hogan and Coote (2014) who developed it to examine organizational culture for innovation within professional services. The authors found a positive relationship between values, norms and artifacts of innovation and firm performance highlighting the importance of underlying organizational values within an organization that motivate and foster innovation behaviors among employees. Specifically, this scale includes dimensions or "layers" of culture: values, norms and artifacts of innovation. This is congruent with Schein's (1992) multilayered approach to culture.

Values

This measure captures *values* on a variety of dimensions including *openness and flexibility* ("A willingness to show flexibility and openness is valued within this firm"), *quality of*

internal communication ("Open communication is valued highly within this firm"), *competence and professionalism* ("We aspire to a high level of competence and professionalism"), *inter-functional cooperation* ("Cooperation among different work teams is valued highly"), *responsibility of employees* ("This firm values employees using their initiative"), *appreciation of employees* ("We place great value on recognizing and rewarding employees' accomplishments"), *risk-taking* ("This firm values a willingness to challenge the status quo"). Responses to the scale were indicated on a 5-point Likert scale (1 = "strongly disagree" 5 = "strongly agree").

Artifacts of Innovation

The artifacts of innovation are measured along several dimensions such as s*tories about "heroes" of innovation* ("There are well known stories in this firm about employees who have developed new and useful ideas", *physical arrangements for innovation* ("There are meeting areas and discussion rooms within our firm where employees can meet to discuss new ideas and ways to implement them"), *rituals of innovation* ("We have made an effort within this firm to celebrate the adoption of new practices and processes") and *language supporting innovation* ("We could probably get some benefit from looking at this problem from a different perspective").

Norms

Norms for innovation will include *success in innovation* ("Striving to be successful with new ways of doing things is expected within this firm"), *openness and flexibility for innovation* ("We expect employees to be open to new ideas and responsive to them"), i*nternal communication supporting innovation* ("Open communication of new ideas and practices is expected to be second nature within this firm"), *competence and professionalism supporting innovation* ("We expect creativity and innovation to be part of the professional skill set of

employees within this firm"), *interfunctional co-operation supporting innovation* ("We expect people throughout the firm to work together to implement new processes"), *responsibility of employees for innovation* ("We encourage employees to take responsibility for new ways of doing things in their work"), *appreciation of employees supporting innovation* ("Recognizing and rewarding employees who implement new ideas within this firm is the norm"), and *risk-taking for innovation* ("We expect employees to challenge the status quo in order to come up with new ideas and ways of doing things"). Responses to the scale were indicated on a 5-point Likert scale (1 = "strongly disagree" 5 = "strongly agree"). See Appendix A for the full scale and Appendix B for the survey key.

Innovation Behavior

In order to measure innovation behavior, the scale created by Holman (2012) was used. Holman developed this scale to assess if employee learning strategies affect employee innovation. This scale measures the three separate components of innovation: *idea generation* ("I have thought of new ideas", *idea sponsorship* ("I have attempted to get support from others for my ideas") and *idea implementation* ("I have had my ideas implemented"). The internal consistencies of the subscales are; idea generation a = 0.90; promoting suggestions, a = 0.93; and, idea implementation, a = 0.95. A five-point response scale was used for responses (1 = "strongly disagree" 5 = "strongly agree"). See appendix for the full scale.

Results

Means, standard deviations, intercorrelations, and reliability of all the survey measures are displayed in Tables 2 and 3. An alpha level of .05 was used for all statistical tests. Survey items with reverse coding were re-coded prior to analysis. Items were grouped by scale and averaged to create the creative self-efficacy (three items), perceptions of culture for innovation

(56 items) and innovation behavior (nine items) measures. All of the scales showed high reliability with alphas .78, .98, .86 respectively.

Hypothesis 1 stated there would be a main effect for CSE on innovation behavior. A Pearson product-moment r correlation was conducted to assess the strength of the relationship between creative self-efficacy (CSE) and innovation behavior. There was a strong, positive correlation between CSE and innovation behavior, which was statistically significant ($r = .58$, n = 293, $p = .01$), indicating that as an individual's CSE increases so does their innovation behavior (see Table 3).

Insert Table 2

Insert Table 3

A regression analysis was conducted to determine the direction and strength of the relationship between CSE and innovation behavior as it is hypothesized in hypothesis 1 that CSE is a predictor of innovation behavior. In support of this, an increase in an individual's creative self-efficacy increases their innovation behavior ($b = 2.13$, $p < .01$). This amount of variance that creative self-efficacy accounted for in innovation behavior is significant ($F (1,290) = 143.88$, $p < .01$, $r^2 = 33\%$).

For hypothesis 2, a moderation analysis was conducted to assess if the perception of culture for innovation moderates the relationship between CSE and innovation behavior. Prior to analyzing the moderation hypothesis, all variables were centered. Although the main effects of CSE ($b = .31$, $p < .01$) and perception of culture for innovation ($b = .501$ $p < .01$) on innovation behavior ($b = .01$, $p > .05$) were significant, the interaction was not ($b = .01$, $p > .05$), hypothesis two was not confirmed.

For hypothesis 3a, an Analysis of Variance (ANOVA) was performed to determine if

there is a significant difference on CSE by generation cohort (i.e., millennials and generation

Xers). There was no significant difference in CSE between millennials and generation Xers, $F(1,$

$291) = .12, p > .05$.

For hypothesis 3b, a moderated moderation analysis was conducted to assess the effect of

generational cohort on the moderation relationship of culture for innovation between CSE and

innovation behavior. The interaction was not significant (F $(1, 284) = .66, p > .05, \Delta r^2 = .1\%$)

and therefore hypothesis 3b was not supported.

Discussion

Many companies and leaders understand the need for innovation within their

organizations, but executing on innovation can be very difficult, especially since human behavior

is involved (Chesbrough & Rosenbloom, 2002). This study aimed to examine factors that affect

an individual's innovation behavior within their organization with hopes of aiding these

companies in cracking the code on innovation. Specifically, this study examined how an

individual's level of creative confidence (or creative self-efficacy) and their perceptions of their

organization's culture for innovation ultimately affect their innovation behavior.

Companies often implement initiatives around culture for innovation designed to

encourage employees to engage in idea generation or idea implementation. This study aimed to

uncover the optimal culture conditions for which to do so. Given that innovation is often a choice

made by an individual, this study also examined the role of one's creative self-efficacy on

innovation behavior. If an individual is very creatively confident will they innovate more?

This study hypothesized that those with high creative self-efficacy would have higher

innovation behavior. This prediction was supported. This makes sense as those with higher

creative confidence will therefore engage in more innovation behavior compared to their

colleagues that were not confident in their creative ability who would probably shy away from such activity. But what if the work culture - norms, values and artifacts related to innovation - strengthens or weakens that level of innovation behavior. That was the subject of the second hypothesis supported and predicted by social cognitive theory and affective events theory, perception of culture moderates the relationship between CSE and innovation behavior: does their organization's culture strengthen or weaken how an individual's CSE affects their innovation behavior? Ideally, a person's CSE level would be strengthened by a culture that was designed to stimulate and support innovation and a person's CSE would be weakened by an unsupportive innovation environment. The items were designed to understand the norms, values and cultural artifacts within the culture of their organization that relate to innovation. This hypothesis (3a) was not supported: CSE strongly affects an individual's innovation behavior as does culture but culture does not significantly affect (strengthen or weaken) the relationship between CSE and innovation behavior. Generational differences were not found to have a significant impact on culture either. POC was found to affect innovation behavior on directly (ran a regression, results are significant).

There is a trend in business today towards "open innovation". Historically, for much of the 20th century, the practice of technological innovation was ascribed to a corporate research and development (R&D) lab embedded within a specific business unit within an organization. (Freeman, 1982). Today, open innovation has been defined as '. . . the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively' (Chesbrough et al., 2006: 2). Competitive advantage often comes from inbound open innovation, which is the practice of looking outside of firms or research and development departments, companies need not and indeed should not rely exclusively on their

own R&D (Enkel, 2009). Culture may not have had a significant impact on the relationship between CSE and innovation behavior due to this "open innovation" phenomenon. In some industries and organizations, innovation is becoming part of everyone's role and responsibilities including interacting with external sources of innovation so therefore the culture for innovation becomes less important.

The workforce today is populated mostly by Generations Xers and millennials, because of this, this study also looked at the differences among those generational cohorts - especially since millennials tend to be singled out for behavior that is perceived as different from their older non-millennial colleagues. If each group innovates under different conditions, this study aimed to understand that so that organizations can adjust as necessary based on their employee population. Although millennials and Generation Xers have been found to exhibit workplace differences and preferences when it comes to technology, communication with their supervisors, working in teams and work life balance, this study did not find any significant differences when it came to CSE. There were no significant differences found among the two generational groups when it comes to CSE even though Tierney and Farmer found that CSE and the ability to engage in creative behavior may differ among individuals within an organization and various environments (Tierney & Farmer, 2002). The finding of no differences is somewhat surprising also due to the fact that millennials have been found to have high self-efficacy in general, it was expected that this would carry over to other aspects of self-efficacy such as CSE. This could be because Tierney and Farmer looked at the CSE among white collar and blue-collar workers and found significant differences among the two groups which could have more distinct differences than the population of this study. This could also be due the fact that the majority of participants in this study were white, have a bachelor's degree and work in white collar industries (i.e., finance,

educational services, and other services). In post-hoc analysis, when examining only the participants with higher education, an effect of CSE moderated by culture on innovation behavior, was found (b =.58, p <.01). This could be explained partially by human capital theory (Becker, 1964) which posits that individuals with knowledge (in this case higher education), habits, and other attributes such as creativity are more adept at "labor" and thereby produce more economic value. It's possible that an effect occurs based on education because those with higher education are more likely to engage in innovation behavior overall and under the right conditions. Higher education requires critical thinking and analysis which is also needed when it comes to creativity and innovation. In addition, Bandura (1992) found that education plays a role in self-efficacy. Hiring managers should consider this when selecting employees that will be responsible for innovation.

Interestingly, as part of non-hypothesized supplemental analysis, study participants were asked which generational cohort they identify with. Generational Cohort Identification). No other information was given about each cohort, only the name for each was listed. This question was asked because it was expected that some participants may fall into a generational cohort due to their year of birth but may actually identify more with a cohort based on its stereotypical characteristics. In particular, if their year of birth was close to the other generational group, they may identify more with that group.

A large population of participants didn't know which generational cohort they belong to. Out of 293 participants, 151 were in fact millennials and 142 were Generation Xers. When it came to self-selection of the generational cohort they belong to, 115 identified as Generation Xers, 87 as millennials, 15 as baby boomers, 13 as silent generation, 5 as other and 58 as "I don't know". This is interesting as the term millennial is bantered about in business more so than

Generation Xers, yet many participants didn't know if they were a millennial or not and a large

population admitted they didn't know which group they belonged to.

In addition to asking which generational group they identify with, participants were also

asked which characteristics were most important to them when it came to their job. Participants

were asked to "please select the characteristics that are most important to you (you do not need

to utilize all of the characteristics) in the workplace" and then rank them in order of importance.

The characteristics included:

- regular feedback from my supervisor

- open communication with supervisor

- working in teams

- working alone

- good pay and benefits

- taking risks

- having an impact at work

- serving a higher purpose

- access to the latest technology

- ability to work mobile

- working really hard

- ability to spend time outside of work (e.g., with family)

- working in an open environment

- having my own workspace

Some of the characteristics are more typically associated with millennials (e.g., working

in teams, access to the latest technology) and some are more typically associated with Generation

Xers (e.g., working alone, having my own workspace). A handful of studies have found

differences when it comes to millennials. Stewart (2017) found that millennials prefer team-

based workplaces, close contact and communication with superiors and frequent feedback when

compared to other generations. Gursoy (2008) found that millennials want to avoid risk.

Millennials have also been found to seek feelings of involvement - which is necessary for

organizational attachment - else they get bored easily which results in more turnover (Alsop,

2008). Myers and Sadaghiani (2010) found that millennials prefer to work in teams and desire

frequent communications with their supervisor (similar to Stewart, 2017). They also found

millennials are motivated to have an impact on their organization and of course are at ease with

various forms of technology. Interestingly, some studies have found no differences, such as

differences on job commitment of older vs. younger generations (Stewart 2017).

Overwhelmingly, millennials and generation Xers selected good pay and benefits as an

important work characteristic (N = 243, 123 millennials, 120 generation Xers). The other highest

ranked characteristics were: open communication supervisor (N = 188, 97 millennials, 91

generation Xers), ability to spend time outside of work, e.g., with family (N = 188, 96

millennials, 92 generation Xers) and having an impact at work (N = 150, 80 millennials, 70

generation Xers). Millennials and Generation Xers were fairly evenly split among the

characteristics, there wasn't a characteristic that one group favored overwhelmingly more than

the other indicating that the preferences among the generational groups is not strikingly different.

The two groups are actually quite similar in terms of their job characteristic preferences.

Limitations

This study like most studies has its limitations. The participant population was limited to

the United States and the participants were predominantly white (217 out of 293 participants).

and had bachelor's degrees (124 out of 293). This study looked across various industries but it would be advantageous to look at industries that excel in innovation such as technology, compared to industries that may not such as transportation, and compare the differences among the employees. The participants were garnered using MTurk and CINT which also each have their limitations. Additional limitations are: common method bias since the measures of the constructs were taken from one source (the individual) and any associations could be attributed to a bias on the part of the respondent. An additional limitation is that the study was cross-sectional. Causal inferences created from cross-sectional designs are only inferences. Lastly, the CSE measure consisted of three items compared to other scales that have more items dedicated to creativity such as the measure of Entrepreneurial Self-Efficacy developed by Moberg (2013) and while the whole ESE is 20 items, creativity is part of it with 5 items.

Practical Implications

The ability to innovate is crucial to many organizations' success, especially at the rate at which technology is developing and changing. In fact, organizations that do not, are susceptible to irrelevance, profit loss and even complete shutdown. Take Blockbuster and Kodak for example, both organizations were once top performers but didn't adapt as their market changed. Both film and photography went digital while Blockbuster stayed on DVD and Kodak on film.

Getting employees to engage in innovation behavior within an organization is no easy task. Unless innovation is clearly part of an employee's job description such as a technology engineer or product manager, innovation is often a task that is above and beyond one's job description and is a voluntary endeavor often met with resistance and hurdles along the path to implementation. It takes a special employee or team of employees to develop a worthy idea but then also take that idea and implement it. This often involves being told no along the way, and it

can also become a liability on the "day job" of the employee or team of employees. Or the employee just becomes inundated with institutional red tape that they ultimately tire out - even the most tenacious employees do. In addition, idea generation and idea implementation are two very different skills and are not often found within the same individual.

Based on the results of this study, it is prudent for employers that are interested in high levels of innovation to seek out employees with high levels of CSE to start and to offer ways to bolster and maintain CSE such as through creativity training. CSE has a significant impact on one's innovation behavior. Research done by Mathison and Bronnick (2009) suggests that CSE is a skill that can be sharpened through creativity training (Mathison & Bronnick, 2009). In their study, the effects of creativity training on creative self-efficacy was examined. Participants' CSE was measured before and after a one day and a five-day creativity course as well as a control group. CSE levels increased for both the one-day and five-day course participants whereas the control group showed no change. Given how important CSE is to innovation behavior, this is important for organizations to note. Aside from focusing on the culture, organizations can add in creativity training to help boost their employees' CSE, thereby increasing their innovation behavior. For employees that are assigned jobs with higher creativity requirements, it makes sense to provide those employees with training that enhances their creative skill ability and give them time to experiment with creative problem solving without facing penalty so they can build up their confidence toward creative work (Tierney, 2011).

Future Research

There are many interesting future areas of research related to this study. Uncovering additional methods to increase employees' CSE would be advantageous to help ultimately boost their innovation behavior. This study focused on the idea generation aspect with CSE but

examining methods for idea implementation is an area for future research - what traits are important in an individual to move the idea forward. Additionally, more diverse samples for investigating these relationships are warranted, including participants from a wide variety of industries and diverse backgrounds including educational level and work experience. Additional exploration on the effect of higher education on innovation is warranted.

Lastly, gender differences related to CSE is of interest. The results of this study showed that males rate themselves significantly higher on CSE compared to females. Women have been found in previous research to have less confidence in their ability to perform unfamiliar or competitive tasks (McCarty, 1986) which may partially explain this finding. Future studies that address why those differences exist and how it affects their behavior are recommended.

With so many organizations seeking to innovate and gain a competitive edge, understanding the circumstances under which an employee engages in innovation behavior is critical to business success today. Many organizations focus on designing creative and open work spaces geared to foster innovation and collaboration but this study shows that equally important is to focus on an individual's creative self-efficacy as this is a key factor affecting an employee's innovation behavior. Also, millennials are often stereotyped and called out for perceived differences relative to their older colleagues but this study shows that when it comes to creative self-efficacy, perceptions of culture and innovation behavior there are not significant differences among the generational cohorts. With the rapid rate of technology advancement and digitization - innovation isn't just reserved for research and development teams – it is an activity that all employees can engage in and even more so if nurtured by their organization.

Table 1: Summary of Participant Demographics

Variable	N	%
Gender	293	
Male	146	49.8
Female	145	49.5
Other	2	0.7
Generational Cohort	293	
Millennial	151	51.5
Generation Xers	142	48.5
Self-selected generation cohort	293	
Millennial	87	29.7%
Generation X	115	39.2
Baby Boomer	15	5.1
Silent Generation	13	4.4
I don't know	58	19.8
Other	5	1.7
Ethnicity	293	
White	217	74.1
Black	35	11.9
Hispanic	21	7.2
Asian	14	4.8
Native American	1	0.3
Other	5	1.7
Highest level of school completed	293	
less than high school	1	0.3
High school	20	6.8
Some college	45	15.4
Associate degree	36	12.3
Bachelor's degree	124	42.3
Master's degree	52	17.7
Doctoral degree	7	2.4
Professional degree	8	2.7

Years of professional experience since high school	293	
1-4	33	11.3
5-8	66	22.5
9-12	66	22.5
13-16	41	14
17-20	38	13
21-24	26	8.9
25+	23	7.8
Size of your organization in terms of the number of employees	293	
Fewer than 10	14	4.8
10-25	24	8.2
26-99	39	13.3
100-250	53	18.1
251-500	43	14.7
501-1000	31	10.6
1001-5000	41	14
5001-10,000	19	6.5
more than 10,000	29	9.9
Industry	293	
Accommodation or food services	6	2
Admin, support, waste management or remediation services	6	2
Arts, entertainment or recreation	10	3.4
Construction	12	4.1
Educational services	33	11.3
Finance or insurance	25	8.5
Forestry, fishing, hunting or agricultural support	1	0.3
Healthcare or social assistance	22	7.5
Information Technology	23	7.8
Management of companies or enterprises	4	1.4
Manufacturing	24	8.2

Other services (except public administration)	47	16
Professional, scientific or technical services	33	11.3
Real estate or rental and leasing	4	1.4
Retail trade	26	8.9
Transportation or warehousing	8	2.7
Unclassified establishments	2	0.7
Utilities	3	1
Wholesale Trade	4	1.4
Participant Source	293	
MTurk	146	49.8
Cint	147	50.2

Table 2: Range, Means and Standard Deviations for Continuous Variables

	Variable	Range	M	SD
1.	Age	22-52	35	7.87
2.	Creative self-efficacy	1-5	4.02	0.69
3.	Perceptions of culture for innovation	1-5	3.81	0.61
4.	Innovation behavior	1-5	3.85	0.65

N = 293

Table 3: Correlations, Intercorrelations of Continuous Variables and Study Measures

Variable	1	2	3	4
1. Age	-	-0.07	-0.11	-0.01
2. Creative self-efficacy	-	(.78)	.54**	.59**
3. Perceptions of culture for innovation	-	-	(.98)	.67**
4. Innovation behavior	-	-	-	(.86)

Note: Coefficient alphas are given in parentheses along the diagonal unless not applicable.

**p<.01, *p<.05

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Appendices

Appendix A: Survey (Survey key in next section)

Qualifying Questions

[1] Are you currently employed?
     Yes - continue
     No - directed to thank you screen (cannot continue)

[2] Do you reside in the United States?
     Yes - continue
     No - directed to thank you screen (cannot continue)

[3] Are you willing to provide demographic information such as your age and profession?
     Yes - continue
     No - directed to thank you screen (cannot continue)

[4] Are you 52 or younger?
     Yes - continue
     No - directed to thank you screen (cannot continue)

New section in Qualtrics

Participant Instructions

This survey is being conducted as part of the dissertation requirements for a doctoral program at DePaul University. **This study is anonymous** and will take about XX minutes of your time.

The purpose of this study is to examine innovation within organizations.

You will be asked to answer XX questions about your own creativity, work culture and your own innovation related behavior.

Please respond carefully - all of your answers are significant to our study. Your input is very important and appreciated.

Let's get started!

***Will also include information sheet from IRB (https://offices.depaul.edu/ors/research-protections/irb/Pages/forms-templates.aspx

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New section in Qualtrics

SURVEY

Instructions:
"Using the following responses please indicate the extent to which you agree or disagree that each statement currently describes you."

Anchors:
1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

New section in Qualtrics

Instructions:
"Using the following responses please indicate the extent to which you agree or disagree with the following statements in regards to your current organization."

Anchors:
1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

[1] There are well known stories in my organization about employees who have developed new and useful ideas.
[2] There are stories in my organization about employees who have strongly encouraged the implementation of new practices and processes.
[3] There are meeting areas and discussion rooms within my organization where employees can meet to discuss new ideas and ways to implement them.
[4] We have set aside space within our office layout where employees can meet and talk informally about new ideas and novel ways to solve problems.
[5] We have made an effort within my organization to celebrate the adoption of new practices and processes.
[6] We make an effort within my organization to acknowledge and reward the implementation of new services and ways of doing things.
[7] We could probably get some benefit from looking at a problem from a different perspective.
[8] When solving a problem, we consider developing a new approach to solving the problem or if there are other ways we could go about resolving an issue.

[9] Striving to be successful with new ways of doing things is expected within my organization.

[10] We are encouraged to be the most creative and innovative organization in our market.

[11] Striving to be successful with generating new ideas within my organization is expected.

[12] We do not expect employees to be open to new ideas and responsive to them. *[Reverse-coded]*

[13] We expect employees to be flexible in dealing with new ideas and in their approach to solving problems.

[14] A willingness to try new ideas is encouraged within my organization.

[15] Open communication of new ideas and practices is expected to be second nature within my organization.

New section in Qualtrics

[16] Information about new ideas and new ways of doing things is expected to be communicated throughout my organization.

[17] We expect the quality of internal communication related to new ideas and processes to be high.

[18] We expect creativity and innovation to be part of the professional skill set of employees within my organization.

[19] We expect employees within my organization to have a high level of competence in developing and implementing new ideas.

[20] High levels of knowledge supporting innovation are expected within my organization.

[21] We do not expect people throughout my organization to work together to implement new processes. *[Reverse-coded]*

[22] We encourage teams throughout my organization to work together in order to develop new ideas and practices.

[23] We expect people within my organization to work collaboratively in order to implement new ways of doing things.

[24] We encourage employees to take responsibility for new ways of doing things in their work.

[25] We expect employees to use their initiative in developing new ideas and ways of dealing with work tasks.

[26] We expect employees to take an active role in trying out new ways of doing things.

[27] Recognizing and rewarding employees who implement new ideas within my organization is the norm.

[28] Taking the time to acknowledge employees' efforts when they solve problems in novel ways is encouraged within my organization.

[29] Appreciating the efforts of employees who bring new practices into being is expected within my organization.

[30] We expect employees to challenge the status quo in order to come up with new ideas and ways of doing things.

New section in Qualtrics

[31] We encourage employees to experiment with new ideas and new ways of solving problems.

[32] Taking calculated risks with new ideas and practices is encouraged in my organization.

[33] We do not value success in this organization. *[Reverse-coded]*

[34] We aspire to be the best organization in our market.
[35] We place great value on our performance.
[36] We value openness and responsiveness in my organization.
[37] We place great value on being flexible in our approach to problems.
[38] A willingness to show flexibility and openness is valued within my organization.
[39] Open communication is valued highly within my organization.
[40] We place great value on excellent internal communication within my organization.
[41] Maintaining high quality internal communication is valued within my organization.
[42] We place great value on professional knowledge and skills.
[43] We aspire to a high level of competence and professionalism.
[44] Upholding the highest levels of professionalism is valued within my organization.
[45] Cooperation among different work teams is not valued highly. *[Reverse-coded]*

New section in Qualtrics
[46] This organization values integration and sharing among teams throughout the organization.
[47] We place great value on co-ordination among different work teams.
[48] We place great value on every employee being proactive in his (or her) role.
[49] This organization values employees using their initiative.
[50] We value employees taking responsibility for their work.
[51] We place great value on recognizing and rewarding employees' accomplishments.
[52] Taking time to celebrate employees' work achievements is valued in this organization.
[53] We place great value on showing our appreciation for the efforts of each employee.
[54] This organization values a willingness to challenge the status quo.
[55] This organization values a willingness to experiment with new ideas.
[56] Valuing calculated risk-taking helped this organization get to where it is today.

Note: I will add in fill in the blank items to break up the survey such as "In one sentence describe your day to day job duties".

New section in Qualtrics

Instructions:
"Using the following responses please indicate the extent to which you agree or disagree that each statement currently describes you in regards to these activities in your place of work."

Anchors:
1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

[1] I have thought of new ideas.
[2] I have had ideas about how things might be improved.
[3] I have found new ways of doing things.

[4] I have attempted to get support from others for my ideas.

[5] I have tried to get approval for improvements I suggested.

[6] I got involved in persuading others to adopt my proposals for doing things differently.

[7] I have not had my ideas implemented. *[Reverse-coded]*

[8] I have had my suggestions for improvements adopted.

[9] I have had my proposals for doing things differently carried out.

New section in Qualtrics

Lastly, we'd like to ask you a few questions about yourself. Your responses are anonymous.

1.) **What is your gender?**: Female/Male/Other

2.) **Please fill in your year of birth:** (blank field, forced reply)

3.) **What is your age?** (blank field, forced reply)

4.) **Which generational group do you identify with?**
   - Silent generation
   - Baby Boomer
   - Generation X
   - Millennial
   - Other - please describe
   - I don't know

5.) **What is your ethnicity?**: Caucasian/Black or African-American/Hispanic or Latino, Latina/Asian/Pacific Islander/Native American/Other

6.) **What is highest level of completed education?**: Some High School/High School Diploma/Some College/College/Graduate School/Technical School

7.) **What is your occupation?** (blank field, forced response)

8.) **What is the approximate size of your organization in terms of the number of employees?**
   - fewer than 10
   - 10-25
   - 25-99
   - 100-250
   - 250-500
   - 500-1000
   - 1,000-5,000
   - 5,000-10,000
   - and more than 10,000

9.) **What is your primary industry?:**
- Forestry, fishing, hunting or agriculture support
- Real estate or rental and leasing
- Mining
- Professional, scientific or technical services
- Utilities
- Management of companies or enterprises
- Construction
- Admin, support, waste management or remediation services
- Manufacturing
- Educational services
- Wholesale trade
- Health care or social assistance
- Retail trade
- Arts, entertainment or recreation
- Transportation or warehousing
- Accommodation or food services
- Information
- Other services (except public administration)
- Finance or insurance
- Unclassified establishments

10.) Please indicate the **number of years of your professional experience:** (blank field, forced response)

Thank you for your participation in this survey!

Appendix B: Survey Key

Instructions:
"Using the following responses please indicate the extent to which you agree or disagree that each statement currently describes you."

Anchors:
1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

New section in Qualtrics

Instructions:
"Using the following responses please indicate the extent to which you agree or disagree with the following statements in regards to your current organization."

Anchors:
1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

PERCEPTION OF CULTURE Items:
Artifacts of Innovation
[1] There are well known stories in my organization about employees who have developed new and useful ideas.
[2] There are stories in my organization about employees who have strongly encouraged the implementation of new practices and processes.
[3] There are meeting areas and discussion rooms within my organization where employees can meet to discuss new ideas and ways to implement them.
[4] We have set aside space within our office layout where employees can meet and talk informally about new ideas and novel ways to solve problems.
[5] We have made an effort within my organization to celebrate the adoption of new practices and processes.
[6] We make an effort within my organization to acknowledge and reward the implementation of new services and ways of doing things.
[7] We could probably get some benefit from looking at a problem from a different perspective.
[8] When solving a problem, we consider developing a new approach to solving the problem or if there are other ways we could go about resolving an issue.
Norms for Innovation
[9] Striving to be successful with new ways of doing things is expected within my organization.
[10] We are encouraged to be the most creative and innovative organization in our market.

[11] Striving to be successful with generating new ideas within my organization is expected.

[12] We do not expect employees to be open to new ideas and responsive to them. *[Reverse-coded]*

[13] We expect employees to be flexible in dealing with new ideas and in their approach to solving problems.

[14] A willingness to try new ideas is encouraged within my organization.

[15] Open communication of new ideas and practices is expected to be second nature within my organization.

New section in Qualtrics

[16] Information about new ideas and new ways of doing things is expected to be communicated throughout my organization.

[17] We expect the quality of internal communication related to new ideas and processes to be high.

[18] We expect creativity and innovation to be part of the professional skill set of employees within my organization.

[19] We expect employees within my organization to have a high level of competence in developing and implementing new ideas.

[20] High levels of knowledge supporting innovation are expected within my organization.

[21] We do not expect people throughout my organization to work together to implement new processes. *[Reverse-coded]*

[22] We encourage teams throughout my organization to work together in order to develop new ideas and practices.

[23] We expect people within my organization to work collaboratively in order to implement new ways of doing things.

[24] We encourage employees to take responsibility for new ways of doing things in their work.

[25] We expect employees to use their initiative in developing new ideas and ways of dealing with work tasks.

[26] We expect employees to take an active role in trying out new ways of doing things.

[27] Recognizing and rewarding employees who implement new ideas within my organization is the norm.

[28] Taking the time to acknowledge employees' efforts when they solve problems in novel ways is encouraged within my organization.

[29] Appreciating the efforts of employees who bring new practices into being is expected within my organization.

[30] We expect employees to challenge the status quo in order to come up with new ideas and ways of doing things.

New section in Qualtrics

[31] We encourage employees to experiment with new ideas and new ways of solving problems.

[32] Taking calculated risks with new ideas and practices is encouraged in my organization.

Values

[33] We do not value success in this organization. *[Reverse-coded]*

[34] We aspire to be the best organization in our market.

[35] We place great value on our performance.
[36] We value openness and responsiveness in my organization.
[37] We place great value on being flexible in our approach to problems.
[38] A willingness to show flexibility and openness is valued within my organization.
[39] Open communication is valued highly within my organization.
[40] We place great value on excellent internal communication within my organization.
[41] Maintaining high quality internal communication is valued within my organization.
[42] We place great value on professional knowledge and skills.
[43] We aspire to a high level of competence and professionalism.
[44] Upholding the highest levels of professionalism is valued within my organization.
[45] Cooperation among different work teams is not valued highly. *[Reverse-coded]*

New section in Qualtrics
[46] This organization values integration and sharing among teams throughout the organization.
[47] We place great value on coordination among different work teams.
[48] We place great value on every employee being proactive in his (or her) role.
[49] This organization values employees using their initiative.
[50] We value employees taking responsibility for their work.
[51] We place great value on recognizing and rewarding employees' accomplishments.
[52] Taking time to celebrate employees' work achievements is valued in this organization.
[53] We place great value on showing our appreciation for the efforts of each employee.
[54] This organization values a willingness to challenge the status quo.
[55] This organization values a willingness to experiment with new ideas.
[56] Valuing calculated risk-taking helped this organization get to where it is today.

Note: I will add in fill in the blank items to break up the survey such as "In one sentence describe your day to day job duties".

New section in Qualtrics

Instructions:
"Using the following responses please indicate the extent to which you agree or disagree that each statement currently describes you in regards to these activities in your place of work."

Anchors:
1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

INNOVATION BEHAVIOR items:
Idea Generation
[1] I have thought of new ideas.
[2] I have had ideas about how things might be improved.

[3] I have found new ways of doing things.

Idea Promotion

[4] I have attempted to get support from others for my ideas.

[5] I have tried to get approval for improvements I suggested.

[6] I got involved in persuading others to adopt my proposals for doing things differently.

Idea Implementation

[7] I have not had my ideas implemented. *[Reverse-coded]*

[8] I have had my suggestions for improvements adopted.

[9] I have had my proposals for doing things differently carried out.

New section in Qualtrics

Lastly, we'd like to ask you a few questions about yourself. Your responses are anonymous.

5.)   **What is your gender?**: Female/Male/Other

6.)   **Please fill in your year of birth:** (blank field, forced reply)

7.)   **What is your age?** (blank field, forced reply)

8.)   **Which generational group do you identify with?**
- Silent generation
- Baby Boomer
- Generation X
- Millennial
- Other - please describe
- I don't know

5.) **What is your ethnicity?**: Caucasian/Black or African-American/Hispanic or Latino, Latina/Asian/Pacific Islander/Native American/Other

6.) **What is highest level of completed education?**: Some High School/High School Diploma/Some College/College/Graduate School/Technical School

7.) **What is your occupation?** (blank field, forced response)

8.) **What is the approximate size of your organization in terms of the number of employees?**
- fewer than 10
- 10-25
- 25-99
- 100-250
- 250-500
- 500-1000
- 1,000-5,000

- 5,000-10,000
- and more than 10,000

9.) What is your primary industry?:
- Forestry, fishing, hunting or agriculture support
- Real estate or rental and leasing
- Mining
- Professional, scientific or technical services
- Utilities
- Management of companies or enterprises
- Construction
- Admin, support, waste management or remediation services
- Manufacturing
- Educational services
- Wholesale trade
- Health care or social assistance
- Retail trade
- Arts, entertainment or recreation
- Transportation or warehousing
- Accommodation or food services
- Information
- Other services (except public administration)
- Finance or insurance
- Unclassified establishments

10.) Please indicate the **number of years of your professional experience:** (blank field, forced response)

Thank you for your participation in this survey!

Appendix C: Information Sheet

<u>INFORMATION SHEET FOR PARTICIPATION IN RESEARCH STUDY</u>

What Motivates an Employee to Innovate?
Innovation Behavior in the Workplace

Principal Investigator: Karen Bartuch, doctoral student

Institution: DePaul University, USA

Faculty Advisor: Lisa Gundry, Management and Entrepreneurship, Business School

We are conducting a research study because we are trying to learn more about innovation in the workplace.. We are asking you to be in the research because you are currently working, reside in the US, are between the ages of 21 and 52 and are willing to provide demographic information including age. If you agree to be in this study, you will be asked to complete a survey. The survey will include questions about your creative self efficacy (creative confidence), perceptions of your organization's culture for innovation and your innovation behavior. Personal information about you will also be collected such as gender, year of birth, age, generation group you identify with, ethnicity, highest level of education, occupation, size of your organization, number of employees, industry and number of years of professional experience. The research activity will be completed online.

This study will take about 15 minutes of your time. Research data collected from you will be anonymous.

Your participation is voluntary, which means you can choose not to participate. There will be no negative consequences if you decide not to participate or change your mind later after you begin the study. You can withdraw your participation at any time prior to submitting your survey. If you change your mind later while answering the survey, you may simply exit the survey. You can remove your data up until the time the data is collected and combined with other people's data. Once you submit your responses, we will be unable to remove your data later from the study because all data is anonymous and we will not know which data belongs to you.

You will be given $2.00 USD for your participation in the research.

After the survey, you will be given a randomly generated code to provide to MTurk, after which you will receive compensation. *We cannot give you financial compensation without this code.* You must complete the survey in order to be compensated. If you exit the survey prior to the end

of the survey or if you choose not to provide the randomly generated code, you will not receive compensation.

Since you are enrolling in this research study through the Amazon Mechanical Turk (MTurk) site, we need to let you know that information gathered through Amazon MTurk is not completely anonymous. Any work performed on Amazon MTurk can potentially be linked to information about you on your Amazon public profile page, depending on the settings you have for your Amazon profile. Any linking of data by MTurk to your ID is outside of the control of the researcher for this study. We will not be accessing any identifiable information about you that you may have put on your Amazon public profile page. We will store your MTurk worker ID separately from the other information you provide to us. Amazon Mechanical Turk has privacy policies of its own outlined for you in Amazon's privacy agreement. If you have concerns about how your information will be used by Amazon, you should consult them directly.

If you have questions, concerns, or complaints about this study or you want to get additional information or provide input about this research, please contact Karen Bartuch at kbartuch@depaul.mail.edu or at 773-294-5944.

If you have questions about your rights as a research subject, you may contact Susan Loess-Perez, DePaul University's Director of Research Compliance, in the Office of Research Services at 312-362-7593 or by email at sloesspe@depaul.edu. You may also contact DePaul's Office of Research Services if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.

<u>**INFORMATION SHEET FOR PARTICIPATION IN RESEARCH STUDY**</u>

What Motivates an Employee to Innovate?
Innovation Behavior in the Workplace

Principal Investigator: Karen Bartuch, doctoral student

Institution: DePaul University, USA

Faculty Advisor: Lisa Gundry, Management and Entrepreneurship, Business School

We are conducting a research study because we are trying to learn more about innovation in the workplace. We are asking you to be in the research because you are currently working, reside in the US, are between the ages of 21 and 52 and are willing to provide demographic information including age. If you agree to be in this study, you will be asked to complete a survey. The survey will include questions about your creative self efficacy (creative confidence), perceptions of your organization's culture for innovation and your innovation behavior. Personal information about you will also be collected such as gender, year of birth, age, generation group you identify with, ethnicity, highest level of education, occupation, size of your organization, number of employees, industry and number of years of professional experience. The research activity will be completed online.

This study will take about 15 minutes of your time. Research data collected from you will be anonymous.

Your participation is voluntary, which means you can choose not to participate. There will be no negative consequences if you decide not to participate or change your mind later after you begin the study. You can withdraw your participation at any time prior to submitting your survey. If you change your mind later while answering the survey, you may simply exit the survey. You can remove your data up until the time the data is collected and combined with other people's data. Once you submit your responses, we will be unable to remove your data later from the study because all data is anonymous and we will not know which data belongs to you.

You will be given $2.00 USD for your participation in the research.

After completion of the survey, you will be directed back to the CINT website for compensation.

If you have questions, concerns, or complaints about this study or you want to get additional information or provide input about this research, please contact Karen Bartuch at <u>kbartuch@depaul.mail.edu</u> or at 773-294-5944.

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- You cannot reach the research team.
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Appendix D: Debriefing Information

Debriefing Information: MTurk

NOTE: Please keep this information confidential, particularly from other MTurk Workers. As explained below, it is vital that participants remain unaware of the study's actual purpose until its conclusion. It is also very important that no attention check items are shared with other participants. We very much appreciate your confidence and your help in this matter.

What Motivates an Employee to Innovate?

Creative Self-Efficacy and Innovation Behavior Moderated by Perception of Culture: Millennials vs. Generation Xers

Thank you for participating in this research. In today's study, you were asked to evaluate your own creative self confidence also known as "creative self-efficacy", the perception of your organization's culture for innovation and your own innovation behavior. You were also asked questions about your age, the year you were born and the generational group that you identify with. This is because the study will examine two different generational cohorts: millennials and generation Xers.

As stated earlier, all of your responses will be absolutely confidential. In return, ask that you honor our confidentiality as well—please do not tell anyone about the details of the study, particularly other MTurk Workers. If the other participants are aware of the details of this study, it will bias their responses, and we will not be drawing conclusions about actual perceptions.

We are very grateful for your participation in this research. If you have any questions or concerns, or if you'd like to receive a copy of the results once the study is complete, you may contact the primary researcher, Karen Bartuch at kbartuch@mail.depaul.edu. If you have questions about your rights as a research subject, you may contact Susan Loess-Perez, DePaul University's Director of Research Protections at 312-362-7593 or by email at sloesspe@depaul.edu.

 Thank you for your participation!

Version created 6/14/2017

Debriefing Information: CINT

NOTE: Please keep this information confidential, particularly from other CINT panelists. As explained below, it is vital that participants remain unaware of the study's actual purpose until its conclusion. It is also very important that no attention check items are shared with other participants. We very much appreciate your confidence and your help in this matter.

What Motivates an Employee to Innovate?

**Creative Self-Efficacy and Innovation Behavior Moderated by Perception of Culture:
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We are very grateful for your participation in this research. If you have any questions or concerns, or if you'd like to receive a copy of the results once the study is complete, you may contact the primary researcher, Karen Bartuch at kbartuch@mail.depaul.edu. If you have questions about your rights as a research subject, you may contact Susan Loess-Perez, DePaul University's Director of Research Protections at 312-362-7593 or by email at sloesspe@depaul.edu.

 Thank you for your participation!

Version created 7/28/2017