Communication and Teleworking: A Study of Communication Channel Satisfaction, Personality, and Job Satisfaction for Teleworking Employees

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Abstract

This study examines teleworkers' job satisfaction related to the use of and satisfaction with a variety of communication channels and workers' personality type. U.S. teleworkers (N = 384) completed an online survey and self-reported on dimensions of communication channel satisfaction, job satisfaction, and personality. Results indicated that extraversion, openness, agreeableness, and conscientiousness are positively correlated with job satisfaction. Additionally, significant moderating effects were found for the relationship between openness and phone and video communication, and agreeableness and phone communication on job satisfaction. Findings from this study yield important practical implications for organizations including suggestions for optimizing communication satisfaction for employees of differing personality types and recommendations to help organizations effectively hire and retain teleworkers.

Keywords

organizational communication, teleworking, personality, job satisfaction, communication channels

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The traditional work environment has experienced a dramatic shift due to advances in communication technology allowing employees to work from remote locations, or telework, which minimizes the impact of time and place on organizational communication (Herschel & Andrews, 1997). Currently, there are more than 28 million teleworkers in the United States (Virick, DaSilva, & Arrington, 2010). In fact, the amount of teleworkers in the United States increased by more than 200% from 1992 to 2002 (U.S. Department of Transportation [U.S. DoT], 2006). Furthermore, the U.S. DoT estimates that on average, virtual employees spend 3 to 4 days teleworking per week. Recently, the decision to allow employees to telework has come under public scrutiny with some Fortune 500 companies such as Yahoo! and BestBuy choosing to ban teleworking for productivity reasons (Pepitone, 2013). It remains an increasingly popular choice though for organizations that wish to provide flexibility and autonomy to employees. Because teleworking often involves complex management of interpersonal and mediated communication systems, it is of significant interest to interdisciplinary studies.

As teleworking has expanded and become a common organizational venture, researchers have investigated how communication and job satisfaction variables translate from the traditional office setting to an alternative environment—the remote office (Akkirman & Harris, 2005; Duxbury & Neufeld, 1999; Fonner & Roloff, 2010). For many employers and employees, teleworking is viewed favorably because of the benefits it offers such as flexibility, increased productivity, and fewer distractions, but it may not be the best choice for everyone. Past research has indicated that teleworking may not increase job satisfaction, and in some instances, teleworking may decrease job satisfaction because there is a lack of interpersonal relationships, no face-to-face communication, and requires a vast amount of self-discipline. Additionally, teleworking has been found to have a negative influence on teamwork and work/life balance (Hill, Miller, Weiner, & Colihan, 1998; Virick et al., 2010).

Personality factors, such as the Big Five, offer great insight into workplace behaviors (Daniels, Lamond, & Standen, 2000; Tuckman, 1968) but a clear understanding of why some teleworkers experience greater levels of job satisfaction than others is missing in current research; a gap that this study seeks to fill. Early research demonstrates workers' occupational environment satisfaction differed based on personality type (Tuckman, 1968). More recent research has found personality to be related to person-organization fit; for example, more agreeable and extraverted individuals perceive greater satisfaction with corporate culture (Gardner, Reithel, Cogliser, Walumbwa, & Foley, 2012). Personality also influences interpersonal relationships within organizations. Personality traits have been shown to relate to the development and initiation of coworker friendships, particularly among teleworkers (Sias, Pedersen, Gallagher, & Kopaneva, 2012). However, this line of research neglects to account for the difference between traditional workers and teleworkers and how communication satisfaction and use of communication channels may affect the job satisfaction of teleworkers.

Examining communication channel use and satisfaction alongside personality traits (i.e., the Big Five) could offer a possible explanation for the existing inconsistent findings between teleworking and job satisfaction. Originating from psychology, the Big

Five refers to five broad domains of personality that are used to describe human behavior in social science research (Costa & McCrae, 1992). The Big Five dimensions are openness, conscientiousness, extraversion, agreeableness, and neuroticism (Judge, Higgins, Thoresen, & Barrick, 1999). This study explores how the Big Five personality traits and the communication channel satisfaction of e-mail, instant messaging, phone, and video communication influence the job satisfaction of teleworkers.

Teleworking and Job Satisfaction

Teleworking is defined as "a work arrangement in which employees perform their regular work at a site other than the ordinary workplace, supported by technological connections" (Fitzer, 1997, p. 65). Telework has also been described as a

> flexible work arrangement that affords employees the ability to periodically, regularly, or exclusively perform work for their employers from home or another remote location that is equipped with the appropriate computer based technology to transfer work to the central organization. (Caillier, 2011, p. 462)

In short, because of technological advancements of communication devices/systems and vast interconnectivity of persons in this globalized era, teleworking allows employees to work from almost anywhere.

Teleworking offers many benefits at the organizational and individual levels such as increased employee performance, decreased organizational expenses, higher employee morale, and more employee autonomy (Caillier, 2011; Cooper & Kurland, 2002; Fonner & Roloff, 2010). However, there are also disadvantages to teleworking such as diminished relationships with coworkers and managers, including reports of increased feelings of isolation, employees feeling less connected to their organization, and feeling "out of the loop" in office politics and decisions (Cooper & Kurland, 2002; Gainey, Kelly, & Hill, 1999; Reinsch, 1997, 1999; Weisenfeld, Raghuram, & Garud, 2001). To date, it is unclear how the benefits and disadvantages impact teleworker's overall job satisfaction, with some studies suggesting a positive relationship, and others finding a curvilinear relationship between teleworking and job satisfaction (Cooper & Kurland, 2002; Golden, 2006; Golden & Viega, 2005).

Job satisfaction is one of the most commonly studied outcomes of teleworking and refers to how content an individual is with his or her job (Fonner & Roloff, 2010; West & Berman, 2009). Job satisfaction can also be defined as an affective relationship to one's job that is a function of situational factors including nature of the work, human resources elements, and the organizational environment (Boswell, Shipp, Payne, & Culbertson, 2009). Previous research demonstrates that teleworking and job satisfaction are related, although the nature of that relationship is unclear. One study found a curvilinear relationship between teleworking and job satisfaction, arguing that at a certain point, teleworking leads to less employee satisfaction (Golden & Viega, 2005). Specifically, Golden and Viega (2005) argued that in small amounts, teleworkers are more satisfied because they experience all the benefits of teleworking and in turn

minimize the disadvantages of teleworking, such as isolation and lack of interpersonal workplace relationships. However, when employees telework regularly, or exclusively, they may start to experience the disadvantages more heavily than the advantages, and therefore experience decreased job satisfaction. These results show that teleworking is complex and job satisfaction can vary for a number of different reasons, including the amount of time spent teleworking (Golden & Viega, 2005). These findings were upheld and extended to argue that the job satisfaction of teleworkers should be understood in terms of higher order relations and not merely in terms of the direct impact of teleworking on job satisfaction (Virick et al., 2010). Additional research has highlighted the negative relationship present between teleworking and job satisfaction. Specifically, Cooper and Kurland (2002) argued that decreased interactions with coworkers resulting from teleworking, coupled with increased feelings of isolation, led to lower levels of job satisfaction. Several other factors, such as lack of professional support, impeded career advancement and an "out of sight, out of mind" mentality among teleworkers has been related to lower job satisfaction levels as well (Virick et al., 2010).

In contrast to previous work highlighting the curvilinear or negative relationship present between teleworking and job satisfaction, a meta-analysis suggested a positive relationship between teleworking and job satisfaction (Gajendran & Harrison, 2007). The meta-analysis did not find any negative effects of teleworking on workplace social ties. Indeed, the meta-analysis revealed that while there are disadvantages to teleworking, the advantages of teleworking outweigh the disadvantages when it comes to job satisfaction. This finding is consistent with other research demonstrating a positive relationship between teleworking and job satisfaction (Kossek & Ozeki, 1998; Manochehri & Pinkerton, 2003).

The benefits and disadvantages of teleworking have been established empirically; however, there is a conflicting information about the role individual differences, such as personality, play in the relationship between teleworking and job satisfaction. This is essential to understanding the satisfaction of teleworkers. Exploratory research has focused on the individual reasons why some people will choose to telework and others will prefer to report to an office everyday (Bailey & Kurland, 2002). Additionally, the International Telework Association and Council (2011) argued that psychological attributes, rather than technological barriers could explain why teleworking is not ideal for everyone. Bailey and Kurland (2002) argued that people who like to control their work pace and avoid face-to-face interactions would make good teleworkers. Furthermore, knowledge workers, sales and marketing personnel, and information workers are typically considered prime candidates for telework based on their individual traits because they tend to be creative, adaptable, and open to new experiences (Bailey & Kurland, 2002). Personal characteristics such as discipline, amount of household distractions, and preference to work with a team, will influence whether employees decide to telework or are satisfied teleworkers (Mokhtarian & Salomon, 1997). Research to date highlights the importance that individual differences play in the satisfaction of teleworking employees. It ignores however, the role that communication might play in mitigating these relationships. We turn first to an exploration of personality traits in organizations and then to communication processes.

The Big Five Personality Characteristics

It is clear that teleworking has both advantages and disadvantages that may not be ideal for every employee, and it appears to be related to individual differences. The Big Five has had great success in explaining many aspects of life and career outcomes, such as subjective well-being, longevity, job performance, and leadership emergence and effectiveness (Judge, Ilies, Bono, & Gerhardt, 2002). Recently, the Big Five has also been applied to help understand teleworking and job satisfaction (Clark, Karau, & Michalisin, 2012). The Big Five characteristics of personality encompass virtually all personality measures neatly into five factors: openness, conscientiousness, extraversion, agreeableness, and neuroticism (Goldberg, 1990). The Big Five have been found to generalize across almost all cultures and appear to remain relatively stable over time (Judge et al., 1999). The Big Five, characterized below, are one of the most supported measures of personality, and applying the Big Five to teleworkers may help predict the job satisfaction of teleworkers.

Openness is characterized by divergent thinking and is strongly related to creativity (Judge et al., 2002). Furthermore, individuals who are high in openness are likely to have a rich and complex emotional life, be intellectually curious, behaviorally flexible, and nondogmatic in their attitudes (Costa & McCrae, 1992). Employees high in openness seek variety and tend to have more favorable attitudes toward learning, which may make them a satisfied teleworker (Clark et al., 2012). Previous research exploring the relationship between openness and teleworking has indicated mixed results. Gainey and Clenney (2006) found a positive relationship between openness and teleworking. Clark et al., on the other hand, did not find a significant relationship between positive teleworking attitudes and openness.

Conscientious people are associated with high levels of academic and vocational success due to their need for being well organized, scrupulous, and diligent (Costa & McCrae, 1992). Conscientiousness is also related to overall job performance; more conscientious employees tend to have better job performance evaluations than less conscientious employees (Barrick & Mount, 1991). Furthermore, conscientious people tend to be good leaders because of their tenacity and persistence (Goldberg, 1990). Conscientiousness has been found to be the strongest predictor of job performance and consistent with the characteristics needed in successful teleworkers (Clark et al., 2012). Conscientious people are a good fit for teleworking because of their needs for routine and independence. Indeed, Clark et al. (2012) demonstrated a positive relationship between conscientiousness and teleworking attitudes.

Extraversion is a characteristic that is strongly related to social, energetic, and lively people (Judge et al., 2002). Extraverted people tend to prefer environments that are abundant with stimulation, social interactions, and activity (Clark et al., 2012). To date, research on extraversion and telework has been limited, but Clark and colleagues found that extroverts did not have significant positive or negative attitudes toward teleworking arrangements.

In contrast, *agreeable* individuals are likely to be modest, cooperative, friendly, trustworthy, and helpful (Clark et al., 2012; Judge et al., 2002). Agreeableness is

positively related to job performance, specifically in jobs that involve interpersonal interactions (Mount, Barrick, & Stewart, 1998). Furthermore, trust is an important component of teleworking success, as well as cooperation, two traits that people high in agreeableness possess (Pratt, 1984). Previous research found a strong relationship between agreeableness and positive attitudes toward teleworking (Clark et al., 2012).

The final component of the Big Five, *neuroticism*, is associated with a lack of emotional stability, insecurity, fear, and instability (Goldberg, 1990). People high in neuroticism are also described as anxious, depressed, or worried (Clark et al., 2012). Neuroticism has received mixed results in teleworking studies. Early research suggested that teleworking is not desirable for people high in neuroticism, especially in performance-rewarding organizational cultures, because the reward drive increases teleworker anxiety (Judge & Cable, 1997; Rau & Hyland, 2002). However, more recent research showed that individuals high in neuroticism had favorable attitudes toward teleworking because of the control and autonomy teleworking provides (Clark et al., 2012).

Teleworking is an internationally growing trend and while there are many benefits, some employees do not experience greater job satisfaction because of teleworking (Cooper & Kurland, 2002; Golden, 2006; Golden & Viega, 2005; Virick et al., 2010). Because past research has been inconsistent on whether teleworking increases, decreases, or has a curvilinear relationship with job satisfaction, the Big Five personality traits are applied to further explore the relationship. Specifically, based on the characteristics of the Big Five, a positive relationship between teleworking and job satisfaction is predicted for openness, conscientiousness, and agreeableness. However, a negative relationship is predicted for neuroticism because teleworking may increase characteristics commonly associated with neuroticism such as anxiety and depression. Additionally, a negative relationship between extraversion and job satisfaction of teleworkers is predicted because teleworking does not allow for very social, interactive communications between coworkers. Thus, the following hypotheses are proposed:

Hypotheses 1a-1e: Among teleworkers, job satisfaction is positively associated with the personality traits of (a) openness, (b) conscientiousness, and (c) agreeableness, and negatively associated with (d) neuroticism, and (e) extraversion.

Communication Satisfaction and Communication Channel

The Big Five offers a unique way to understand the job satisfaction of teleworkers; however, evaluating communication channel satisfaction in conjunction with the Big Five allows for a more in-depth analysis of how teleworking can influence employee's satisfaction. Extensive research on the relationship between communication satisfaction, first conceptualized by Downs and Hazen (1977), and job satisfaction did not begin until the mid-1970s (Pincus, 1986). Since that time, communication satisfaction has become a stable construct in organizational behavior research (Crino & White, 1981). However, almost three decades, Pincus (1986) noted the lack of research

examining the relationships between communication satisfaction, job satisfaction, and communication channel. Surprisingly, given rapidly expanding capabilities of communication technologies, research in this area is still lacking.

Within the organizational setting, communication satisfaction is defined as, "an individual's satisfaction with various aspects of communication in his organization" (Crino & White, 1981, pp. 831-832). Akkirman and Harris (2005) measured the following six factors: employees' relationship with supervisor, communication climate, overall communication satisfaction, horizontal communication, organizational integration, and personal feedback. They found that teleworkers experience higher levels of communication satisfaction on all factors as compared to traditional office workers. Tsai and Chuang (2009) found that supervisory communication, personal feedback, and communication climate are the greatest contributors to the communication-job performance relationship among employees. Although these two studies investigated the broader organizational communication structures, past research has not taken into account the role of communication satisfaction and job satisfaction when studying teleworkers. Thus, the next important step is to investigate not only how the personality type of teleworkers affects job satisfaction but also how the common communication channels provided to teleworkers relate to personality and affect job satisfaction.

Communication Channel

Communication channels are an obvious area in need of exploration especially in relation to personality and teleworking due to the wide array of communication options available to teleworkers. Effective use of new technologies has become increasingly important for successful and efficient performance at work (Watson-Manheim & Belanger, 2007). This is especially true for teleworkers who experience increases in new technology use and decreases in face-to-face communication and interactions (Thatcher & Zhu, 2006). Moreover, e-mail, phone, and text messaging have become central in the development of coworker friendships (Sias et al., 2012).

As new technologies are increasingly integrated into organizations, the channels of communication available to employees continue to expand. Communication media channels vary greatly in their richness (Lengel & Daft, 1988). Flyers and bulletins are considered the leanest form of communication, as these are limited in their ability to transmit multiple cues and typically contain fewer cues than richer mediums (Lengel & Daft, 1988). Conversely, face-to-face communication is considered the richest medium as it has the ability to transmit multiple cues and information at once (Lengel & Daft, 1988). Channel richness depends on ability to communicate information, ability to handle multiple cues, feedback rate, and the amount of personal focus (Lengel & Daft, 1988). These factors may also be the reason why some communication channels such as e-mail, isntant messaging, phone, and video communication would be more appealing to teleworkers of differing personality types.

E-mail. E-mail communications are strictly text based, making it one of the more lean channels of communication (Lengel & Daft, 1988). Yet, over the years, e-mail has

proven to be an effective and efficient communication medium for communication (Lee, Kozar, & Larsen, 2005). Although e-mail lacks personalization and is limited in its ability to transmit multiple cues and accommodate for language variety (Lee et al., 2005), it does allow teleworkers the advantage of continuity across conversations (Marwick, 2001).

Instant Messaging. Similar to e-mail, instant messaging is also a form of textual computer-mediated communication (Jacobson, 2007). Instant messaging applications are low cost and allow users to communicate synchronically by indicating when others are available online to communicate (Jacobson, 2007). Instant messaging, unlike e-mail, allows for rapid feedback between coworkers and is a common social tool, allowing employees to engage in informal conversation and to multitask (Zhang & Fjermestad, 2008).

Phone. Similar to chat or instant message applications, communicating via phone is synchronous and allows for a greater exchange of social information (Hinds & Kiesler, 1995). However, it is also important to note that unlike e-mail, for communication via phone to be effective both parties must be available at the same time. Additionally, the phone differs from other communication channels available as it does not allow for the sending of mass messages with continued optimum interactivity as conveniently as other communication channels.

Video Communication. Unlike e-mail and instant or text messaging, video communication systems offer wide enough bandwidth to include affective communication allowing teleworkers a communication experience that parallels face-to-face interactions (Walther, 1996). Sias et al. (2012) found that individuals who spent more time teleworking were more likely to use video conferencing solutions to replace the diminished presence of face-to-face interaction than those who teleworked less. However, Sias et al. (2012) concluded, that following face-to-face interactions, people prefer phone, e-mails, or texting for communication. Teleconferencing and instant messaging consistently ranked least satisfying among a range of communication channels available to teleworkers (Sias et al., 2012).

It is clear that both personality and communication satisfaction have important roles in workplace research (Akkirman & Harris, 2005; Clark et al., 2012; Crino & White, 1981; Downs & Hazen, 1977). However, research on the impact of communication channels available to teleworkers has been limited. Because of the fact that teleworkers work remotely and engage in workplace encounters separate from an organization's central location, teleworkers predominantly rely on computer-mediated communication and new technologies to complete daily job tasks and to communicate with coworkers. The communication channels available to teleworkers differ than those available in a traditional office setting. For example, full-time teleworkers have little or no face-to-face communication with other employees relying instead on e-mail, instant messaging, telephone, or video communication (Sias et al., 2012). Because of the increased use of new technologies in the workplace it is important to

study not only the advantages and disadvantages of particular channels but also how communication channel satisfaction can moderate the relationship between personality type and job satisfaction. Therefore, we propose the following:

Hypotheses 2a-2d: There will be a significant relationship between job satisfaction and communication satisfaction with the following communication channels: (a) e-mail, (b) instant messaging/chat, (c) phone, and (d) video communication.

Research Question 1: Will satisfaction with channel of communication (e-mail, instant messaging/chat, phone, video) moderate the relationship between personality and job satisfaction, and if so for which traits and channels of communication?

Method

Procedure

Data collection began after the research team received approval from the university internal review board (IRB). The university IRB process requires that every research team submit the appropriate forms to the appointed review board detailing the research study and data collection processes to ensure that the proposed research will not cause any harm to the participants. Specifically, the IRB reviewed the recruitment method, recruitment script, and online survey to verify that respondents would not be harmed emotionally or physically by participating in this study.

Sample

The sample included 384 U.S. teleworkers ($N = 384$). Respondents were recruited via snowball method by sending e-mails to professional contacts, posting the study on social networking websites such as LinkedIN and Facebook, and through discussion postings in online teleworking groups on LinkedIN. Respondents met the following criteria for participation: An employee must work full-time, work remotely at least 1 day per week, regularly communicate with coworkers, and be at least 18 years of age.

Demographics. The sample for this study was diverse and gender was represented with a slight majority of the respondents being male (58.3%). The participants ranged in age from 20 years to more than 55 years. Most respondents (43.8%) fell between 25 and 34 years, with a mean age of 30.2 years. A majority of the respondents identified as Asian/Pacific Islander (64.6%), while the other respondents were Caucasian (20.1%), Hispanic (2.1%), Black/African American (2.1%), Native Alaskan (2.1%), or declined to respond. Respondents reported working within a wide range of industries, including 31 general industry titles. Computers (hardware, desktop software), education, engineering, business/professional services, and accounting were among the most represented industries accounting for 45.1%. Descriptive demographic information was captured for this study to ensure that respondents met the eligibility criteria and to gain a more complete profile of teleworking employees.[1]

Measures

A survey was developed for this study and administered via SurveyGizmo (Vanek & McDaniel, 2006), which provided a hyperlink that was distributed to qualified participants. SurveyGizmo is an online survey platform that enables users to upload and distribute their surveys for data collection and to export the results of the surveys into Microsoft Excel. Respondents were made aware that their participation was voluntary before beginning the survey and could exit the survey tool at any time with no penalty. There were 79 incomplete surveys that were not included for analysis in this study.

Personality. Respondents took the NEO-FFI, which is the abbreviated five-factor inventory (FFI) scale to determine their personality traits in line with the Big 5 (Costa & McCrae, 1992). The NEO-FFI is a 60-question inventory answered using a 5-point Likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (5). The NEO-FFI is a reliable scale ($\alpha = .87$).

Job Satisfaction. Job satisfaction was measured using an adapted version of Pond and Geyer's (1991) global job satisfaction scale. The five-questions were answered using a 5-point scale ranging from *strongly disagree* (1) to *strongly agree* (5). This is a reliable scale ($\alpha = .86$).

Communication Channel Satisfaction. A scale was created to determine how satisfied teleworkers are with their coworker communications via specific channels (see the appendix). The scale was adapted from Hecht's (1978) interpersonal communication satisfaction scale. Four channels were measured: e-mail, chat or instant messaging, phone, and video conferencing. Five questions were asked for each channel and answered using a 5-point scale ranging from *strongly disagree* (5) to *strongly agree* (1), making the scale a total of 20 questions. The communication channel satisfaction scale is reliable ($\alpha = .77$).

Results

To examine Hypotheses a to 1e, a bivariate correlation was conducted to determine whether there was a significant relationship between job satisfaction and personality type (a zero-order correlation matrix of study variables is presented in Table 1). A positive relationship between conscientiousness, openness, agreeableness, and job satisfaction was predicted. A negative relationship was predicted between neuroticism and extraversion on job satisfaction. As predicted, results indicated job satisfaction to be significantly and positively correlated with openness ($r = .30$, $p < .01$), agreeableness ($r = .12$, $p < .05$), and conscientiousness ($r = .43$, $p < .01$). Contrary to Hypothesis 1e, however, results indicated a significant and positive relationship with extraversion and job satisfaction ($r = .46$, $p < .01$). In addition, job satisfaction was not significantly correlated with neuroticism ($r = -.07$, $p > .05$). Thus, teleworkers high in extraversion, openness, agreeableness, and conscientiousness experience high levels of job

Table 1. Zero-Order Correlations for Study Variables.

	1	2	3	4	5	6	7	8	9	10
1. Neuroticism										
2. Extraversion	.33**									
3. Openness	.47**	.64**								
4. Agreeableness	.53**	.49**	.66**							
5. Conscientiousness	.27**	.52**	.53**	.48**						
6. Job Satisfaction	–.07	.46**	.30**	.12*	.43**					
7. Communication satisfaction e-mail	–.01	.41**	.35**	.22**	.46**	.58**				
8. Communication satisfaction instant messaging	.00	.30**	.28**	.24**	.34**	.38**	.59**			
9. Communication satisfaction phone	–.08	.30**	.30**	.14**	.38**	.43**	.44**	.41**		
10. Communication satisfaction video	.03	.40**	.27**	.20**	.37**	.46**	.44**	.45**	.42**	

*Correlation is significant at the .05 level (two-tailed). **Correlation is significant at the .01 level (two-tailed).

Table 2. Summary of Moderating Regression Analysis; the Moderating Effect of Communication Channel Satisfaction on Job Satisfaction When Predicting for Personality.

	B	SE	R^2	ΔR^2	B	SE	R^2	ΔR^2
Variable	E-mail				Chat/Instant messaging			
Neuroticism	.00	.01	.34	.00	.00	.01	.15	.00
Extraversion	−.02	.01	.40	.00	.00	.01	.28	.00
Openness	−.01	.01	.35	.00	−.00	.01	.18	.00
Agreeableness	−.01	.01	.34	.00	.00	.01	.15	.00
Conscientiousness	−.00	.01	.37	.00	.00	.01	.23	.00
	Phone				Video			
Neuroticism	−.01	.01	.18	.00	−.00	.01	.22	.00
Extraversion	−.00	.01	.32	.00	−.01	.01	.33	.00
Openness	−.02*	.01	.22	.01	−.03**	.01	.28	.02
Agreeableness	−.02*	.01	.19	.01	−.02	.01	.24	.01
Conscientiousness	−.01	.01	.28	.00	−.01	.01	.34	.00

*$p < .05$. **$p < .01$. *** $p < .001$.

satisfaction. High levels of neuroticism, on the other hand, do not significantly impact job satisfaction. Therefore, Hypothesis 1 was partially supported.

To test Hypotheses 2a to 2d, a bivariate correlation was conducted to examine if there is a relationship between communication channel satisfaction and job satisfaction. It was predicted that there would be a significant relationship between e-mail, instant message/chat, phone, and video communication channel satisfaction and job satisfaction. As predicted, results indicated job satisfaction to be strongly correlated with communication channel satisfaction for e-mail ($r = .58$, $p < .01$), instant messaging ($r = .38$, $p < .01$), phone ($r = .43$, $p < .01$), and video ($r = .46$, $p < .01$). As such, teleworkers satisfied with using e-mail, instant message/chat, phone, and video communication channels experience greater levels of job satisfaction. After determining associations between personality and job satisfaction, and communication channel satisfaction and job satisfaction, interactions between these variables were explored in Research Question 1.

To answer Research Question 1, a series of multiple regression models were conducted to see if communication channel satisfaction (e-mail, chat/instant messaging, video, and phone, respectively) moderated the relationship between personality type and job satisfaction. Because of the continuous nature of the variables, examining interaction effects using multiple regression was preferred over analysis of variance. These analyses were conducted following procedures outlined by Aiken and West (1991). The centered main effects were entered on the first step of the analysis followed by the product of the centered main effects on the second step (see Table 2).

The first series of analyses examined the interaction between neuroticism and communication channel satisfaction in predicting changes in job satisfaction. The results
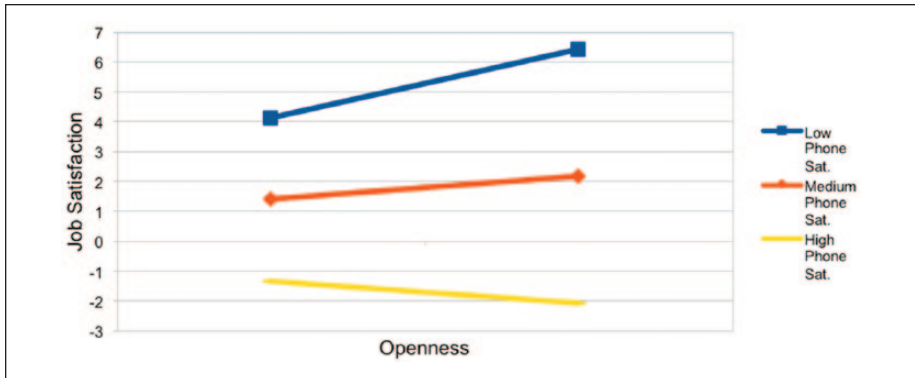
Figure 1. Conditional effects of openness on job satisfaction slopes at different levels of phone communication channel satisfaction.

indicated that communication channel satisfaction does not moderate the relationship between neuroticism and job satisfaction. The second series of analyses were the same as the first with the substitution of extraversion instead of neuroticism in the first step. The job satisfaction intercept and communication channel satisfaction variables remain unchanged from the first set of analyses. No significant interactions were found. As such, communication channel satisfaction does not moderate the relationship between extraversion and job satisfaction.

The third set of regression analyses examined the interaction between openness and communication channel satisfaction in predicting changes in job satisfaction. Phone communication channel satisfaction was found to significantly moderate the effect of openness on job satisfaction ($B = -.02$, $p = .04$). The overall model accounted for 22% of the variance and produced—$R^2 = .22$, $F(3, 360) = 33.92$, $p < .001$. The interaction between openness and phone communication channel satisfaction contributed an additional 1% of the variance in job satisfaction—$\Delta R^2 = .01$, $F(1, 360) = 3.96$, $p < .05$. Examination of simple slopes revealed that at low levels ($-1SD$, .04) of phone communication channel satisfaction, the effect of openness on job satisfaction is significant and positive ($B = .01$, $p = .001$, 95% confidence interval [CI] = [.02, .06]). At high levels ($+1SD$, .02) of phone communication channel satisfaction, the effect of openness on job satisfaction is also significant and positive ($B = .01$, $p = .05$, 95% CI = [.00, .03]). For people who experience low levels of phone communication channel satisfaction, being characterized as open results in experiencing higher job satisfaction. For people who experience high levels of phone communication channel satisfaction, being characterized as open also results in higher job satisfaction but to a lesser extent than those who experience low phone communication satisfaction (see Figure 1).

Video communication channel satisfaction was also found to significantly moderate the effect of openness on job satisfaction ($B = -.03$, $p = .001$). The overall model accounted for 28% of the variance and produced—$R^2 = .28$, $F(3, 294) = 26.97$, $p < .01$.
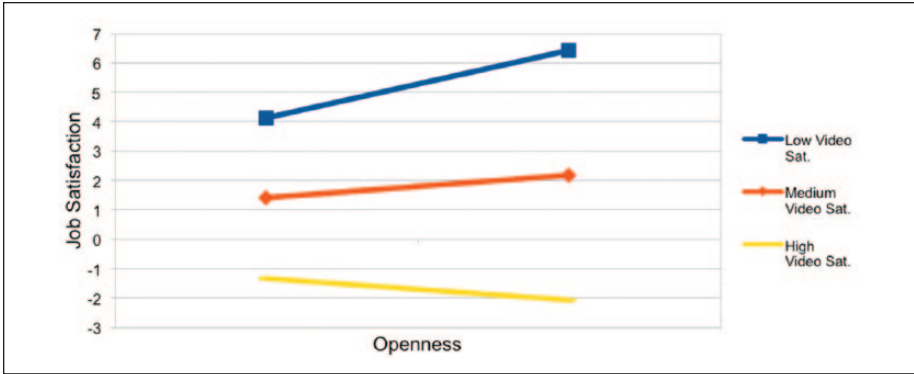
Figure 2. Conditional effects of openness on job satisfaction slopes at different levels of video communication channel satisfaction.

The interaction between openness and video communication channel satisfaction contributed an additional 2% of the variance in job satisfaction—$\Delta R^2 = .02$, $F(1, 294) = 9.46$, $p < .01$. Examination of simple slopes revealed that at low levels ($-1SD$, .05) of video communication channel satisfaction, the effect of openness on job satisfaction is significant and positive ($B = .05$, $p = .001$, 95% CI = [.03, .08]). At high levels ($+1SD$, .01) of video communication channel satisfaction, the effect of openness on job satisfaction is insignificant ($B = .01$, $p = .11$, 95% CI = [−.00, .03]). For people who experience low levels of video communication channel satisfaction, being characterized as open results in experiencing higher job satisfaction. For people who experience high levels of video communication channel satisfaction, being characterized as open has no effect on job satisfaction (see Figure 2). No significant interactions were found between e-mail communication channel satisfaction and job satisfaction or instant message/chat communication channel satisfaction.

The fourth set of analyses examined the interaction between agreeableness and communication channel satisfaction in predicting changes in job satisfaction. Phone communication channel satisfaction was found to significantly moderate the effect of agreeableness on job satisfaction ($B = −.02$, $p = .04$). The overall model accounted for 19% of the variance and produced—$R^2 = .19$, $F(3, 360) = 22.21$, $p < .001$. The interaction between agreeableness and phone communication channel satisfaction contributed an additional .8% of the variance in job satisfaction—$\Delta R^2 = .01$, $F(1, 360) = 9.46$, $p < .06$. Examination of simple slopes revealed that at low levels ($-1SD$, .03) of phone communication channel satisfaction, the effect of agreeableness on job satisfaction is significant and positive ($B = .01$, $p = .01$, 95% CI = [.01, .05]). However, at high levels ($+1SD$, .00) of phone communication channel satisfaction, the effect of agreeableness on job satisfaction is nonsignificant ($B = .00$, $p = .73$, 95% CI = [−.01, .02]). For people who experience low levels of phone communication channel satisfaction, being characterized as agreeable results in experiencing higher job satisfaction. However,
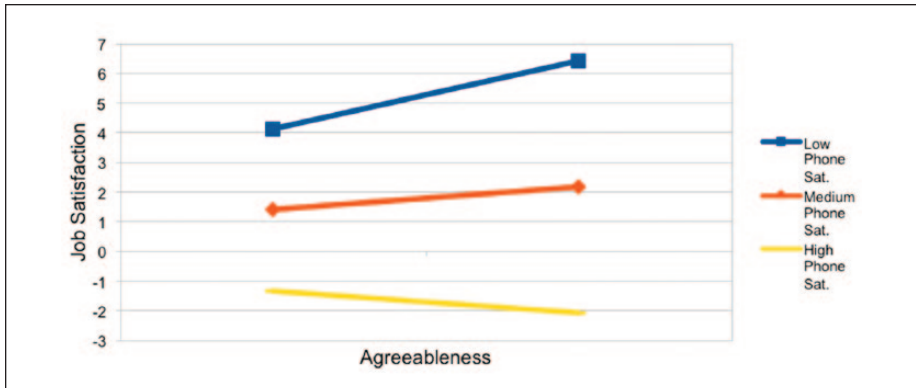
Figure 3. Conditional effects of agreeableness on job satisfaction slopes at different levels of phone communication channel satisfaction.

for people who experience high levels of phone communication channel satisfaction, being characterized as agreeable has no effect on job satisfaction (see Figure 3).

Additionally, video communication channel satisfaction was found to marginally moderate the effect of agreeableness on job satisfaction ($B = -.02$, $p = .07$). The overall model accounted for 24% of the variance and produced—$R^2 = .24$, $F(3, 294) = 21.34$, $p < .001$. The interaction between agreeableness and video communication channel satisfaction contributed an additional 1% of the variance in job satisfaction—$\Delta R^2 = .01$, $F(1, 294) = 4.11$, $p < .05$. Examination of simple slopes revealed that at low levels ($-1SD$, .03) of video communication channel satisfaction, the effect of agreeableness on job satisfaction is significant and positive ($B = .01$, $p = .01$, 95% CI = [.01, .06]). However, at high levels ($+1SD$, .01) of video communication channel satisfaction, the effect of agreeableness on job satisfaction is nonsignificant ($B = .01$, $p = .54$, 95% CI = [$-.01$, .02]). For people who experience low levels of video communication channel satisfaction, being characterized as agreeable results in experiencing higher job satisfaction. However, for people who experience high levels of video communication channel satisfaction, being characterized as agreeable has no effect on job satisfaction (see Figure 4). No significant interactions were found for e-mail or instant messaging/chat communication channel satisfaction and job satisfaction.

The final set of analyses examined the interaction between conscientiousness and communication channel satisfaction in predicting changes in job satisfaction. No significant interactions were found and as such, communication channel satisfaction does not moderate the relationship between conscientiousness and job satisfaction.

Discussion

The results of Hypothesis 1 found mixed support both in line with and contrary to what was predicted regarding personality and job satisfaction of teleworkers. The bivariate
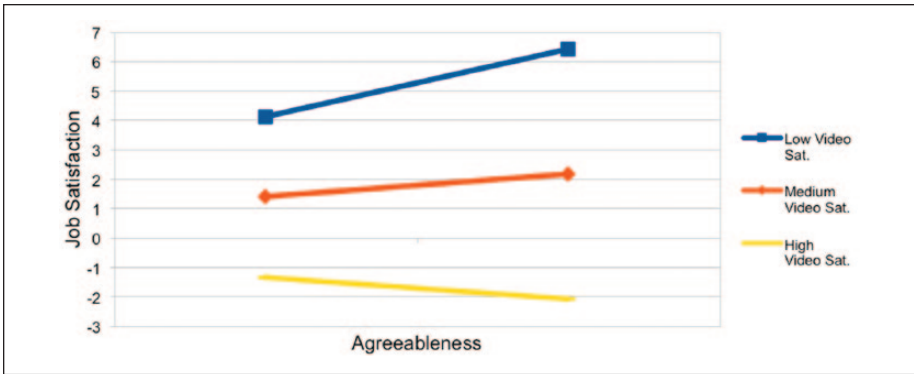
Figure 4. Conditional effects of agreeableness on job satisfaction slopes at different levels of video communication channel satisfaction.

correlational analysis demonstrated that a positive relationship between conscientiousness and job satisfaction is present among teleworkers. A possible explanation for this relationship is found within traditional personality research because conscientious people have been described as well-organized, diligent, persistent and independent, making them great candidates for teleworking jobs (Barrick & Mount, 1991; Clark et al., 2012; Goldberg, 1990). This finding adds to the finding of Clark et al. (2012) who illustrated that conscientious people have more favorable attitudes toward teleworking. Additionally, conscientious individuals have previously been found to have higher levels of job performance (Barrick & Mount, 1991), which could be a further explanation as to why conscientious individuals experience greater levels of job satisfaction especially in light of previous research on motivation, which has demonstrated a link between job performance and job satisfaction (Locke & Latham, 2002).

The findings of Hypothesis 1 also demonstrated a significant and positive relationship between extraversion and job satisfaction of teleworkers, contrary to what was predicted and findings of past research (Clark et al., 2012). Extraverts tend to be energetic, social, and lively (Judge et al., 2002), characteristics uncommon of teleworking arrangements. However, because individuals in this study may not telework exclusively, extraverts may still find outlets for socialization in their communication with coworkers and their work arrangements. These findings lend additional support and explanation to the findings of a curvilinear relationship between teleworking and job satisfaction found by Golden and Viega (2005). Golden and Viega argued that at a certain point, teleworking leads to a decrease in job satisfaction. The results of extraversion and job satisfaction of teleworkers helps explain that when personality is considered, a curvilinear relationship may no longer exist with respect to job satisfaction. Additionally, it could be that when people work both remotely and nonremotely, as was the case in this study, there are more positive implications for job satisfaction levels.

A significant relationship was not present between neuroticism and job satisfaction, contrary to our hypothesis. Because of the negative associations of neuroticism, such

as emotional instability, insecurity, anxiety, and depression (Clark et al., 2012; Costa & McCrae, 1992; Goldberg, 1990), this is a surprising finding. Interestingly, Clark et al. (2012) found that people higher in neuroticism had favorable attitudes toward teleworking because of the control and autonomy teleworking arrangements provide. However, Rau and Hyland (2002) argued that teleworking is not ideal for neurotic people because it puts too much emphasis on performance rewards. Our results do not support either finding explicitly, indicating that additional research on possible mediators and moderators of the relationship between neuroticism and teleworking job satisfaction is warranted.

Finally, the results of Hypothesis 1 indicate that there is a significant relationship between both openness and agreeableness and job satisfaction. One plausible explanation is that these two traits operate similarly in the workplace, regardless of the work context. For example, while previous research has found that agreeable individuals hold favorable attitudes toward teleworking arrangements (Clark et al., 2012; Kowalski & Swanson, 2005), this does not indicate that they disfavor traditional working arrangements. Similarly, as Clark et al. (2012) have explained, individuals higher in openness also express favorable attitudes toward teleworking for the same reasons as agreeable individuals, in that they are open and agreeable to new things either because they like to trust and please others (agreeableness) or because they like to experience new things (openness).

The results of Hypothesis 2 are important for practical purposes. Significant results were found between communication channel satisfaction of e-mail, video technologies, instant messaging, and phone communications and job satisfaction, such that when people are satisfied with these communication channels, they will experience greater levels of job satisfaction. It is most surprising that a significant relationship was found between instant messaging channels and job satisfaction, since instant messaging is a supplemental and informal form of communication as compared to the others (Zhang & Fjermestad, 2008), and because not all employees use instant messaging technologies to communicate. However, our findings indicate that although channels such as instant messaging are supplementary, that does not diminish the importance of studying the effects of their use in the workplace. As a whole, these results indicate that organizations can make available and encourage a wide variety of communication channels for communication. This would maximize likelihood that individuals have access to the optimal communication channels to meet their needs, based on their personality characteristics, and can thereby enhance job satisfaction.

Research Question 1 was proposed to examine whether a moderating relationship exists between personality, communication channel satisfaction, and job satisfaction. Mixed results were found indicating that more research is needed in this area. A significant relationship was not found to exist between extraversion, conscientiousness, or neuroticism and job satisfaction when moderated by communication channels. This is not to say that people high in extraversion, conscientiousness, or neuroticism are dissatisfied with their communication channels, only that communication channels do not influence the amount of job satisfaction these employees experience.

Significant results were found for openness and video and phone communication channel satisfaction demonstrating that people higher in openness are not only satisfied with video and phone communication channels but also that communication channel satisfaction positively influences levels of job satisfaction. A possible explanation for this rests within the traits of people high in openness because they favor new experiences and creative solutions, are more behaviorally adaptable, and seek variety in daily life (Clark et al., 2012; Judge et al., 2002), all of which might be available through the novelty of and enhanced bandwidth of video communication channels. While video communication channels allow for the closest experience of face-to-face communication, they were not significant moderators for the other Big Five personality traits. A similar explanation for phone communication satisfaction can be made because speaking on the phone can provide variety and offers more nonverbal cues than e-mail or instant messaging.

Finally, there are significant moderating relationships present between agreeableness and phone communication, as well as agreeableness and video communication. This indicates that people higher in agreeableness experience greater levels of communication satisfaction when using the telephone or video communication channels, which positively influences their level of job satisfaction. Knowing that agreeable individuals tend to value cooperation, friendliness, and interpersonal interactions (Clark et al., 2012; Judge et al., 2002; Mount et al., 1998), it is sensible that they find communicating with coworkers on the phone or via video channels satisfying. Video and telephone channels, unlike e-mail and instant messaging, provide some nonverbal cues, and also allow for synchronous communication. Since previous research has shown agreeable individuals tend to be good candidates for teleworking (Mount et al., 1998) it is in the best interest of the organization to encourage phone and video communication between coworkers who telework. The significant relationship between agreeableness, video communication satisfaction, and job satisfaction not only demonstrates that teleworkers high in agreeableness enjoy more synchronous forms of communication with coworkers but also that more research in this specific area is needed as forms of video communication become more popular.

Practical Implications

As the selection and retention of employees are primary concerns for employers, this study offers practical implications for organizations currently employing, or considering employing teleworkers. The practical implications are twofold. First, because it was found that personality type affects job satisfaction, it is important for employers to understand the personality composition of their employees in order to optimize the job satisfaction of teleworking employees. This is not to discourage personality diversity of employees, but rather meant to highlight the ways employers can embrace individual differences without sacrificing an employee's job satisfaction. For example, it would be beneficial for employers to take more consideration when placing people high in neuroticism in teleworking roles because it is likely they will not be satisfied in such a position. Conversely, someone high in extraversion can thrive in a teleworking context as either a full-time or part-time teleworker.

Second, findings from this study demonstrate the importance of employers making available a wide array of communication channels to teleworkers. Organizations would likely benefit from offering a full platform of communication channels and face-to-face opportunities in an effort to encourage employees to take advantage of multiple channels for their workplace communication, regardless of whether they telework or not. This would help unify communication across an organization, helping all employees feel more connected to the organization. Specifically, organizations could implement video communication solutions more widely to communicate with teleworkers, as video channels are the closest replacement to face-to-face communication. For example, someone high in openness is likely to experience greater satisfaction with phone or video communication channels, as opposed to someone high in extraversion. Since previous research indicates that job satisfaction of teleworkers is often lower because there is a lack of face-to-face communication, integrating video channels may be a first step toward improving the job satisfaction of teleworkers.

Employers should also recognize that while the use of e-mail communication is undoubtedly efficient, other channels such as instant messaging function similarly. Instant messaging is most often used for informal communication in the workplace. Therefore, allowing and encouraging teleworkers to communicate via instant messaging platforms may bolster perceptions of coworker support and rapport, thereby increasing their job satisfaction. Moreover, organizations should consider working arrangements that are not exclusively remote. One solution could be recommending employees who telework to do so only a few times per week or several times per month, encouraging these employees to come into the office occasionally. An arrangement such as this would allow for more variety in the types of communication channels used such as e-mail, face-to-face, phone, and video channels, which may at the very least maintain an employee's level of job satisfaction or improve their job satisfaction over time. Furthermore, with an increase in job satisfaction it is likely that employers will see an increase in retention rates.

Limitations and Directions for Future Research

A major limitation of this study was the data collected which did not allow for comparisons with nonteleworking employees. This likely had the most impact with regard to communication channel satisfaction; the lack of nonteleworking employees limited the understanding of how communication channel satisfaction varies between teleworking and nonteleworking employees. This study intentionally targeted teleworking employees so that recommendations could be outlined for maintaining and improving the job satisfaction of teleworkers. However, future research should compare teleworking and nonteleworking employees so that an understanding of how communication channel satisfaction may be different between the two groups may be gleaned.

This study provides many avenues for future research from both a theoretical and practical lens. Theoretically, the impact of communication channel satisfaction, personality, and job satisfaction could be explored from a social exchange perspective, or a media richness perspective to better predict how each variable will influence job

satisfaction of teleworking employees. Practically, this area of research provides organizations with suggestions on how to better select, retain, and communicate with teleworkers based on personality characteristics. Future research can continue to look at what factors may influence the job satisfaction of teleworkers such as amount of time spent teleworking with respect to personality traits, generational effects of teleworkers, and amount of time spent communicating with coworkers while teleworking. The goal of this study was not to examine employees who only telework, but rather to examine a broad range of teleworking schedules. With that being said however, the sample included teleworking schedules ranging from 1 day per week to full time. Although a one-way analysis of variance showed that there was not a statistically significant difference between time spent teleworking and job satisfaction. It is advised that future studies consider setting stricter recruitment requirements for teleworkers, such as teleworking exclusively, as it may have a significant influence on other outcome variables. It would also be beneficial to examine the productivity of teleworkers. Specifically, future researchers may wish to explore the productivity of teleworking employees as compared to the productivity of nonteleworking employees.

Because of their many organizational and individual benefits, teleworking opportunities and communication technologies within organizations will continue to expand. While face-to-face communication will remain an important form of workplace communication among coworkers and with clients, it would be a rare work environment that relied solely or even predominantly on face-to-face communication. In Western societies especially, individuals entering the workforce today were raised as part of the vibrant "Net Generation" (Tapscott, 2009) meaning that digital communication technologies have always been part of their life. In order to meet the demands of the Net Generation, both as employees and clients, organizations will need to maximize communication opportunities and options, which can be done through catering to a variety of personalities. Although the findings from this investigation indicate mixed results, they do point toward the importance of making available a variety of channels to suit the personality and work habits of teleworkers in order to maximize their job satisfaction and thereby enhance organizational performance and communication.

Appendix

Communication Channel Satisfaction Scale

When answering the following please only consider E-MAIL communications between coworkers. Meaning, do not think about other communication channels when answering these questions:

1. When emailing with coworkers, I feel that I am able to present myself as I want.
2. The other person demonstrated to me, via e-mail, that he or she understood what I said.

3. I am satisfied with conversations I have via e-mail with coworkers.
4. When communicating with coworkers via e-mail, both people get to say what they want.
5. The conversation with coworkers flows smoothly via e-mail.

When answering the following please only consider CHAT or INSTANT MESSAGING communications with coworkers. Meaning, do not think about other communication channels when answering these questions:

1. When chatting online with coworkers, I feel that I am able to present myself as I want.
2. The other person demonstrated to me, via online chat, that he or she understood what I said.
3. I am satisfied with conversations I have via online chats with coworkers.
4. When communicating with coworkers via online chat, both people get to say what they want.
5. The conversation with coworkers flows smoothly when chatting online.

When answering the following please only consider PHONE conversations with coworkers. Meaning, do not think about other communication channels when answering these questions:

1. When talking on the phone with coworkers, I feel that I am able to present myself as I want.
2. The other person on the phone demonstrated to me that he or she understood what I said.
3. I am satisfied with conversations I have on the phone with coworkers.
4. When communicating with coworkers over the phone, both people get to say what they want.
5. The conversation with coworkers flows smoothly when talking on the phone.

When answering the following please only consider VIDEO conversations with coworkers. Meaning, do not think about other communication channels when answering these questions:

1. When talking via video with coworkers, I feel that I am able to present myself as I want.
2. The other person, via video, demonstrated to me that he or she understood what I said.
3. I am satisfied with video conversations I have with coworkers.
4. When communicating with coworkers through video, both people get to say what they want.
5. The conversation with coworkers flows smoothly when talking via video.

Declaration of Conflicting Interests

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Note

1. A variety of demographic information was collected but after initial analyses, none were significant and therefore, that information is not reported. We tested all the races, paying particular attention to Asian/Pacific Islanders using a one-way analysis of variance. No significant results were found, $F(6, 377) = 1.95$, $p = .07$.

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