DECISION SCIENCES INSTITUTE
Work Values, Generational Difference as Impacted by Computer Self Efficacy

Melia Stockham and Mary Lind

ABSTRACT

This study examines computer self-efficacy, which is an individual's confidence completing computer-based tasks, and its potential impact on the work values of digital natives and digital immigrants. By examining differences in work values between these two generational cohorts both with and without the interaction of computer self-efficacy, conclusions may be drawn as to the validity of the claims that computer self-efficacy is such a prominent defining characteristic of digital natives.

KEYWORDS: Digital Native, Computer Self Efficacy, Work Values

INTRODUCTION

A debate exists in the field of management regarding the differences in attitudes and behaviors between individuals in the workplace. Some researchers posit that these differences can be predicted based on sociological, psychological, or demographic influences (Cogin, 2012; Kapoor & Solomon, 2011; Rhodes, 1983; Schwartz, 1994). Others argue the practice of generalizing differences based on these influences is a dangerous path many management professionals are beginning to tread (Bell, 2010). Generational theory drives one of these debates, stating that an individual's attitudes and behaviors are influenced by their generational alignment. The generations examined in management research include Baby Boomers, born around 1940; Generation X, born around 1960; and Millennials, born around 1980 (Parry & Urwin, 2011). Rhodes (1983) outlined the influences that differentiate one generation from other. Along with chronological age, which is the most common defining factor in generational literature, Rhodes describes cohort and period effects, which encompass sociological and environmental influences. Cohort effects are comprised of shared experiences within an age cohort that shape the perspective of individuals, including cultural phenomena or education. Period effects are shared environmental influences like relationships, responsibilities, resources, and the expectations of others. Using these effects as the basis for defining generational cohorts with shared attitudes and behaviors, digital native status presents an opportunity to further the investigation of generational diversity.

First introduced by Prensky (2001), a digital native is an individual who has been exposed to digital technology since birth. Conversely, a digital immigrant is an individual who has adapted to live and work in the digital world, rather than having been raised in it. Chronologically, the line between digital natives and digital immigrants is drawn around 1980, those born before considered immigrants and those born after considered natives (Corrin, Bennett, & Lockyer, 2010; Thompson, 2013). Even though digital native status is defined by age, it is the cohort and period effects of generational theory that define what it means to be a digital native. The ubiquitous exposure to digital technology serves as a shared cohort effect, and the societal expectations of technology savvy serve as a shared period effect (Eastman, Iyer, Liao-Troth, Williams, & Griffin, 2014; Ransdell, Kent, Gaillard-Kenney, & Long, 2010). An extension of this literature includes the computer self-efficacy of digital natives and how it impacts their attitudes, behaviors, and values in the workplace. Leuty (2013) explored work values with respect to

generational differences in the workplace, but the focus primarily addressed generations older than digital natives.

As the generation of digital natives is relatively young, the oldest in their mid-thirties, their tenure in the workplace is short as compared to their generational predecessors (Leuty & Hansen, 2011). Hopkins (2010) called attention to the importance of understanding the work habits of digital natives and encouraged managers to adapt to this new reality in the workplace. Additionally, generalizations regarding digital natives and their technology preferences have led researchers to suggest organizational initiatives regarding technology (Ferri-Reed, 2012; Mhatre & Conger, 2011; Murphy, 2012). However, without much evidence to the actual computer self-efficacy or work values of digital natives, these choices could be misguided.

Schwartz (1994) proposed a model of human values to help narrow the plethora of value types worth studying. This model has been cited in the investigation of multiple value types including work values, which address work preferences and behaviors and their connections to the unique traits of individuals (Berings, Fruyt, & Bouwen, 2004; Krumm et.al, 2013; Leuty & Hansen, 2011; Leuty, 2013; Schwartz, 1999; Selmer & Littrell, 2010). In recent years researchers have conducted studies to continue to refine work values as a construct and to investigate their relationships with individual and cultural attributes, notably, their connection to generational differences (Cogin, 2012; Hansen & Leuty, 2012; Krumm et al., 2013; Twenge, Campbell, Hoffman & Lance, 2010). These studies have identified trends in generational differences including a decrease in valuing hard work in younger generations as opposed to older, an increased appreciation for leisure in the Millennial generation, and inconsistency as to whether young employees value extrinsic or intrinsic rewards (Cogin, 2012; Twenge et al., 2010). Hansen and Leuty (2012) specifically addressed the inconsistency between reports of generational differences in work values, positing two possible reasons: variances in the interpretation of value definitions, and the lack of consideration of life experiences.

Self-efficacy, or an individual's beliefs in his or her abilities, is a frequently researched influence on values (Bandura, 1986; Howard, 2014). Computer self-efficacy is an extension of the self-efficacy concept focusing on an individual's belief in his or her ability to use computers and digital technology (Compeau & Higgins, 1995; Howard, 2014). This type of self-efficacy is directly connected to generational theory through the common assertion that digital natives have high computer self-efficacy as opposed to digital immigrants (Ferri-Reed, 2012; Johnson, 2009; Mhatre & Conger, 2011; Murphy, 2012). Recommendations in both management theory and practice suggest this high level of computer self-efficacy in individuals born in or after 1980 will influence their values in the workplace (Bates, 2013; Eastman et al., 2014; Hartman & McCambridge, 2011; Joiner et al., 2013). However, little empirical evidence exists that supports the connection between computer self-efficacy and work values.

As many researchers are recommending management practices be adapted to account for both the work values and technology savvy of younger employees, empirical evidence to support or refute these recommendations is merited (Ferri-Reed, 2012; Mhatre & Conger, 2011; Murphy, 2012). Additionally, Bennett, Maron, and Kervin (2008) challenged the assumption that digital natives do, in fact, have different attitudes and behaviors because of their computer self-efficacy. They recommended further research before making sweeping changes to industries. This study seeks to add to the body of knowledge regarding the computer self-efficacy of digital natives and digital immigrants, and how that might impact their work values, which could result in educated recommendations for management theory and practice.

This study examined differences in the five constructs of work values presented by Krumm, et al. (2013) between digital natives and digital immigrants. Digital native status introduces the period effect of computer self-efficacy as a generational influence. Digital immigrants, who include individuals born in 1979 or before, are neither as knowledgeable about technology as digital natives, nor do they share the period effect of computer savvy with digital natives (Kurt, Günüç, & Ersoy, 2013).   As such, a lower level of computer self-efficacy can be expected from this generational cohort and higher computer self-efficacy can be expected from digital natives.

Theory of Work Values

Work values, or those areas of importance that enhance satisfaction and engagement in the workplace, are rooted in the belief that there is a structure to basic human values (Leuty, 2013). Schwartz (1994) developed a model of human values he posited would apply to multiple social domains as an opportunity to understand how human beliefs might associate with desirable outcomes. These values serve as standards that guide individual attitudes and behaviors (Ros, Schwartz, Surkiss,& Schwartz, 2012). Table 1 provides a brief overview of the ten values in the Schwartz (1994) model. These values are listed in order of importance; meaning those listed earlier are closer aligned to basic human survival instincts, ending with more complex values aligned to societal and spiritual needs

Table 1. Schwartz's (1994) Model of Basic Human Values

Value	Description
Self-direction	Independence in ideas and action, derived from the needs of control and mastery
Stimulation	Excitement, challenge, and uniqueness, derived from the need for action to be triggered in an optimal, positive, and motivating way
Hedonism	Self-gratification, derived from the need for pleasure and satisfaction
Achievement	Personal success and competence, derived from the need to maintain cultural standards and social approval
Power	Achieving prestige or dominance over others, derived from the need for control
Security	Stability and safety, derived from the need to protect one's self and others
Conformity	Restraint of impulses and actions, derived from the need to avoid disruption of security, safety, or harmony
Tradition	Commitment to customs and history, derived from the need for connectedness and shared experience
Benevolence	Concern for the welfare of an individual's close community, derived from the need for group preservation

| Universalism | Concern for the welfare of the human race and environment, derived from the need to protect the future. |

Ros, Schwartz, and Surkiss (1999) extended Schwartz's model of human values into the workplace, identifying the values that make work meaningful for individuals. Specifically, Ros, Schwartz, and Surkiss defined work values as beliefs regarding desirable outcomes and circumstances at work that guide preferences for individuals when they evaluate work and its alternatives. Using popularly researched work value types as a starting point, the researchers sought to align those values with the model of human values. To do this, the researchers used a smallest space analysis and multidimensional scaling to test the intercorrelation between human values and the following work values: instrinsic, extrinsic, social, and prestige.

Another area of interest for researchers includes those influences impacting what individuals value in the workplace. Various studies have identified environmental, economic, and social influences that can lead to variation in work values (Chen & Lian, 2015; Chow, Krahn, & Galambos, 2014; Johnson, Sage, & Mortimer, 2012; Kwon & Shan, 2012). Geography and economic climate have both been documented as influences on work values. Kwon and Shan (2012) reported variations in work values based on employee residence in various climatic regions of China. They found that cultural differences in conjunction with climate can impact individuals' abilities to deal with ambiguity, risk, and power.

The connection between personal values and work values as reported by Leuty and Hansen (2011) is present, but they hesitated to posit that personal values are a direct predictor of work values. In fact, they suggest some work value researchers who rely heavily on the assertion that personal values predict work values may be misguided. Rather, Leuty and Hansen (2011) suggest generational differences between individuals and the changes in the nature of work that have occurred over the past decades have more significantly impacted changes in work values than personality traits. To fully investigate this connection, it is first beneficial to unpack the theory of generational differences and then examine their connection to work values.

Generational Theory

Multiple theories postulate the origins of differences between individuals in the workplace. Generational theory specifically suggests that differences in individuals are related to their generational alignment (Cogin, 2012; Kaifi, Nafei, Khanfar, & Kaifi, 2012; Parry & Urwin, 2011). The modern workplace is primarily comprised of three generations of employees: Baby Boomers, Generation X, and Millennials. As such, most research in generational theory focuses on those generations, defining them based on birth year. Hansen and Leuty (2012) reported little variance in work values between the generations examined in their study, positing the interpretations of the values presented may have varied between generations. Their investigation focused on older generations, the youngest investigated being Generation X. Having found little variation, Hansen and Leuty did stress the importance of continuing to investigate generational differences in work values, no matter how small the variations are.

Despite the limited empirical research directly measuring generational differences in work values, many studies have been conducted to investigate generational differences in attitudes and behaviors at work using birth year definitions for the generational dividing lines. Table 3 and Table 4 synthesize the work-related characteristics of Baby Boomers, Generation X, and Millennials reported across literature. In response to the limited work value studies, the table also aligns the attitudes and behaviors with the work value characteristics as defined by Ros, Schwartz, and Surkiss (1999) as shown in Tables 2 and Table 3.

Table 2. Attitudes and Behaviors of Baby Boomers at Work

Work Value Alignment	Characteristic	As reported by
Intrinsic values	Optimistic	Bennett, Pitt, & Price, 2012 Kaifi et al., 2012 Salahuddin, 2010
	Technologically challenged	Bennett, Pitt, & Price, 2012
Extrinsic values	Prefer formal work environments	Lester et al., 2012
	Appreciate moderate pace	Lester et al., 2012
	Place work above personal life	Lester et al., 2012 Hansen & Leuty, 2012
	Value material success	Hansen & Leuty, 2012
Power values	Competitive and hard working	Bennett, Pitt, & Price, 2012 Hansen & Leuty, 2012 Salahuddin, 2010
	Respect authority	Cogin, 2012
	Tend to micromanage	Cogin, 2012
	Seek respect	Cogin, 2012
Social values	Value collaboration	Bennett, Pitt, & Price, 2012 Haynes, 2011 Lester et al., 2012 Salahuddin, 2010
	Do not need feedback	Cogin, 2012
	Non-confrontational	Bennett, Pitt, & Price, 2012

Table 3. Attitudes and Behaviors of Generation X at Work

Work Value Alignment	Characteristic	As reported by
Intrinsic values	Cynical and skeptical	Bennett, Pitt, & Price, 2012 Hansen & Leuty, 2012 Lester et al., 2012 Kapoor & Solomon, 2011 Mhatre & Conger, 2011
	Autonomous and independent	Bennett, Pitt, & Price, 2012 Hansen & Leuty, 2012 Lester et al., 2012 Kapoor & Solomon, 2011 Mhatre & Conger, 2011
	Adaptable	Hansen & Leuty, 2012
	Resilient and resourceful	Hansen & Leuty, 2012
	Committed to individual work over organizational loyalty	Hansen & Leuty, 2012 Simon, 2010
	Self-starters	Bennett, Pitt, & Price, 2012 Hansen & Leuty, 2012
	Values skill development over job title	Cogin, 2012
	Comfortable with risk	Cogin, 2012
	Pragmatic	Bennett, Pitt, & Price, 2012 Cogin, 2012
	Technologically literate	Bennett, Pitt, & Price, 2012
Extrinsic values	Wants work/life balance	Hansen & Leuty, 2012 Lester et al., 2012
	Results oriented	Cogin, 2012
Power values	Challenges authority	Lester et al., 2012 Cogin, 2012
Social values	Self-centered Prefer immediate feedback Appreciate directness Does not appreciate unnecessary communication	Kapoor & Solomon, 2011 Cogin, 2012 Kapoor & Solomon, 2011 Lester et al., 2012

Table 4. Attitudes and Behaviors of Millennials at Work

Work Value Alignment	Characteristic	As reported by
Intrinsic values	High technology savvy	Bennett, Pitt, & Price, 2012 Lester et al., 2012 Suleman & Nelson, 2011 Mhatre & Conger, 2011
	Multitasking	Lester et al., 2012
	Optimistic and positive	Lester et al., 2012 Cogin, 2012 Kapoor & Solomon, 2011 Mhatre & Conger, 2011 Suleman & Nelson, 2011
	Appreciate new challenges	Cogin, 2012
	Values oriented	Cogin, 2012
	Seek meaning	Bennett, Pitt, & Price, 2012 Cogin, 2012
	Value relevant development	Cogin, 2012
	Busy	Kapoor & Solomon, 2011
	Serious	Kapoor & Solomon, 2011
	Become bored easily	Bennett, Pitt, & Price, 2012
Extrinsic values	Fast Paced	Lester et al., 2012
	Prefer flexibility	Cogin, 2012
	Goal oriented	Suleman & Nelson, 2011
Power values	Ambitious	Cogin, 2012
Social values	Culturally sensitive	Bennett, Pitt, & Price, 2012 Lester et al., 2012
	Team oriented and collaborative	Lester et al., 2012 Cogin, 2012 Kapoor & Solomon, 2011 Mhatre & Conger, 2011

Work Value Alignment	Characteristic	As reported by
Social values	Prefer transparency and authenticity	Cogin, 2012 Kapoor & Solomon, 2011
	Expect to be treated well	Kapoor & Solomon, 2011

Trust elders   Kapoor & Solomon, 2011

Appreciate coaching and guidance   Mhatre & Conger, 2011

Expanding the Definition of Generation

The aged-based definition of generations has led to a great deal of information as to the preferences of individuals in the workplace. Rhodes (1983) expanded upon the definition of a generation stating that age-related differences between people could be based on numerous factors; not only is age an influence, but cohort and period effects will also influence attitudes and behaviors. Cohort effects are shared life experiences and expectations based on sociocultural factors (Rhodes, 1983). Examples of cohort effects include growing up before, during, or after the womens' movement. Period effects are more situational and environmental in nature, and include events and expectations experienced by a group at a certain point in time. Examples of period effects include changes in working conditions, or the expectations that a like group will behave in a certain way. Table 5 outlines period and cohort effects that helped shape the generations currently employed in the modern workplace.

Table 5. Period/Cohort Influences of Baby Boomers, Generation X, and Millennials

Generation	Period/Cohort Influences
Baby Boomers	• The Cold War (Cogin, 2012) • Social change including civil rights movement and the sexual revolution (Cogin, 2012; Simon, 2010) • Assassinations of icons (Kaifi et al., 2012) • Raised in economic prosperity (Cogin, 2012; Kafi et al., 2012; Simon, 2010) • Advent of television in homes (Bennett, Pitt, & Price, 2012)
Generation X	• Raised in financial insecurity and rising unemployment (Cogin, 2012) • Rising divorce rates (Cogin, 2012; Hansen & Leuty, 2012) • AIDS epidemic (Hansen & Leuty, 2012) • "Latchkey kids" (Hansen & Leuty, 2012, p. 35; Simon, 2010, p. 31) • End of the Cold War (Cogin, 2012; Bennett, Pitt, & Price, 2012)
Millennials	• Raised in affluent society and economic boom (Cogin, 2012) • Born during era of family planning, therefore were "wanted" children (Cogin, 2012, p. 2272) • Globalization (Simon, 2010) • The internet and instant communication through technology (Cogin, 2012; Bennett, Pitt, & Price, 2012; Simon, 2010) • Climate change (Bennett, Pitt, & Price, 2012)

Furthering Generational Research: Digital Natives and Digital Immigrants

An opportunity presents itself to define generations outside their traditional definitions (Rhodes, 1983). As such, the digital natives and digital immigrants, generations defined by the cohort and period effects from technology and the digital age, have become the focus of research

across industries (Joiner et al. 2013). Prensky (2001) introduced the concept of the digital native for the purposes of examining educational effectiveness for a new generation of young people in schools, what resulted was a new chapter in generational research. Digital natives are defined as those individuals born in or after 1980, as they were born in the digital age and have been exposed to digital technology since birth (Prensky, 2001; Margaryan, Littlejohn, & Vojt, 2011). As such, digital natives have "spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all other toys and tools of the digital age" (Prensky, 2001, p. 1). Digital immigrants according to Prensky are those individuals born in 1979 or earlier who have learned to adapt to the digital world. Digital immigrants were not raised in a technology rich environment and therefore do not navigate the digital landscape with the ease of digital natives. These differences have been the focus of research with respect to their impact on the attitudes and behaviors of individuals. Studies have explored digital native status in terms of consumer attitudes, digital messaging, and social media (Page, DK, & Mapstone, 2010; Tkalac Verčič, & Verčič, 2013; Young & Gates, 2014). Digital native status has received international attention having been investigated on multiple continents (Kennedy & Fox, 2013; Thinyane, 2010). Some research has begun to investigate the dynamics between digital natives and digital immigrants at work, seeking to define differences between them for the purposes of informing business decisions as digital natives begin entering the workplace (Wang, Myers, & Sundaram, 2013).

In a review of literature regarding use of technologies by digital natives and digital immigrants, Wang, Myers, & Sundaram (2013) sought to identify differences and apply those differences to the workplace. The researchers examined demographic, psychological, and social factors that influence the differences between digital natives and digital immigrants. Through their investigation of age, educational methods and experience, anxiety and self-efficacy, technology accessibility, and the intent to use technology, it was concluded that there is, in fact, a difference between digital natives and digital immigrants, however it is less of a dichotomy than presented in previous research. Rather, they suggested the differences lie on a continuum based on multiple sociocultural differences that impact preferences between digital natives and digital immigrants. Mitan (2014), concerned with rising unemployment rates in Europe, hypothesized digital natives approach work with a different value system than previous generations. In alignment with Rhodes (1983) period and cohort effects, Mitan posited that digital natives are a generation of people across the globe who share values, attitudes, and behaviors because of global trends in technology and communication. To test this hypothesis Mitan surveyed 457 university students for their values and socio-demographics. Of the participants, 68% raged in age from 19-20, and 26% ranged from 21-22 years old. Mitan (2014) uncovered three patterns within the survey responses labeling them "Digital Enthusiast," "Rebel Truth Seeker," and "Pessimistic Individualist" (p. 343). These patterns served as profiles for analysis of work values within the digital native generation. The Digital Enthusiasts made up 41% of the respondents, named for their interest in technology and the internet (Mitan, 2014). They self-identified as very proficient with technology and crave technological stimulation, even during times of relaxation through web surfing and gaming. This inclination leads Digital Enthusiasts to seek fun and leisure with productive work. They also appreciate work in short bursts, spending time working intensely and concentrating deeply, then relaxing to "refill their batteries" (p. 345). Digital Enthusiasts seek out speed, efficiency, and innovation, looking to improve processes. They dislike unnecessary communication as they see it inefficient, but they do value meaningful dialogue with leaders they respect for advice, feedback, and to collaboratively solve problems. Digital Enthusiasts can seem demanding as they seek trust, communication, feedback, and respect in their endeavors to continually improve their knowledge, skills and processes. Similar to Digital Enthusiasts, Rebel Truth Seekers are proficient with technology and prefer a work environment that is flexible and fun (Mitan, 2014). They too have digital technology embedded

in both their work and leisure time. However, where Digital Enthusiasts are systematic problem solvers, Rebel Truth Seekers value altruism and lean toward intrinsic sources of motivation based on their ideals and what they view as responsible. They seek to trust and be trusted in the workplace over all else. The Pessimistic Individualists who represented only 7% of the surveyed digital natives are less likely to use digital technology for relaxation and fun (Mitan, 2014). As opposed to Digital Enthusiasts and Rebel Truth Seekers, Pessimistic Individualists care more about personalization of experiences than keeping up with the latest technology trends. These individuals are less likely to dream of the future and tend not to care about personal development or process improvement. The commonalities in work values identified by Mitan (2014) support the concept of digital natives as a generational subset with predictable values in the workplace. The three profiles outlined within the population do, however, call attention to the idiosyncrasies within the population worth exploring. Educational research about digital natives has investigated technology use, integration, preferences, and confidence in educational settings (Kennedy & Fox, 2013; Kolikant, 2010; Margaryan et al., 2011; Waycott et al., 2010). These studies have reported findings both congruent and incongruent with Prenksy's original assertions about digital natives.

Digital native status continues to drive research into the attitudes and behaviors of individuals. As this generation continues to age, graduating from school and entering the workforce, a logical progression in research would address the abilities and beliefs of digital natives, and how they impact their attitudes, behaviors, and values in their adult lives and careers (Hansen & Leuty, 2012; Ripley, 2013; Wang, Myers, & Sundaram, 2013). The characteristic that sets the digital native apart from digital immigrants is their innate comfort and confidence using technology (Ripley, 2013). This confidence, known as computer self-efficacy, has been the subject of studies with regard to knowledge sharing, research and learning, organizational culture, generational expectations, anxiety, personality, gender, and culture (Bao, Xiong, Hu, & Kibelloh, 2013; Bellini, Filho, de Moura Junior, & Pereira, 2016; Gripenberg, 2011; Kher, Downey, & Monk, 2013; Odaci,2013; Ortiz de Guinea & Webster, 2016; Saleem, Beaudry, & Croteau, 2011; Shao, Wang, & Feng, 2015; So, Choi, Lim, & Xiong, 2012).

Computer self-efficacy research is rooted in the general theory of self-efficacy, which postulates an individual's belief in his or her ability to achieve can directly impact his or her achievement (Bandura, 1986). Bandura (1986) explored self-efficacy as a predictor of human behavior considering its impact on action versus inaction, and its relationship to an individual's skill set with regard to task achievement. As part of this exploration, Bandura suggested self-efficacy is most predictive when tailored to a particular "domain of functioning, rather than as a global disposition" (p. 372). As such, researchers have sought to explore multiple domains of self-efficacy. Compeau and Higgins (1995) narrowed the focus of self-efficacy research to address the domain of computer self-efficacy (CSE). They defined computer self-efficacy as "an individual's perceptions of his or her ability to use computers in the accomplishment of a task" (p. 191). This definition expanded research in the field of technology as a great deal of existing research focused on relationships between skills and tasks.

Hypotheses

Rooted in generational theory, work values, and computer self-efficacy literature, the following information outlines the omnibus hypothesis and subsequent hypotheses and shown in Figure 1.
Omnibus hypothesis
- H_0: Digital native status does not moderate the relationship between computer self-efficacy and work values.

- H_a: Digital native status moderates the relationship between computer self efficacy and work values.

Extrinsic Growth Values

Extrinsic values are those external and outcome based sources of motivation. Krumm et al. (2013) describe extrinsic growth values as external outcomes of success at work such as advancement and money. These values have been reported as important to members of both the Baby Boomer generation and Generation X, both born before 1980 and thus considered digital immigrants. Kapoor and Solomon (2010) reported Boomers are willing to sacrifice personal happiness for professional achievement. They are goal oriented, competitive individuals who crave respect from colleagues over personal development. Similarly, Generation X has been reported to have a desire for quick promotion and compensation (Hansen & Leuty, 2012; Parry & Urwin, 2011). Conversely, digital natives, often referred to as Millennials in work value studies, do not report extrinsic values as highly (Queiri, Fadzilah, Yusoff, & Dwaikat, 2014). Based on these reported differences, H1 and H2 address the potential moderating effects of computer self-efficacy on extrinsic growth values.
- $H1_0$: Digital natives will not value extrinsic growth values less than digital immigrants when moderated by high computer self-efficacy.
- $H1_a$: Digital natives will value extrinsic growth values less than digital immigrants when moderated by high computer self-efficacy.
- $H2_0$: Digital immigrants will not value extrinsic growth values more highly than digital natives when moderated by low computer self-efficacy.
- $H2_a$: Digital immigrants will value extrinsic growth values more highly than digital natives when moderated by low computer self-efficacy.

Context-Related Values

Context-related values are extrinsic in nature but they relate more to sources of personal satisfaction such as leisure, health, and security (Krumm et al., 2013). Digital natives are showing less propensity to seek a stable work environment as they see technology as a tool to allow them to work less traditionally than previous generations (Özçelik, 2015). Generation X has also been reported to crave workplace flexibility, but their desire for flexibility is rooted in the context-related value of leisure and distaste for the traditional hierarchy of the workplace (Salahuddin, 2010). Salahuddin (2010) also reported Baby Boomers valuing strong work ethic and organizational commitment supporting the context-related values of stability and security. H3 and H4 address the context related values of digital natives and digital immigrants.
- $H3_0$: Digital natives will not value context-related values less than digital immigrants when moderated by high computer self-efficacy.
- $H3_a$: Digital natives will value context-related values less than digital immigrants when moderated by high computer self-efficacy.
- $H4_0$: Digital immigrants will not value context-related values more highly than digital natives when moderated by low computer self-efficacy.
- $H4_a$: Digital immigrants will value context-related values more highly than digital natives when moderated by low computer self-efficacy.

Intrinsic Growth Values

Multiple researchers have reported a propensity to value intrinsic over extrinsic growth for digital natives (Lester et al., 2012; Kooij, et al, 2011; Kultalahti & Liisa Viitala, 2014). Krumm et al.

(2013) define intrinsic growth values as related to self-actualization and personal ent. Specifically, where digital immigrants tend to be more competitive in the workplace, digital natives tend to be more collaborative and less status oriented (Queiri, et al,, 2014). Furthermore, Kapoor and Solomon (2010) reported digital natives as big picture thinkers and employees who crave self-actualization. They also appreciate personally challenging work that they find interesting (Quieri et al., 2014). Based on these reported characteristics, H5 and H6 address intrinsic growth values of digital natives and digital immigrants.

- $H5_0$: Digital natives will not value intrinsic growth values more highly than digital natives when moderated by high computer self-efficacy.
- $H5_a$: Digital natives will value intrinsic growth values more highly than digital natives when moderated by high computer self-efficacy.
- $H6_0$: Digital immigrants will not value intrinsic growth values less than digital natives when moderated by low computer self-efficacy.
- $H6_a$: Digital immigrants will value intrinsic growth values less than digital natives when moderated by low computer self-efficacy.

Affective Values

Affective values are intrinsic in nature, but they include social and emotional satisfaction such as appreciation and personal enjoyment (Krumm et al., 2013). The reported collaborative nature of digital natives as opposed to digital immigrants speaks to their preference for affective work values (Lester et al., 2012). What is more, digital natives generally have a low tolerance for work they do not enjoy as opposed to digital immigrants who are willing to perform less appealing tasks if they find the incentive for the work appealing (Quieri et al., 2014). H7 and H8 investigate affective values of digital natives and digital immigrants.

- $H7_0$: Digital natives will not value affective values more highly than digital natives when moderated by high computer self-efficacy.
- $H7_a$: Digital natives will value affective values more highly than digital natives when moderated by high computer self-efficacy.
- $H8_0$: Digital immigrants will not value affective values less than digital natives when moderated by low computer self-efficacy.
- $H8_a$: Digital immigrants will value affective values less than digital natives when moderated by low computer self-efficacy.

Generativity

Generativity consists of those values associated with leaving a legacy in life (Krumm et al., 2013). This work value has little literature to support it directly as the construct was initially presented by Krumm et al. (2013). However, the construct and its connection to previous work value research can be supported. Özçelik (2015) called attention to an increase in employee turnover in younger employees entering the workplace, which speaks to the possibility of digital natives valuing generativity less than their generational predecessors. H9 and H10 address the generativity values of digital natives and digital immigrants.

- $H9_0$: Digital natives will not value generativity values less highly than digital natives when moderated by high computer self-efficacy.
- $H9_a$: Digital natives will value generativity values less highly than digital natives when moderated by high computer self-efficacy.
- $H10_0$: Digital immigrants will not value generativity values more than digital natives when moderated by low computer self-efficacy.

- H10$_a$: Digital immigrants will value generativity values more than digital natives when moderated by low computer self-efficacy.

RESULTS

To begin the analysis, the omnibus research question regarding the interaction effect of computer self-efficacy on the relationship between digital native status and work values was addressed using an analysis of variance (ANOVA) followed by an analysis covariance (ANCOVA) for each construct of work values. The initial ANOVA sought to determine the relationship between digital native status and work values without the moderating variable. Then the ANCOVA introduced computer self-efficacy as the covariate interacting with digital native status for the examination of its potential moderating effects. This is a fitting analysis as an ANCOVA allows for an investigation of the relationship between a set of dependent and independent variables, then an examination of the interaction of a third variable on that relationship (Tabachnick & Fidell, 2013).

The initial ANOVA resulted in a statistical relationship between extrinsic growth values and digital native status (p=.023). No other work value constructs resulted in significant relationships with digital native status in the ANOVA. When introducing computer self-efficacy as the covariate however, more significant relationships appeared. Statistically significant relationships appeared between the covariate and three work values: extrinsic growth values (p=.009), intrinsic growth values (p=.003), and generativity (p=.055). When controlling for the covariate, no significant relationships between digital native status and the five constructs of work values appeared highlighting the interaction effect of computer self-efficacy.
 To address the follow-up research questions regarding relationships between computer-self efficacy and work values for digital natives and digital immigrants, correlation matrices were generated for each group. The correlation matrix for digital immigrants with regard to the relationship between computer self-efficacy and work values resulted in no statistical significance. The correlation matrix for digital natives, however, did produce statistically significant relationships between computer self-efficacy and four of the five work value constructs: extrinsic work values, intrinsic work values, affective values, and context-related values. Only generativity resulted in non-significance.

Descriptive statistics show slightly higher mean scores for digital immigrants for effective values, context-related values, and generativity values. Digital natives scored higher in both intrinsic and extrinsic growth values. Work values were measured on a scale of 1-100. Computer self-efficacy scores reflected a higher average for digital natives than for digital immigrants. Assumptions for ANCOVA include homogeneity of variance and normal distribution of data, with the addition of homogeneity of regression slopes for ANCOVA (Field, 2009). To test for homogeneity of variance both Box's Test of Equality of Covariance Matrices and Levene's Test of Equality of Error Variances were run. Significant scores on these tests indicate differences in variance between variables and covariates, thus non-significant scores are desirable (Field, 2009). Both tests resulted in non-significant scores confirming the homogeneity assumption (Field, 2009). Box's Test resulted in a *p* value of .133. Levene's test resulted in non-significant scores for each of the five work value constructs. Tables 6 and 7 display the results of these tests.

Table 6. Results of Box's Test of Equality of Covariance Matrices

Box's Test of Equality of Covariance Matrices	
Box's M	21.913

F	1.407
df1	15
df2	85687.242
Sig.	.133

Table 7. Results of Levene's Test of Equality of Error Variances

Levene's Test of Equality of Error Variances				
	F	df1	df2	Sig.
Affective Values: Mean Score	.011	1	146	.918
Context-related Values: Mean Score	.036	1	146	.851
Extrinsic Growth Values: Mean Score	.214	1	146	.644
Generativity Values: Mean Score	.921	1	146	.339
Intrinsic Growth Values: Mean Score	.746	1	146	.389

To test the homogeneity of regression slope assumption for ANCOVA, a customized ANCOVA model was run in SPSS specifically for the interaction variable and independent variable. The results were examined for the level of significance between the new interaction variable (DNS *MeanCSE) and each level of the dependent variable. In this custom model a significant score would indicate heterogeneity of regression slope, so a non-significant score is preferable (Field, 2009). For the three constructs of work values that resulted in a statistically significant relationship with computer self-efficacy (intrinsic growth values, extrinsic growth values, generativity), the assumption was met. Affective values and context-related values violated the assumption, which raises a concern about the analysis of these two levels of the dependent variable (Field, 2009). As the ANCOVAs for affective and context-related values resulted in non-significant results, these violations are accepted. Table 8 displays these results.

Table 8. ANCOVA Assumption Test Results

Dependent Variable	(DNS * Mean CSE) Sig.
Affective Values: Mean Score	**.046**
Context-related Values: Mean Score	**.003**
Extrinsic Growth Values: Mean Score	**.358**
Generativity Values: Mean Score	**.463**
Intrinsic Growth Values: Mean Score	**.171**

ANCOVA Details

To perform the ANCOVA beginning the investigation of the omnibus hypothesis, a univariate general linear model was run using SPSS. Using digital native status and work values as the independent and dependent variables respectively, a statistically significant relationship appeared between the work value construct of extrinsic work values and digital native status. The other four work value constructs resulted in non-significant relationships with digital native status. Table 9 displays the results of the ANCOVA.

Table 9. ANCOVA Results

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	79.502	1	79.502	.326	.569

Affective Values: Mean Score	Within Groups	35651.884	146	244.191		
	Total	35731.386	147			
Context-related Values: Mean Score	Between Groups	223.270	1	223.270	1.033	.311
	Within Groups	31543.910	146	216.054		
	Total	31767.181	147			
Extrinsic Growth Values: Mean Score	Between Groups	1672.123	1	1672.123	5.289	.023
	Within Groups	46158.342	146	316.153		
	Total	47830.464	147			
Generativity Values: Mean Score	Between Groups	99.353	1	99.353	.340	.561
	Within Groups	42710.959	146	292.541		
	Total	42810.313	147			
Intrinsic Growth Values: Mean Score	Between Groups	53.038	1	53.038	.242	.623
	Within Groups	31939.356	146	218.763		
	Total	31992.394	147			

Computer self-efficacy was introduced as a covariate in an ANCOVA between digital native status and work values to investigate its potential moderating effects. To conduct this step, computer self-efficacy was used as the covariate in a univariate general linear model using digital native status as the fixed factor against each work value construct. Using a significance level of .05, mixed results appeared. Context-related and affective values showed no significant relationships with the covariate or the independent variable. Table 10 shows the ANCOVA results for these two work value constructs. Intrinsic growth values, generativity, and extrinsic growth values resulted in significant relationships for the covariate, but not for digital native status. Table 13 also displays the results of these ANCOVAs. The relationship between intrinsic growth values and digital native status became slightly closer to significant, as did generativity with p values decreasing from .369 to .349 for intrinsic growth values, and from .561 to .325 for generativity. Notably however, neither relationship between digital native status and the work value was significant. With regard to extrinsic growth values the significant effect of digital native status uncovered in the ANCOVA was negated when controlling for computer self-efficacy. The p value increased from .023 to .086, indicating that when controlling for computer self-efficacy, digital native status does not have a significant effect of the extrinsic growth work value construct. The findings for intrinsic growth, generativity, and extrinsic growth values indicate that the covariate computer self-efficacy does, in fact, have an effect of their relationship with digital native status.

Table 10. ANCOVA Results for the Five Work Values Measured by the MWVM

Tests of Between-Subjects Effects

Dependent Variable: Affective Values: Mean Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	844.317[a]	2	422.158	1.755	.177
Intercept	16371.536	1	16371.536	68.044	.000
MeanCSE	764.815	1	764.815	3.179	.077
DNS	212.840	1	212.840	.885	.349
Error	34887.070	145	240.600		
Total	921365.688	148			
Corrected Total	35731.386	147			

Dependent Variable: Context-related Values: Mean Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	704.648[a]	2	352.324	1.645	.197
Intercept	21962.841	1	21962.841	102.523	.000
MeanCSE	481.378	1	481.378	2.247	.136
DNS	371.061	1	371.061	1.732	.190
Error	31062.532	145	214.224		
Total	1091822.250	148			
Corrected Total	31767.181	147			

Dependent Variable: Extrinsic Growth Values: Mean Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3816.534[a]	2	1908.267	6.287	.002
Intercept	9608.250	1	9608.250	31.654	.000
MeanCSE	2144.411	1	2144.411	7.065	.009
DNS	907.112	1	907.112	2.988	.086
Error	44013.930	145	303.544		

Total	807915.188	148			
Corrected Total	47830.464	147			

Dependent Variable: Intrinsic Growth Values: Mean Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1978.723[a]	2	989.362	4.780	.010
Intercept	12381.415	1	12381.415	59.816	.000
MeanCSE	1925.685	1	1925.685	9.303	.003
DNS	4.874	1	4.874	.024	.878
Error	30013.671	145	206.991		
Total	910357.278	148			
Corrected Total	31992.394	147			

Dependent Variable: Generativity Values: Mean Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1177.664[a]	2	588.832	2.051	.132
Intercept	14368.802	1	14368.802	50.044	.000
MeanCSE	1078.311	1	1078.311	3.756	.055
DNS	279.471	1	279.471	.973	.325

Dependent Variable: Generativity Values: Mean Score

Source	Type III Sum of Squares	df	Mean Square F	Sig.
Error	41632.648	145	287.122	
Total	894848.625	148		
Corrected Total	42810.313	147		

Correlation Matrix Details

The supporting hypotheses of the study address the relationship between computer self-efficacy and work values for digital immigrants and digital natives. To complete this investigation, correlational matrices were generated to relate computer self-efficacy to work values for both groups using bivariate correlational analysis in SPSS. The matrix for digital immigrants indicates no statistically significant correlation between computer self-efficacy and work values.

Table 11 and 12 displays the correlational matrix for digital immigrants. Digital natives, however, show a statistically significant correlation for four of the five work value constructs: intrinsic growth values ($p=.002$), extrinsic growth values ($p=.015$), affective values ($p=.010$), and context-related values ($p=.002$). Table 15 displays the correlational matrix for digital natives.

Table 11. Correlational Matrix for Digital Immigrants

		Computer Self-efficacy: Mean Score	Intrinsic Growth Values: Mean Score	Extrinsic Growth Values: Mean Score	Affective Values: Mean Score	Context-related Values: Mean Score	Generativ-ity Values: Mean Score
				Correlations			
Computer Self-efficacy: Mean Score	Pearson Correlation	1	.150	.156	-.003	-.103	.113
	Sig. (2-tailed)		.204	.188	.982	.388	.340
	N	73	73	73	73	73	73
Intrinsic Growth Values: Mean Score	Pearson Correlation	.150	1	.713**	.813**	.729**	.795**
	Sig. (2-tailed)	.204		.000	.000	.000	.000
	N	73	73	73	73	73	73
Extrinsic Growth Values: Mean Score	Pearson Correlation	.156	.713**	1	.634**	.455**	.709**
	Sig. (2-tailed)	.188	.000		.000	.000	.000
	N	73	73	73	73	73	73
Affective Values: Mean Score	Pearson Correlation	-.003	.813**	.634**	1	.745**	.716**
	Sig. (2-tailed)	.982	.000	.000		.000	.000
	N	73	73	73	73	73	73
Context-related Values: Mean Score	Pearson Correlation	-.103	.729**	.455**	.745**	1	.648**
	Sig. (2-tailed)	.388	.000	.000	.000		.000
	N	73	73	73	73	73	73

		Computer Self-efficacy: Mean Score	Intrinsic Growth Values: Mean Score	Extrinsic Growth Values: Mean Score	Affective Values: Mean Score	Context-related Values: Mean Score	Generativ-ity Values: Mean Score
Generativ-ity Values: Mean Score	Pearson Correlation	.113	.795[**]	.709[**]	.716[**]	.648[**]	1
	Sig. (2-tailed)	.340	.000	.000	.000	.000	
	N	73	73	73	73	73	73

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 12. Correlational Matrix for Digital Natives

Correlations

		Computer Self-efficacy: Mean Score	Intrinsic Growth Values: Mean Score	Extrinsic Growth Values: Mean Score	Affective Values: Mean Score	Context-related Values: Mean Score	Generativ-ity Values: Mean Score
Computer Self-efficacy: Mean Score	Pearson Correlation	1	.352[**]	.281[*]	.297[**]	.352[**]	.206
	Sig. (2-tailed)		.002	.015	.010	.002	.076
	N	75	75	75	75	75	75
Intrinsic Growth Values: Mean Score	Pearson Correlation	.352[**]	1	.797[**]	.886[**]	.756[**]	.795[**]
	Sig. (2-tailed)	.002		.000	.000	.000	.000
	N	75	75	75	75	75	75

		Computer Self-efficacy: Mean Score	Intrinsic Growth Values: Mean Score	Extrinsic Growth Values: Mean Score	Affective Values: Mean Score	Context-related Values: Mean Score	Generativ-ity Values: Mean Score
Extrinsic Growth Values: Mean Score	Pearson Correlation	.281[*]	.797[**]	1	.802[**]	.594[**]	.734[**]
	Sig. (2-tailed)	.015	.000		.000	.000	.000
	N	75	75	75	75	75	75

Affective Values: Mean Score	Pearson Correlation	.297**	.886**	.802**	1	.669**	.771**
	Sig. (2-tailed)	.010	.000	.000		.000	.000
	N	75	75	75	75	75	75
Context-related Values: Mean Score	Pearson Correlation	.352**	.756**	.594**	.669**	1	.535**
	Sig. (2-tailed)	.002	.000	.000	.000		.000
	N	75	75	75	75	75	75
Generativity Values: Mean Score	Pearson Correlation	.206	.795**	.734**	.771**	.535**	1
	Sig. (2-tailed)	.076	.000	.000	.000	.000	
	N	75	75	75	75	75	75

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

These results indicate a significant effect of digital native status on three work values when it interacts with computer self-efficacy. More specifically, the work values generativity, intrinsic growth, and extrinsic growth have a significant relationship with the covariate computer self-efficacy, and that relationship impacts the effect of digital native status on those values. Furthermore, intrinsic growth, extrinsic growth, affective, and context-related work values do show significant correlation with computer self-efficacy for digital natives, where no significant correlation exists for digital immigrants. The following section will discuss the implications of these findings for this and further research.

Discussion

This study investigated five constructs of work values, their relationship to digital native status, and whether that relationship is moderated by computer self-efficacy To investigate the omnibus research question and corresponding hypothesis, an ANOVA was conducted to examine the relationship between digital native status and the five constructs of work values measured by the MWVM. An ANCOVA was also conducted to introduce computer self-efficacy as a covariate in the investigation. The results of the ANOVA and ANCOVA were compared to examine whether the covariate (computer self-efficacy) moderated the relationship between digital native status and the five work-value constructs. This comparison resulted in statistically significant findings. Specifically, when computer self-efficacy was introduced as the covariate in the relationship between digital native status and work values, three statistically significant relationships appeared between extrinsic growth values (p=.009), intrinsic growth values (p=.055), and generativity (p=.003). The ANCOVA resulted in more statistically significant relationships than the ANOVA, which did not include the computer self-efficacy covariate, as it only uncovered one statistically significant relationship between extrinsic growth values and digital native status (p=.023). Notably, when controlling for computer self-efficacy in the

ANCOVA, no statistically significant results appeared, emphasizing the interaction effects of computer self-efficacy on the relationship between digital native status and work values, confirming the omnibus hypothesis of the study. The confirmation of the omnibus hypothesis, that computer self-efficacy does moderate the relationship between work values and digital native status, adds to the body of evidence that digital native status does, in fact, have a relationship with computer self-efficacy. As literature regarding both generational differences and digital native status includes dissenting opinions on their credibility and relevance in management, this finding supports the assertion of multiple researchers that generational differences exist, and that computer self-efficacy influences those differences (Bennett, 2008; Margaryan, Littlejohn, & Vojt, 2011; Prensky, 2001).

These findings also provide the evidence called for by Helsper and Enyon (2010) who suggested the distinction of digital native relied too heavily on computer self-efficacy as a definitive characteristic. They argued that the definition of digital natives presented in research was too narrow and lacked empirical evidence to support technological confidence as a defining factor.   The confirmation of this study's omnibus hypothesis addresses this argument as it illuminates computer self-efficacy's moderating effect on values. Ultimately, the significant moderating effect of computer self-efficacy on the relationship between digital native status and work values increases the validity of Prenksy's (2001) assertion that computer confidence and digital immersion does relate to the attitudes, behaviors, and values of digital natives, an assertion that has had continued prevalence across literature (Margaryan, Littlejohn, & Vojt, 2011; Ng, 2012).
The findings of the follow-up hypotheses further these claims by examining the differences between digital native and digital immigrants and whether those differences relate to computer self-efficacy.

To address the follow-up hypotheses in this study, correlational matrices and descriptive statistics were examined. Descriptive statistics were examined to view the value differences between digital natives and digital immigrants. The correlational matrices were examined for connections between computer self-efficacy and work values for separate groups of digital natives (who have higher computer self-efficacy) and digital immigrants (who scored lower on the computer self-efficacy scale). The digital immigrant matrix resulted in no significance, indicating computer self-efficacy has no relationship with work values for digital immigrants. The results for digital natives, however, did result in statistical significance. Four out of five work values showed significant correlation with computer self-efficacy: intrinsic growth values ($p=.002$), extrinsic growth values ($p=.015$), affective values ($p=.010$), and context-related values ($p=.002$). Generativity was the only value that showed no significant relationship with work values when digital immigrants and digital natives were examined separately. These findings make confirmation or rejection of the follow-up hypotheses complicated. As no significant correlation between computer self-efficacy exists for digital immigrants, comparing levels of work values when interacting with computer self-efficacy becomes irrelevant: there is no interaction for digital immigrants. At face value, hypotheses H2, H4, H6, H8, and H10 are rejected as the there is no moderation effect for digital immigrants. However, the finding that computer self-efficacy relates to four work-value constructs for digital natives does speak to the differences between digital natives and digital immigrants. Succinctly put, digital natives and digital immigrants do display value differences, and computer self-efficacy is an interaction factor for digital natives, not digital immigrants with regard to what they value at work.

Extrinsic growth values are sources of motivation from external or outcome-based sources. Hypotheses 1 and 2 explored the extrinsic growth values of digital natives and digital immigrants when they are moderated by their computer self-efficacy. Specifically, Hypothesis 1 focused on

digital native values, and Hypothesis 2 focused on digital immigrant values, examining whether their differences relate to computer self-efficacy. Notably, no significance between computer self-efficacy and extrinsic growth values appeared for digital immigrants rejecting Hypothesis 2 as computer self-efficacy produces no moderating effects. For digital natives, however, a significance level of .015 indicates a significant relationship between their computer self-efficacy and their extrinsic growth values, partially confirming Hypothesis 1. These findings make it difficult to directly compare digital natives' and digital immigrants' extrinsic growth values with regard to the moderating effects of computer self-efficacy, but two conclusions can be drawn. First, computer self-efficacy does relate to extrinsic growth values for digital natives, not for digital immigrants. Second, when examining mean extrinsic growth value scores, digital natives scored higher than digital immigrants with mean scores of 74.9 and 68.25 respectively. These value differences do not align with the assertions of some work value literature.

Where Kapoor and Solomon (2010) reported a preference for extrinsic growth in generations older than digital natives, and Queiri et. al (2014) suggested young individuals value external sources of motivation less than their generational predecessors, further investigation into what moderates the extrinsic growth values of digital immigrants could prove to be beneficial. These findings speak to the extrinsic growth value differences between digital natives and digital immigrants, and to computer self-efficacy's effects on digital native values. A significant relationship was identified between computer self-efficacy and context-related values for digital natives (p=.002) where no significance appeared for digital immigrants. These findings reject Hypothesis 4 as no relationship between computer self-efficacy and context-related values exists for digital immigrants. These findings confirm Hypothesis 3 as the digital native mean score of 83.4 was lower than digital immigrant mean score of 85.8. In line with the research of Özçelik (2015) and Salahuddin (2010), these results show the values of digital natives, which are moderated by computer self-efficacy, to be less context-related (such as leisure, health, or security-oriented) than the values of digital immigrants whose values are not moderated by computer self-efficacy.

Multiple, showing to be less competitive and more focused on collaboration and self-actualization (Lester et al. 2012; Kooij et al., 2011; Kultalahti & Liisa Viitala, 2014; Queiri et al., 2014). As such H5 hypothesized digital natives having higher intrinsic growth values than digital immigrants when moderated by computer self-efficacy. Upon examination of the test results, H5 is confirmed based on two factors. First, the mean score for digital natives of 77.6 is higher than digital immigrants' mean score of 76.4. Second, a significant relationship between computer self-efficacy and intrinsic growth values appeared for digital natives (p=.002). Like the previous tests, H6 is rejected as no relationship between computer self-efficacy and intrinsic growth values exists for digital natives. The results of tests for H5 and H6 shed light on the tendency of digital natives to value intrinsic growth related sources of motivation and engagement at work more than digital immigrants as they offer a source of interaction for their values as suggested by Quieri et al. (2014).

Hypotheses 7 and 8 address the affective values of digital natives and digital immigrants. These values include social and emotional sources of satisfaction (Krumm et al, 2013). According to existing generational research, digital natives should display a propensity for affective values more than digital immigrants because they appreciate social engagement, teamwork, and fun (Lester et al., 2012; Quieri et al., 2012). H7 posited digital natives would score higher on affective values than digital immigrants, but the results do not support the hypothesis. H7 is rejected because digital immigrants' mean score of 78.09 was higher than the digital native score of 76.63. Even though tests confirmed a significant relationship between computer self-efficacy and affective values for digital natives (p=.010), the value differences do

not align with the assertion that digital natives prefer affective values more than digital immigrants. H8 is also rejected because even though the value alignment matches the literature-based hypothesis, no moderating effect appeared for computer self-efficacy with regard to digital immigrant affective values.

The test results for H9 and H10 lead to the rejection of both hypotheses as no relationship between computer self-efficacy and generativity appeared in the correlational matrix for digital natives or digital immigrants. The mean scores for generativity showed a higher mean for digital immigrants (76.70) as opposed to digital natives (75.06), which was hypothesized based on Krumm et al. (2013) definition of the value construct. Digital immigrants display more organizational loyalty than digital natives, who tend to frequently change career paths (Özçelik, 2015). These claims are supported by the results of the value assessment, however, the lack of computer self-efficacy as a moderator leads to the acceptance of the null hypothesis for both H9 and H10.

Implications of the Findings

When Prensky (2001) posited the technology savvy of digital natives set them apart from their generational predecessors, his focus was primarily on changing educational paradigms to meet their needs. As digital natives have begun to age out of school and move into the workplace, management theory and practice has begun to explore, and in many cases speculate, as to how differences between digital natives and digital immigrants will manifest in the workplace, and what influences those differences. The findings of this study offer insight into those differences, and provide one statistically significant influence on them: computer self-efficacy.

Theoretical implications for these results stem from mixed research on the topic of generational differences at work that has left management literature with inconsistent messages and calls for clarification. Lester et al. (2012) suggested furthering research into the nuances that set generations apart in response to a non-significant finding in their research on generational technology preferences. The fact that digital natives are still relatively young and entering the workplace out of school has also left a research gap as many generational studies about digital natives focus on the field of education rather than management (Corrin, Bennet, & Lockyer, 2010; Joiner et al.,(2013), Jones, Ramanau, Cross, & Healing, 2010; Kolikant, 2010; Robinson, 2008; Westerman, Bergman, Bergman, & Daly, 2013). The confirmation of the omnibus hypothesis, along with the results of the follow-up tests in this study provides empirical evidence regarding generational differences, digital native status, and work values. Specifically, these results speak to generational differences in the workplace and what influences interact with them; computer self-efficacy influences the relationship between digital native status and work values. The argument that technology savvy sets digital natives apart from digital immigrants is another contested assertion this study addresses. The research of Waycott et al. (2010), and Helsper and Enyon (2010) specifically questioned the definition of digital native as a generational subset based of the technological influences of their upbringing. This study does not speak to when or how computer self-efficacy develops for digital natives, but it does confirm that computer self-efficacy is an influence for their attitudes and behaviors in comparison to the attitudes and behaviors of digital immigrants.

For the practice of management, the confirmation of the omnibus hypothesis speaks directly to generational differences in the workplace. Recommendations to adapt or invent management practices to meet the needs of digital natives in the workplace have appeared across industry literature (Ferri-Reed, 2012; Hansen & Leuty, 2012; Kane, 2015; Mhatre & Conger, 2011; Murphy, 2012). However, multiple researchers have called attention to the lack of empirical

evidence supporting these recommendations (Helsper & Enyon, 2010; Waycott, 2010). This study offers insight into the differences in work values between digital natives and digital immigrants, as well as identifies an influence on those values. Managers can use research such as this to more confidently inform decisions regarding adapting and/or implementing changes based on generational differences. Many claims regarding digital natives and Millennials at work revolve around their confidence and interest in technology. This study adds empirical evidence to support these claims, helping clarify questions as to their credibility (Eastman et al., 2014; Hartman & McCambridge, 2011; Ransdell et al., 2010). Notably, this study has provided evidence that computer self-efficacy is an important influential factor in the differences between digital natives and digital immigrants with regard to what they value at work.

Work values are those areas of importance that make employees feel satisfied and engaged in the workplace (Leuty, 2013). The study of these values also has direct implications from the results of this research. First, as Krumm et al. (2013) introduced the generativity work value construct with the development of the MWVM, this study adds to what is known about this newly defined construct. This value includes the desires of individuals to pass on knowledge and leave a legacy. As employees reach retirement age and their positions are increasingly being filled by younger generations, understanding and addressing generativity in the workplace will become increasingly important (Krumm et al, 2013; Leuty & Hansen, 2012). This study added to the body of evidence that the generativity value differs among individuals, and more specifically, differs based on digital native status with the interaction factor of computer self-efficacy. Because the generativity value is a new construct, this study adds to the legitimacy of the construct, as well as provides insights as to what might influence it.

The study results also add to the body of evidence on factors that interact with, or influence work values. Researchers in the field of management have examined work values with regard to their manifestation in attitudes and behaviors in the workplace, as well as for possible factors that influence them (Chow et al., 2014; Jin & Rounds, 2011; Johnson et al., 2012; Kwon & Shan, 2012; Leuty & Hansen, 2012). This study investigated one potential influence on work values, computer self-efficacy, which resulted in statistically significant results. Computer self-efficacy, or an individual's belief in his or her abilities using technology, was identified through this research as a factor that influences the work values of individuals. This finding has implications for work value theory as it adds to the list of influences on work values including the economy, geography, education, and personality (Chow et al., 2014; Johnson et al., 2012; Kwon & Shan, 2012; Leuty & Hansen, 2012). For the field of management, this finding can help inform organizations and organizational leaders as to what factors impact the satisfaction and engagement of their employees. For digital native employees, this study revealed that computer self-efficacy has a direct correlation with their intrinsic and extrinsic growth values, their affective values, and their context related values. This finding provides organizational leaders with information regarding:

- Intrinsic growth values that are connected to internal sources of growth including autonomy, self-actualization, and learning.
- Extrinsic growth values that focus on external influences of growth such as influence, status and advancement.
- Affective values that are social in nature including leisure and appreciation.
- Context-related values that encompass environmental and well-being factors such as stability, security, and health.

The connection between computer self-efficacy and these values for digital natives simply means their levels of comfort and confidence using technology can impact how much they value each of these constructs. This study does not measure reasons for these connections, nor does it offer practical application for this information in the workplace, but by introducing computer self-efficacy as a work-value influence for digital natives specifically, as well as offering evidence that computer self-efficacy serves as a significant interaction variable between digital native status and work values, this study has provided a new perspective for organizational planning and action for the field of management.

Limitations

The limitations of this study stem from its quantitative methodology. First, the use of a solely quantitative approach collects no anecdotal information from participants. This ignores any contextual information that could be informing or influencing participant responses (Vogt, 2007). The methodological limitations also pertain to data collection as this study relied on survey research, used a limited sample, and included a documented limitation for one of the survey instruments.

Recommendations for Further Research

Both the limitations of this study, as well as its findings provide opportunities for further research. With regard to the study's limitations, one recommendation for further research includes adding additional qualitative items to a similar study. As valuable as quantitative results are, a qualitative investigation would add personal and anecdotal information that could potentially add insight into the causality of the findings (Field, 2009; Vogt, 2007). To address limitations based on sample, future studies could include international audiences to increase global generalizability, or could include a larger sample within the United States to increase domestic validity (Wright, 2005). Additional items to control for demographic or personal information including occupation, industry, education level, or gender would also increase validity of similar studies as it would increase the specificity of the results.

The findings of this study offer multiple opportunities for further research. The results of the omnibus hypothesis test confirm computer self-efficacy as a moderator in the relationship between digital native status and work values. Investigations into other variables that moderate this relationship will increase what is known about digital natives and digital immigrants at work, a direct answer to calls for further research (Hansen & Leuty, 2012; Ripley, 2013; Wang et al., 2013). Additional moderator investigations would also allow for comparison of the significance of those moderators as compared to computer self-efficacy, which would help answer the question as to whether computer self-efficacy is the defining factor in the differences between digital natives and digital immigrants as originally posited by Prensky (2001).

Other opportunities arising from the results of this research deal with the practical application of generational and work-value theory in the workplace. This study has offered evidence that computer self-efficacy influences the relationship between digital native status and work values, but it does not offer insight into how that influence might manifest in behaviors or outcomes in the workplace. A study connecting the work values measured in the MWVM to observable behavior in the workplace would further the implications of this study's findings.

Joiner et al. (2013) discussed differences within the digital native generation. Coining "second generation" digital natives as those individuals born in or after 1993 (p. 550), Joiner et al. investigated the preferences of first and second generation digital natives. Their study

examined differences between first and second generation digital natives with regard to internet-based activities, and found evidence of differing preferences between them. They suggested further examination of the differences between first and second generation digital natives, potentially expanding into other behavior areas. As second generation digital natives are becoming old enough to enter the workplace, an investigation into these differences would be beneficial for managers to confirm or revise existing knowledge about digital natives at work, including the findings of this study.

Finally, the computer self-efficacy moderator itself offers opportunities for further research, as there is no information in this study regarding the origin or behavior-based outcomes of computer self-efficacy. Howard's (2014) computer self-efficacy scale measures levels of confidence and competence using technology. That level of confidence was the variable used to measure computer self-efficacy's role in the relationship between work values and digital native status. Investigation into how and where computer self-efficacy developed, as well as what behaviors and preferences are a result of computer self-efficacy could help inform organizations regarding causality of differences between employees and advise leaders when making modifications or recommendations for management practices related to computer self-efficacy and its outcomes.

Summary

This study sought to add to the body of knowledge regarding digital natives, what sets them apart from digital immigrants, and what that means for the field of management. The study ultimately investigated the research question: to what extent does computer self-efficacy moderate the relationship between digital native status and work values? Follow-up questions regarding computer self-efficacy's role in the relationship between digital native status and the five work value constructs measured by the MWVM added a layer of specificity to the study.

Using an ANCOVA comparison, a statistically significant moderating effect was identified for intrinsic growth, extrinsic growth, and generativity values. This finding indicates computer self-efficacy does in fact interact with digital native status with regard to its relationship to work values. Further examination of these dynamics was conducted using a correlation matrix between computer self-efficacy and work values for the digital native and digital immigrant groups separately. This examination identified fundamental differences between digital natives and digital immigrants. First, digital natives did score higher on the computer self-efficacy scale than digital immigrants. More importantly however is the fact that computer self-efficacy showed a direct correlation with four of the five work value constructs for digital natives, where digital immigrants showed no correlation.

For the field of management these findings add legitimacy to the claims that digital natives and digital immigrants differ, and that computer self-efficacy is a differentiating influence. Literature has reported mixed results with regard to generational differences in the workplace, and more specifically with regard to claims that the technological proclivity of the digital native generation is what sets them apart as Prensky (2001) originally posited (Ferri-Reed, 2012; Hansen & Leuty, 2012; Mhatre & Conger, 2011; Murphy, 2012). This study has added empirical evidence supporting these assertions, offering a perspective for the field of management pertaining to differences between individuals in the workplace, and creating opportunities for further research on digital natives, their attitudes, behaviors, and values, and what they could mean for the workplace of the future.

References

Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology*, 4(3), 359-373. doi:http://dx.doi.org/10.1521/jscp.1986.4.3.359

Bates, D. (2013). Are 'digital natives' equipped to conquer the legal landscape? *Legal Information Management*, *13*(3), 172-178.

Bell, A. (2010). The myth of generational tensions. *Leader to Leader,* 7-10.
Bennett, S., Maron, K., & Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. *British Journal of Educational Technology*, *39*(5), 775-786. doi:10.1111/j.1467-8535.2007.00793.x

Bennett, J., Pitt, M. & Price, S. (2012). Understanding the impact of generational issues in the workplace. Facilities, 30(7/8), 278-288. doi:10.1108/02632771211220086

Berings, D., Fruyt, F., & Bouwen, R. (2004). Work values and personality traits as predictors of enterprising and social vocational interests. *Personality and Individual Differences*, *36*(2004), 349-364. doi: 10.1016/S0191-8869(03)00101-6

Chen, J., & Lian, R. (2015). Generational differences in work values in China. *Social Behavior and Personality, 43*(4), 567-578.

Chow, A., Krahn, H. J., & Galambos, N. L. (2014). Developmental trajectories of work values and job entitlement beliefs in the transition to adulthood. *Developmental Psychology, 50*(4), 1102-1115. doi:10.1037/a0035185

Cogin, J. (2012). Are generational differences in work values fact or fiction? Multi-country evidence and implications. *International Journal of Human Resource Management*, *23*(11), 2268-2294. doi:10.1080/09585192.2011.610967

Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*, 19(2), 189-211.

Corrin, L., Bennett, S. & Lockyer, L. (2010). Digital natives: Everyday life versus academic study. In L. Dirckinck-Holmfeld, V. Hodgson, C. Jones, M. de Laat, D. McConnell, & T. Ryberg (Eds.), *Proceedings of The Seventh International Conference on Networked Learning 2010*. Aalborg, Denmark.

Eastman, J., Iyer, R., Liao-Troth, S., Williams, D., & Griffin, M. (2014). The role of involvement on Millennials' mobile technology behaviors: The moderating impact of status consumption, innovation, and opinion leadership. *The Journal of Marketing Theory and Practice,* 455-470.

Ferri-Reed, J. (2012). Leading a multi-generational workforce. *The Journal for Quality and Participation, 37*(2), 15-35.

Field, A. (2009). *Discovering statistics using IBM SPSS* (4th ed.). Thousand Oaks, CA: Sage.

Hansen, J., & Leuty, M. (2012). Work values across generations. *Journal of Career Assessment*, 20(1), 34-52.

Hartman, J., & McCambridge, J. (2011). Optimizing Millennials' communication styles. *Business Communication Quarterly,* 22-44.

Haynes, B. P. (2011). The impact of generational differences on the workplace. *Journal of Corporate Real Estate*, 13(2), 98-108.

Helsper, E. J., & Eynon, R. (2010). Digital natives: Where is the evidence? *British Educational Research Journal, 36*(3), 503-520. doi:10.1080/01411920902989227

Hopkins, M. S. (2010). The digital natives, and you. *MIT Sloan Management Review*, 51(3), 96.

Howard, M. C. (2014). Creation of a Computer Self-Efficacy Measure: Analysis of Internal Consistency, Psychometric Properties, and Validity. *Cyberpsychology, Behavior & Social Networking*, 17(10), 677-681. doi:10.1089/cyber.2014.0255

Johnson, M. K., Sage, R. A., & Mortimer, J. T. (2012). Work values, early career difficulties, and the U.S. economic recession. *Social Psychology Quarterly, 75*(3), 242-267.

Johnson, N. F. (2009). Generational differences in beliefs about technological expertise. *New Zealand Journal of Educational Studies, 44*(1), 31-45.

Jones, C., Ramanau, R., Cross, S., & Healing, G. (2010). Net generation or digital natives: Is there a distinct new generation entering university? *Computers & Education*, 54(3), 722-732.

Joiner, R., Gavin, J., Brosnan, M., Cromby, J., Gregory, H., Guiller, J., & Moon, A. (2013). Comparing first and second generation digital natives' internet use, internet anxiety, and internet identification. *Cyberpsychology, Behavior, and Social Networking,* 549-552.

Kaifi, B. A., Nafei, W. A., Khanfar, N. M., & Kaifi, M. M. (2012). A multi-generational workforce: managing and understanding millennials. International Journal of Business & Management, 7(24), 88-93.

Kane, G. C. (2015). Remaking a company for the digital natives. *MIT Sloan Management Review, 56*(3), 37-44.

Kapoor, C., & Solomon, N. (2011). Understanding and managing generational differences in the workplace. *Worldwide Hospitality and Tourism Themes*, 3(4), 308-318. doi:http://dx.doi.org/10.1108/17554211111162435

Kennedy, D. M., & Fox, B. (2013). 'Digital natives': An Asian perspective for using learning technologies. *International Journal of Education and Development using Information and Communication Technology, 9*(1), 64-79.

Kolikant, Y. (2010). Digital natives, better learners? Students' beliefs about how the internet influenced their ability to learn. *Computers in Human Behavior*, 26(6), 1384-1391.

Kooij, D. M., De Lange, A. H., Jansen, P. W., Kanfer, R., & Dikkers, J. E. (2011). Age and work-related motives: Results of a meta-analysis. *Journal of Organizational Behavior*, *32*(2), 197-225. doi:10.1002/job.665

Krumm, S., Grube, A., & Hertel, G. (2013). The Munster Work Value Measure. *Journal of Managerial Psychology*, 28(5), 532-560.

Kultalahti, S., & Liisa Viitala, R. (2014). Sufficient challenges and a weekend ahead - Generation Y describing motivation at work. *Journal of Organizational Change Management, 27*(4), 569-582.

Kurt, A. A., Günüç, S., & Ersoy, M. (2013). The current state of digitalization: Digital native, digital immigrant and digital settler. *Egitim Bilimleri Fakultesi Dergisi*, 46(1), 1-22.

Kwon, J., & Shan, C. (2012). Climate and work values. *Management International Review*, 52(4), 541-564.

Lester, S., Standifer, R., Schultz, N., & Windsor, J. (2012). Actual versus perceived generational differences at work: An empirical examination. *Journal of Leadership & Organizational Studies*, 341-354.

Leuty, M. E. (2013). Stability of scores on Super's Work Values Inventory–Revised. *Measurement & Evaluation In Counseling & Development*, *46*(3), 202-217. doi:10.1177/0748175613484034

Leuty, M. E., & Hansen, J. C. (2011). Building evidence of validity: The relation between work values, interests, personality, and personal values. *Journal of Career Assessment, 21*(2), 175-189.

Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers & Education*, 56(2), 429-440.

Mhatre, K., & Conger, J. (2011). Bridging the gap between Gen X and Gen Y. *Journal of Leadership Stories*, 5(3), 72-76.

Mitan, A. (2014). Digital natives coming of age: Challenges for managers. *Management Dynamics in the Knowledge Economy, 2*(2), 335-354.

Murphy, W. (2012) Reverse mentoring at work: Fostering cross-generational learning and developing Millennial leaders. *Human Resource Management*, 51(4), 549-574.

Özçelik, G. (2015). Engagement and retention of the Millennial generation in the workplace through internal branding. *International Journal of Business and Management,* 10(3), 99-107. Page, K., DK, & Mapstone, M. (2010). How does the web make youth feel? Exploring the positive digital native rhetoric. *Journal of Marketing Management, 26*(13), 1345-1366. doi:10.1080/0267257X.2010.523709

Patten, M. (2012). *Understanding research methods: An overview of the essentials* (8th ed.). Glendale, Calif.: Pyrczak Pub.

Parry, E., & Urwin, P. (2011). Generational differences in work values: A review of theory and evidence. *International Journal of Management Reviews*, *13*(1), 79-96.

Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the Horizon*, *9(5)*, 1-6.

Queiri, A., Yusoff, W. F. W., & Dwaikat, N. (2014). Generation-Y employees' turnover: Work-values fit perspective. *International Journal of Business and Management*, 9(11), 199-213.

Ransdell, S., Kent, B., Gaillard-Kenney, S., & Long, J. (2010). Digital immigrants fare better than digital natives due to social reliance. *British Journal of Educational Technology,* 931-938.

Rhodes, S. R. (1983). Age-related differences in work attitudes and behavior: A review and conceptual analysis. *Psychological Bulletin*, 93(2), 328-367. doi:10.1037/0033-2909.93.2.328

Ripley, A. (2013). Training and developing 'digital natives' should be at the heart of UK business. *Development and Learning in Organizations: An International Journal, 27*(5), 4-6. doi:10.1108/DLO-07-2013-0049

Robinson, M. (2008). Digital nature and digital nurture: Libraries, learning and the digital native. *Library Management*, 67-76.

Ros, M., Schwartz, S. H., & Surkiss, S. (1999). Basic individual values, work values, and the meaning of work. *Applied Psychology: An International Review*, *48*(1), 49-71. doi:10.1080/026999499377664

Salahuddin, M. M. (2010). Generational differences impact on leadership style and organizational success. *Journal of Diversity Management*, 5 (2), 1-6.

Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues, 50*(4), 19-45. doi:10.1111/j.1540-4560.1994.tb01196.x

Schwartz, S. H. (1999). A theory of cultural values and some implications for work. *Applied Psychology, 48*(1), 23-47. doi:10.1080/026999499377655

Selmer, J., & Littrell, R. (2010). Business managers' work value changes through down economies. *Journal of Chinese Human Resources Management, 1*(1), 31-48. doi:http://dx.doi.org/10.1108/20408001011051197

Simons, G. (2010). Leveraging generational work styles to meet business objectives. *Information Management, 44*(1), 28-33.

So, H., Choi, H., Lim, W. Y., & Xiong, Y. (2012). Little experience with ICT: Are they really the next generation student-teachers? *Computers & Education, 59*(4), 1234-1245. doi:10.1016/j.compedu.2012.05.008

Swanson, R., & Holton, E. (2005). Research in organizations foundations and methods of inquiry. San Francisco, Calif.: Berrett-Koehler.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics*. Boston: Pearson Education.

Thinyane, H. (2010). Are digital natives a world-wide phenomenon? An investigation into South African first year students' use and experience using technology. *Computers & Education, 55*(2010), 406-414.

Thompson, P. (2013). The digital natives as learners: Technology use patterns and approaches to learning. *Computers & Education*, *65*, 12-33. doi:10.1016/j.compedu.2012.12.022

Tkalac Verčič, A., & Verčič, D. (2013). Digital natives and social media. *Public Relations Review, 39*(5), 600-602. doi:10.1016/j.pubrev.2013.08.008

Twenge, J., Campbell, S., Hoffman, B., & Lance, C. (2010). Generational differences in work values: Leisure and extrinsic values increasing, social and intrinsic values decreasing. *Journal of Management, 36*(5), 1117-1142.

Vogt, W. (2007). *Quantitative Research Methods for Professionals* (Custom ed.). Boston, MA: Pearson Learning Solutions.

Wang, Q., Myers, M. D., & Sundaram, D. (2013). Digital natives and digital immigrants: Towards a model of digital fluency. *Business & Information Systems Engineering, 5*(6), 409-419. doi:10.1007/s12599-013-0296-y

Waycott, J., Bennett, S., Kennedy, G., Dalgarno, B., & Gray, K. (2010). Digital divides? Student and staff perceptions of information and communication technologies. *Computers & Education*, *54*(4), 1202-1211. doi:10.1016/j.compedu.2009.11.006

Westerman, J., Bergman, J., Bergman, S., & Daly, J. (2011). Are universities creating Millennial narcissistic employees? An empirical examination of narcissism in business students and its implications. *Journal of Management Education*, 5-32.

Young, S., & Gates, P. (2014). Born digital: Are they really digital natives? *International Journal of e-Education, e-Business, e-Management and e-Learning, 4*(2), 102. doi:10.7763/IJEEEE.2014.V4.311