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THE EFFECT OF HOLLAND'S PERSON-ENVIRONMENT FIT ON TRAIT ANGER,
INTERPERSONAL CONFLICT AT WORK, AND WORKPLACE AGGRESSION

by

Aimee Chantelle Pseekos

A Dissertation

Submitted to the Graduate Studies Office
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

Approved: 



August 2009

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The University of Southern Mississippi

THE EFFECT OF HOLLAND'S PERSON-ENVIRONMENT FIT ON TRAIT ANGER,
INTERPERSONAL CONFLICT AT WORK, AND WORKPLACE AGGRESSION

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ABSTRACT

THE EFFECT OF HOLLAND'S PERSON-ENVIRONMENT FIT ON TRAIT ANGER, INTERPERSONAL CONFLICT AT WORK, AND WORKPLACE AGGRESSION

by Aimee Chantelle Pseekos

August 2009

This study examined the effect of Person-Environment fit, as defined by Holland's (1997) theory, on trait anger, interpersonal conflict at work, and workplace aggression in a sample of employees in the United States. Job satisfaction was also examined with regard to concurrent and discriminant validity information for this sample. Results indicated that there was not a statistically significant effect of Person-Environment fit on trait anger, interpersonal conflict at work, or workplace aggression. The concurrent and discriminant validity of findings was supported through relationships between job satisfaction, Person-Environment fit, and workplace aggression. Limitations and implications for further research related to Person-Environment fit and counterproductive work behaviors are discussed.

DEDICATION

This dissertation is dedicated to my parents, Evans and Kathleen Pseekos, whose support throughout this process has allowed me to complete this dissertation project. I love you both and greatly appreciate all that you have done and continue to do in support of my future doctoral degree in counseling psychology. I look forward to continuing on to a career of service through helping others, which you have both exemplified throughout your lives. Thank you so much.

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CHAPTER I

INTRODUCTION

THE PROBLEM OF WORKPLACE AGGRESSION AND ITS RELATION TO PERSON-ENVIRONMENT FIT

Approximately 47 million employees working in the United States have experienced psychological aggression in the workplace in 2006 (Schat, Frone, & Kelloway, 2006). Specifically, psychological aggression was defined as “behaviors that are intended to cause psychological harm” (Schat et al., 2006, p. 49). Among these employees, 13% reported exposure to psychological aggression on a weekly basis. This included being screamed at in anger, being insulted, receiving indirect threats, and being threatened with a weapon (Schat et al., 2006). Moreover, 7 million employees working in the United States have experienced physical aggression in the workplace during the past year. These employees reported being assaulted with an object, being pushed or grabbed in anger, being hit, and being attacked with a weapon (i.e., knife, gun). Accordingly, acts of psychological and physical aggression appear to be relatively common phenomenon found in many work settings.

National surveys conducted on employees further demonstrate the prevalence of workplace aggression within the United States workforce. For example, findings from a national survey conducted by the National Center on Addiction and Substance Abuse at Columbia University (2000) indicated that 33% of employees have reported experiencing workplace aggression in the form of verbal abuse at work. Further, 19% of respondents to a 1993 survey conducted by the Northwest National Life Insurance Company reported experiencing work-related harassment (i.e., verbal harassment from coworkers) during the previous year.

Workplace aggression is a serious concern for millions of Americans, negatively impacting their ability to function effectively in employment settings. Multiple authors have noted that workplace aggression has been associated with occupational health-related difficulties (e.g., Barling, 1996; Keashly, 1998; Keashly & Harvey, 2005; Neuman & Baron, 1998; Schat & Kelloway, 2003). Victimized employees have reported somatic symptoms, headaches, disturbances in sleep patterns, reduced job satisfaction, experiences of psychological distress, feelings of fear, and increased probability of bringing a weapon into one's work environment (e.g., Budd, Arvey, & Lawless, 1996; Haines, Marchand, Harvey, 2006; LeBlanc & Kelloway, 2002; Marchand, Demers, & Durand, 2005; McDermut, Haaga, & Kirk, 2000; Piotrkowski, 1998; Richman, Rospenda, Nawyn, Flahery, Fendrich, Drum, et al., 1999; Rogers & Kelloway, 1997; Schat & Kelloway, 2003). Further, abused individuals in the workplace are at an increased risk for psychological difficulties (i.e., depression and posttraumatic stress disorder), medical difficulties (i.e., high blood pressure, coronary heart disease), and suicide (Kivimaki, Ferrie, Brunner, Head, Shipley, et al., 2005; Leymann, 1990; Leymann & Gutafsson, 1996; Lutgen-Sandvik, Tracy, & Alberts, 2006; Namie, 2003). Individuals who are victimized by workplace aggression in the context of supervisory relationships are shown to display psychologically aggressive acts including reduced efficiency in job performance, frequent retaliation attempts, and reduced citizenship behavior within the organization (Townsend, Phillips, & Elkins, 2000). Individuals who witness co-workers being victimized by workplace aggression report higher levels of stress and lower job satisfaction than those who have not observed aggression within their work environments (Lutgen-Sandvik, Tracy, & Alberts). Clearly, direct and vicarious exposure to aggression has a negative impact on one's work environment.

The present research investigated the connection between workplace aggression and the fit of a particular employee's personality with his or her work environment (i.e., Person-Environment fit). For the present study, Person-Environment fit refers to the degree to which an individual's Holland personality code type matches with the code type of one's work environment (Holland, 1997). Holland explained that the six basic types of individuals and environments are: Realistic, Enterprising, Artistic, Social, Investigative, and Conventional. His theory emphasizes the impact that the level of congruence, or fit between one's personality type (e.g., Investigative) and environmental type (e.g., Conventional), may have on that person's behavior.

Person-Environment fit was selected for the focus of the present research in furthering the knowledge of workplace aggression over other individual difference variables because it allows for the consideration of one's current environmental context. Unlike other potential variables of interest where it may be considered socially desirable to exhibit low degrees (e.g., trait anger) or high degrees (e.g., self-control) of those variables across various contexts, a personality type would only be considered undesirable to the extent to which it counters the values and expectations of a particular work environment (Holland, 1997). Accordingly, in the present research it was hypothesized that a mismatch between the personality of a particular employee and a given environment may lead to workplace aggression occurring uniquely in that environment, beyond the effect of trait anger and interpersonal conflict at work, that may not generalize to the employee's previous or future work environments because of the consideration of Person-Environment fit.

Individual differences appear to be a major contributor to occurrences of workplace aggression (e.g., Douglas & Martinko, 2001). Douglas and Martinko found

that individual differences in trait anger, attitudes related to revenge, self-control, previous exposure to aggressive cultures, and attributional style, account for 62 percent of the variance in incidence of workplace aggression. A more comprehensive understanding of the impact of Person-Environment fit also is an important component in our study of the role of individual differences in the growing problem of workplace aggression. Heesacker, Elliott, and Howe (1988) recommended that additional research is needed to assess workers using Holland code types toward the examination of the impact of Person-Environment fit on workplace behaviors.

Consistent with the recommendation of Heesacker, Elliott, and Howe (1988), the purpose of the current research was to examine the impact of Person-Environment fit on aggression in the workplace by identifying types of individuals in specific types of environments who will benefit from education on prevention strategies, as well as assistance with managing feelings of anger and selecting alternatives to counterproductive work behaviors. Additionally, the current research aided in determining whether individual differences in Person-Environment fit impact workplace aggression. Through this knowledge, intervention strategies can be offered to those who will be most likely to benefit, and therein contribute to the treatment for workplace aggression. Current research on workplace aggression indicated that organizational strategies focused on assisting employees with managing their difficulties with aggression and interpersonal conflict at work can be beneficial (e.g., Johnson & Indvik, 1994; Nicoletti & Spooner, 1996). These findings indicated that effective treatments are available for employees experiencing anger in the workplace and demonstrating counterproductive work behaviors, such as aggression. The current research aims to further uncover information about those who may benefit from these treatments.

This manuscript will begin with the review of previously identified correlates of aggressive behavior and present information about precursors to workplace aggression. Workplace aggression will then be reviewed and findings will be presented on previously established predictors of workplace aggression. Throughout the manuscript, Person-Environment fit will be reviewed in the context of Holland's theory of individual types and Person-Environment interactions, as Holland's theory is the predominate method for explaining Person-Environment fit. Additionally, the empirical support for the use of congruence, as calculated by the Iachan *M* index, in the assessment of Person-Environment fit will be presented. Finally, the rationale for the present study, relevant hypotheses, and statistical analyses will be discussed. Relevant terms are defined in Appendix A.

General Determinants of Aggressive Behavior

A variety of general determinants have been identified in the aggression literature that may have implications for aggression in the specific context of the workplace that will be discussed throughout this manuscript. In the present research, aggression refers to a goal directed and intentional behavior that involves actions that are aimed towards a specific target (Neuman & Baron, 2005). Research examining biological differences, personality-related influences, and social influences on aggressive behavior supports the presence of multiple precursors to affective experiences (e.g., anger, arousal, feeling threatened) and subsequent aggressive behaviors (Archer, 2000; Dean & Malamuth, 1997; Hershcovis, Turner, Barling, Arnold, Dupre, et al., 2007; Skarlicki & Folger, 1997). Specifically, these include an individual's sex, level of trait anger, and level of interpersonal conflict (e.g., Archer; Dean & Malamuth; Hershcovis et al.). The rationale for focusing on these variables over alternative variables (e.g., cognitive influences) was that these general determinants appear to be most relevant for the study of workplace aggression based on meta-analytic findings (Hershcovis, et al., 2007) that support the relationship between biological, personality-related, and social influences on workplace aggression. These precursors are also consistent with Neuman and Baron's (2005) General Affective Aggression Model which posits that both individual difference (e.g., trait anger, sex) and social-situational (e.g., interpersonal conflict) variables lead to the arousal, affective responses, and hostile cognitions that produce aggression. Collectively, the review of these factors will provide clarification into the precursors for affective changes within a particular person, such as becoming angry, and subsequent aggressive behaviors in an environment.

Sex Differences and Personality-Related Influences on Aggressive Behavior

Research addressing individual differences in aggressive behavior suggests that sex differences and personality traits (e.g., trait anger) impact whether a given individual will behave aggressively in a particular environment (Archer, 2000; Hershcovis et al., 2007; Mussweiler & Forster, 2000). The present research has aimed to expand current knowledge of these differences by examining the effect of one's personality fit with a particular environment on outcomes relevant to aggressive behavior (i.e., trait anger, interpersonal conflict at work, workplace aggression).

Previous research examining the impact of individual differences in aggression suggests that sex may moderate the performance of aggressive behaviors in interpersonal relationships (e.g., Archer, 2000; Mussweiler & Forster, 2000). In a meta-analysis of a series of 82 studies related to aggression occurring in relationships, women were more likely than men to engage in acts of physical aggression (e.g., slapping) toward their partners, while men were more likely to cause physical injury than women (Archer). Mussweiler and Forster, in a series of four experiments, found that while both men and women associated sex and aggression on a semantic level (e.g., rating the words "wet" and "skin" as being high on aggression), only men performed aggressive behaviors (e.g., delivered aversive stimuli to a confederate in the form of unpleasant pictures) when they were sexually primed (i.e., reported sexual arousal following photograph viewing). They found that men's aggressive behavior in sexual situations was most likely to be directed toward their female partners while women's aggressive behavior did not show this pattern in intimate relationships (Mussweiler & Forster). This study indicated that individual differences in gender may impact readiness to engage in aggressive behavior in certain situations, such as when arousal occurs.

Bushman, Baumeister, and Phillips (2001) suggested that aggressive behaviors frequently occur in situations in which individuals, regardless of biological sex, attempt to regulate their affect (i.e., feel better). Mikula, Scherer, and Athenstaedt (1998) explained that when individuals are in situations that involve perceived injustice, anger is the primary emotional response that becomes activated. Research has shown that anger expression is associated with a motivational system that elicits interest in approaching behaviors, such as taking an action toward the person who was present when the emotion became activated (Coan, Allen, & Harmon-Jones, 2001). Specifically, this process occurs by evoking arousal toward actions that will correct the anger-provoking situation (i.e., injustice) and lead to behaviors that involve moving toward other individuals (Vescio, Gervais, Snyder, & Hoover, 2005). However, this appears to be true only in situations where individuals believe that their actions can modify the anger-provoking situations. In spite of these beliefs, research indicated that releasing emotions through aggressive behaviors does not actually reduce subsequent aggressive behaviors in future situations (e.g., Bushman et al., 2001).

Related to this notion, evidence has generally suggested that gender differences in anger expression through aggressive behavior may be related to socialization, rather than biological differences between men and women occurring within the Western culture (e.g., Jakupcak, Tull, & Roemer, 2005). Jakupcak, et al. suggested that for men aggression may serve an immediate function of regulating emotions that they believe reflect vulnerability, such as fear and shame. Further, Jakupcak, et al. explained that the attempt for emotional regulation through aggressive behavior may partially be derived from masculine gender norms that lead to the expectation of negative responses following emotional expression (e.g., being labeled by others as “girlish”). The current study has

focused on assessing individual differences in anger to account for sex differences in the present research since these differences may be better explained through socialization than biology.

To consider this potential role of anger in the present research, differences in employees' levels of trait anger have been examined. Trait anger can be differentiated from the state of anger because of the pervasiveness of the emotional state across time and situations. Spielberger (1999, 1991) defined trait anger as "the disposition to perceive a wide range of situations as annoying or frustrating, and the tendency to respond to such situations with more frequent elevations in state anger" (p. 1). Fox and Spector (1999) noted that high trait anger individuals are often described as quick tempered and impulsive. Hershcovis et al. (2007) explained that individuals who are high on trait anger are more likely to become easily provoked during situations that they perceive as frustrating. Notably, in Hershcovis et al.'s meta-analysis of 191 articles related to workplace aggression, trait anger was a significant predictor of workplace aggression. These findings will be further explained later in the manuscript.

Dunn and Schweitzer (2005) examined the impact of anger, using a self-report measure, across a variety of situations. Feelings of anger were characterized within this series of studies as occurring when the individual believed that there was another person responsible for creating a personally-relevant injustice in the form of a negative situation. Dunn and Schweitzer found that individuals who experienced feelings of anger significantly decreased their feelings of trust toward other individuals when they were unaware of the source of their anger and in situations in which they were unfamiliar with the other individual. This pattern emerged across the series of studies conducted by Dunn and Schweitzer, which assessed situations, such as when evaluating unfamiliar co-

workers and acquaintances. In contrast, the relationship between feelings of anger and decreased feelings of trust did not emerge in situations that involved the evaluation of familiar individuals or when the source of the anger could be identified (Dunn & Schweitzer). Overall, their findings indicated that anger was more likely to disrupt trust in new relationships (Dunn & Schweitzer), such as those which will be developed in work environments with high employee turnover rates where an individual's co-workers are consistently changing, than in more established relationships. Accordingly, sex differences and personality-related influences on aggressive behavior in the workplace will be reviewed in the next section.

Sex Differences and Personality-Related Influences on Aggressive Behavior in the Workplace

Consistent with much of the literature on general forms of aggression, men have been found to be generally more likely than women to experience (Duhart, 2001; Geen, 2001; McFarlin, Fals-Stewart, Major, & Justice, 2001) and commit violent acts of workplace aggression (Schat, Frone, & Kelloway, 2006). Hurrell, Worthington, and Driscoll (1996) surveyed respondents about their victimization experiences to workplace aggression and found that 17 percent of men reported that they had been physically assaulted, in contrast to 9 percent of the women in this sample during the past year. Based on their examination of violence in the workplace, Hewitt and Levin (1997) found that women were at greater risk for non-fatal assaults, while men were at greater risk for homicide in the workplace. Taken together, these findings suggested that the greater the severity of violent forms of workplace aggression, the greater the likelihood that both the offender and victim will be men (Schat et al., 2006).

In contrast to violent acts of workplace aggression, research suggested that women are more likely to experience acts of sexual aggression and psychological aggression in the workplace (e.g., Northwestern National Life Insurance Company, 1993; Warchol, 1998). Specifically, Warchol found that women were more likely than men to be victims of sexual assaults by acquaintances when leaving their work environments. Further, research conducted by the Northwestern National Life Insurance Company indicated that women were more likely to experience verbal harassment (e.g., sexual harassment) in the workplace, whereas men were more likely to experience verbal threats in the workplace (e.g., threats of physical harm).

Vescio et al. (2005) suggested that employees often do not actively take reparative actions when they feel powerless to change their situations, yet often maintain feelings of anger about their difficult work situations. Taken in a cultural context, this indicates that the extent to which men and women initiate actions to modify their situations may vary based on whether they perceive their status in the situation as powerful. Accordingly, in situations in which women may be stigmatized, such as in a work office that supports stereotypical gender roles, women may be less likely to initiate reparative actions when feelings of anger arise.

Overall, the research on sex differences on aggression in the workplace indicated that men generally display greater levels of violent physical aggression than women (Duhart, 2001; Geen, 2001; McFarlin, Fals-Stewart, Major, & Justice, 2001; Schat et al., 2006). Additionally, findings indicated that anger level is positively related to workplace aggression (Hershcovis et al., 2007). The next sections will review social influences on aggressive behavior and relevant findings from the research on social influences on aggression in the workplace.

Social Influences on Aggressive Behavior

Research has suggested that being provoked in an interpersonal context may be the most critical factor in committing later acts of aggression (Anderson & Bushman, 2002). As Glomb and Liao (2003) explained, “researchers have long suggested that aggression is reciprocal in nature, in that if one individual engages in an aggressive behavior, he or she is likely to become the target of aggression from the person against whom he or she aggressed; a dyadic process is suggested” (p. 488). This reciprocal form of aggression often impacts interpersonal relationships, and relational forms of workplace aggression are often discussed in the literature as bullying (e.g., Lutgen-Sandvik, Tracy, & Alberts, 2006; Salin, 2003), which will be discussed further in the upcoming section addressing social influences on aggression in the workplace.

Social Influences on Aggressive Behavior in the Workplace

Social influences on aggressive behavior are also relevant for the present research because relationships with co-workers have been found to effect whether a given employee engages in workplace aggression. Specifically, employees who experience frequent interpersonal conflicts with co-workers were more likely to engage in subsequent acts of workplace aggression than those who do not experience negative social influences in the workplace (Herschovis et al., 2007). Workplace aggression refers to acts of psychological and physical aggression that occur within the context of one’s work environment. Accordingly, social influences impact whether a given employee feels compelled to engage in aggressive behavior in a particular work setting (Neuman & Baron, 2005). Understanding the impact of being victimized by other co-workers in a particular work environment is important for the present research involving Person-

Environment fit as it was investigated whether greater interpersonal conflict at work is a negative consequence of low environmental fit.

Research indicated that the negative impact of exposure to social forms of harassment, such as through interpersonal conflict at work, may extend beyond one's work environment (e.g., Haines, Marchand, & Harvey, 2006). Specifically, Haines et al. (2006) examined whether experiences of harassment in the workplace by an individual within a romantic relationship, where both individuals are employed, were related to increased levels of stress for the other partner. They found that the presence of harassment appeared to be related to a significant increase in stress levels for the other partner beyond the effect of other stressors (e.g., marital strains, having an irregular work schedule). Accordingly, interpersonal conflict at work appears to be a factor related to negative consequences across a variety of environments.

Related to social influences on aggressive behavior, research has suggested that experiencing social forms of harassment (i.e., interpersonal conflict) impacts individuals' tendency toward retaliating aggressively in situations (e.g., Herscovis et al., 2007). Specifically, Skarlicki and Folger (1997) found that those who were frequently victimized in the workplace were more likely to retaliate aggressively against others than those who were not regularly victims of abuse in the workplace. Specifically, in their meta-analysis of 57 empirical studies related to workplace aggression, Herscovis et al. found that interpersonal conflict at work was significantly related to organizational forms of workplace aggression and predicted employee retaliation through relational forms of workplace aggression. Spector and Jex (1998) explained that interpersonal conflict occurring at work may include both minor disagreements with co-workers and victimization through other assaults (e.g., physical) in the workplace. Specifically,

interpersonal conflict at work involves victimization by aggression committed by others. In the present research, it was anticipated that employees who demonstrated lesser degrees of fit with their environments would report more interpersonal conflict at work because of personality differences that may lead to disagreements with other co-workers.

Inness, Barling, and Turner (2005) agreed that aggression is often found in work environments where employees believe interpersonal injustice has occurred. Baron, Neuman, and Geddes (1999) studied the impact of individual differences in experiencing injustice within work environments and subsequent acts of workplace aggression. They found that greater levels of Type A personality and higher levels of perceived injustice were associated with greater incidence of workplace aggression. Baron et al.'s (1999) findings suggest that the more employees perceived their organizational environments to be unjust, the more likely they were to engage in aggressive behaviors. In fact, Skarlicki and Folger (1997) found that perceived injustice explained 68 percent of the variance in incidence of retaliatory workplace aggression. Lind (2000) noted that strong beliefs about a situation being unjust are necessary for an individual to believe that it is acceptable to act in an aggressive manner toward another individual. Work settings involving high levels of interpersonal conflict may set the stage for these experiences of injustice to occur.

Detrimental consequences of victimization can be understood as occurring on a continuum of severity. Specifically, Lutgen-Sandvik, Tracy, and Alberts (2006) offered the metaphor of "being burned by degree" that is described below to convey the negative consequences associated with experiencing bullying in the workplace, which often occurs through interpersonal conflict. Their findings suggested that the higher the degree of bullying, the greater the negative consequences (e.g., stress, depression). Lutgen-Sandvik

et al. (2006) explained that low levels of bullying are comparable to first-degree burns, such as sunburns, which may cause temporary damage to the person, but heal quickly. Low levels of bullying were found in an investigation by Einarsen and Raknes (1997) in which 75 percent of Norwegian employees in engineering reported experiencing at least one incident of low level bullying during a previous 6-month period. In contrast, more frequent and intense levels of bullying are similar to second-degree burns (i.e., experiencing increased emotional distress), which frequently require psychological intervention to assist the person with healing (Lutgen-Sandvik et. al.). This level of bullying was found in a study by Einarsen and Skogstad (1996) in which 8.6 percent of Norwegian employees experienced recurrent bullying during a 6-month period across 14 studies. Finally, extreme levels of bullying are comparable to third-degree burns and often result in severe psychological and medical difficulties, such as suicidal thoughts and heart disease (Leymann, 1990; Lutgen-Sandvik, et al.; Mikkelsen & Einarsen, 2001). Workplace homicide is an example of extreme bullying, and is the third leading cause of work-related death and a rate of approximately 4.6 homicides per 1 million employees (Schat et al., 2006).

The present research examined employees' personal experiences of being bullied based on their reported levels of victimization to interpersonal conflict in the workplace. This was relevant because the identification of individuals who experience interpersonal conflict in the workplace is important for ending the on-going cycle of aggression. However, it should be noted that victimization can occur through a variety of negative social experiences including psychological aggression, physical aggression, and bullying by members of the public (Schat et al., 2006). Specifically, factors that have been identified in the literature as risk factors for victimization include being under the age of

30, being employed in a service or professional organization, working alone or during the evening, performing work around money, or being in a position to deny a request (Public Service Commission of Canada, 2002; Schat et al., 2006). These factors are discussed below with empirical data to provide support for the findings.

Research has indicated that younger individuals (i.e., under the age of 30) are more likely to experience psychological aggression than older individuals (i.e., over the age of 30) (Schat et al., 2006). Additionally, Schat et al. found that employees in professional environments, such as doctors, and service occupations (i.e., Social occupations), such as nurses, reported the highest rate of exposure to physical aggression in the workplace compared to employees in other occupations (e.g., financial advisors). Further, Enterprising types of environments have been found to reflect particular risk, as sales employees were more likely to be victims of workplace aggression by individuals in the public compared to employees in other occupations (Schat et al.). Schat et al. additionally reported that working more hours during the week is associated with exposure to psychological aggression. They found that evening employees were more likely to report experiences of physical and psychological aggression than daytime employees (Schat et al.). Taken together, these findings suggest that young employees, employees working in Social and Enterprising types of environments, and employees working extended or evening hours appear to be particularly at risk for experiencing workplace aggression.

The literature also indicated that working alone, performing work around money, or being in a position to deny a request or service to others are risk factors for victimization in the workplace (Canadian Centre for Occupational Health and Safety, 1999; LeBlanc & Kelloway, 2002; National Institute for Occupational Safety and Health,

2002; Schat et al., 2006). These factors appear to further place individuals employed in Enterprising and Social environments, which often involve managerial and service positions, at risk. Interestingly, according to findings of the Public Service Employment Survey conducted by the Public Service Commission of Canada (2002), approximately 71 percent of instances of workplace aggression were committed by clients and other members of the public, in contrast to 34 percent committed by co-workers. Further, Schat, et al. found that employees who experienced weekly exposure to victimization were significantly more likely to report occurrences by members of the public than by co-workers or supervisors. Based on meta-analytic findings (i.e., Herschovis et al., 2007), these experiences of victimization by workplace aggression, often involving interpersonal conflict, may serve as precursors to initiating future acts of workplace aggression. Accordingly, the present research examined employees' experiences of victimization, through their reported instances of interpersonal conflict in the workplace.

Taken together, the research addressing social influences of aggressive behavior has indicated that individuals who experience interpersonal conflict in the workplace have been particularly at risk for committing future acts of aggression (Baron et al., 1999) and in these instances the anger expression may be associated with the goal of obtaining revenge and the desire for retaliation (Allred, 2000). For the purpose of the present research, interpersonal conflict at work was used to examine individuals' experiences of victimization by being bullied by other co-workers. Workplace aggression was studied from the experience of the perpetrator, with the acknowledgement that future perpetrators are often previous victims of workplace aggression (i.e., interpersonal conflict at work) based on meta-analytic findings linking interpersonal conflict at work and workplace aggression (Herchovis et al., 2007).

Collectively, sex differences, personality trait differences, and social influences are the primary factors that have been highly supported in the aggression literature linking specific variables to subsequent acts of workplace aggression. As previously mentioned, this is consistent with Neuman and Baron's (2005) General Affective Aggression model, which suggests that social-situational variables (e.g., interpersonal provocation, perceived injustice related to being bullied by co-workers) and individual difference variables (e.g., trait anger) lead to subsequent "physiological arousal, negative affect, and hostile cognitions" that are appraised by a particular individual prior to engaging in an aggressive response (Neuman & Baron, 2005, p. 32). The aim of the present research was to expand the understanding of individual difference variables through the examination of differences in Person-Environment fit and their subsequent impact on anger, interpersonal conflict at work, and ultimately, workplace aggression.

Psychological and Physical Aggression Exemplified in the Workplace Environment

As mentioned throughout this review, general determinants of aggressive behavior (i.e., trait anger, interpersonal conflict at work) are also exemplified in the workplace environment. When employees become aggressive in their work environments, the term workplace aggression has been frequently used to describe these behaviors in the literature. Haines, Marchand, and Harvey (2006) defined workplace aggression as "a form of antisocial employee behavior that includes acts of physical violence, verbal threats, and harassing behaviors" (p. 305). More specifically, Haines et al. (2006) noted that psychological aggression in one's work environment may involve behaviors such as insults, acts of sexual touching, use of sarcasm, verbal intimidation, and threats with the intention of causing physical injury to another individual within the particular environment. Several authors have suggested that the most common acts of

aggression in work environments involve psychological acts of aggression, rather than overt forms of physical violence (e.g., Baron, Neuman, & Geddes, 1999; Dupre & Barling, 2006; Greenberg & Barling, 1999; Neuman & Baron, 1998). These behaviors may be problematic, as noted by Dupre and Barling, because acts of psychological aggression have been identified as precursors to later acts of physical aggression.

Research on workplace aggression has been studied in a variety of occupational contexts, including supervisor and supervisee relationships (e.g., Dupre & Barling, 2006; Inness, Barling, & Turner, 2005). Workplace aggression can occur by employees (e.g., co-workers) or other members of the public (e.g., customers) who are present in a work environment. Workplace aggression committed by employees has been associated with abusive forms of supervision as a means of retaliation (Day & Hamblin, 1964; Inness, Barling, & Turner, 2005). Although the current study was not limited to supervisory relationships, it seems plausible that workplace aggression may be a particular concern for a supervisee whose personality type (e.g., Artistic) differs from a supervisor's type (e.g., Conventional) who strongly reflects the accepted values of the organization.

McElhaney (2004) cautioned that workplace aggression is not a simple phenomenon and cannot be completely explained by one particular demographic profile. Rather, McElhaney suggested that frequent precursors to workplace aggression include: history of aggressive behaviors, reduction in work productivity, poor peer relationships, emotional distress, substance abuse, personality shifts, paranoia, obsessive behaviors, recent increased interest in weapons, continual complaints, reduction in personal hygiene behaviors, and avoidance by other co-workers (McElhaney). While the study of all of these factors is beyond the scope of the present research, McElhaney's theory indicated that many "person" factors (e.g., subjective level of emotional distress) may be associated

with particular behaviors (e.g., increased substance use) relating to poor environmental outcomes (e.g., avoidance by other co-workers). The present research aimed to further the understanding of these “person” factors through investigation of individual differences in employees’ levels of fit with their current work environments and levels of workplace aggression.

Research has indicated that perceived lack of control by employees is associated with negative outcomes, such as increased stress levels, and can lead subsequent aggressive acts of bullying (e.g., Bishop, Enkelmann, Tong, Why, Diong, et al., 2003; Dupre & Barling, 2006; Schat & Kelloway, 2003; Spector, 1986). Inness, Barling, and Turner (2005) explained that workplace aggression occurs within an organizational context. The organizational values of a particular workplace (e.g., Enterprising) made up primarily of similar personality types (e.g., Enterprising types) is likely to conflict with the values of an individual who does not hold the dominant personality type represented by that environment (e.g., Investigative). This value conflict will be unlikely to occur for the same Investigative individual in a more congruent environment (Holland, 1997). The notion that aggressive individuals may not act aggressively across all of their work environments during their lifetime is consistent with Inness et al.’s (2005) finding that employees’ occurrences of aggression in their current work environments were not significantly related to their reported instances of workplace aggression in prior employment settings. Accordingly, the present research aimed to further this investigation by exploring whether the choice to act aggressively in a particular organizational context is partially determined by an individual’s fit within the current work environment.

Summarily, the research addressing workplace aggression has been studied in a variety of occupational contexts, including supervisor and supervisee relationships (e.g., Dupre & Barling, 2006; Inness, Barling, & Turner, 2005). Although individual differences have been examined with regard to workplace aggression, a gap in this research is the impact of Person-Environment fit on an employee's choice about whether to act aggressively in a particular work environment. The notion that a lack of fit may serve as a precursor for workplace aggression is consistent with the findings of Inness et al. (2005), which suggest that employees' acts of workplace aggression in their current work settings are not significantly related to reported instances from previous work settings. Accordingly, the next section will review the potential influence of Person-Environment fit on workplace aggression as a relevant consideration for the present research.

Person-Environment Fit as a Potential Influence on Aggressive Behavior in the Workplace

An interaction between a type of person and work environment was examined in the present research as a potentially relevant contributor to whether a particular employee acts in an aggressive manner within a given work environment. The literature examining the impact of Person-Environment fit in employment and educational settings has been derived primarily from John Holland's theory of vocational personalities and work environments (Holland, 1997). Holland's theory offered an important contribution to the field of psychology because it examines the impact of individual differences in personality on environmental functioning (Niles & Harris-Bowlsbey, 2002). Using a structural-interactive perspective, Holland's theory provided an organizational framework for linking personality characteristics with particular employment settings (Weinrach,

1984). This is useful as noted by Kieffer, Schinka, and Curtiss (2004), because understanding the fit between a person and environment is believed to be an important moderator of work-related outcomes, such as job satisfaction.

Holland's (1997) theory was of interest for the present research for determining whether a lack of fit between a particular individual and environment affects employees' negative work-related behaviors (i.e., workplace aggression, interpersonal conflict at work, anger problems) that has been found to be significantly related to job-related difficulties, such as dissatisfaction (e.g., Meir, Tziner, & Glazner, 1997). Holland (1997) explained that information obtained through the study of Person-Environment fit allows those who are working with clients to "identify some probable sources of current job dissatisfaction by using the formulations about congruency of person and job" (p. 194). Additionally, he noted that "it is assumed – other things being equal – that congruence of person and job environment leads to job satisfaction, stability of career path, and achievement" (Holland, 1996, p. 397). He reports that "conversely, incongruence leads to dissatisfaction, instability of career path, and low performance" (Holland, 1996, p. 397). It was investigated in the present research whether trait anger, interpersonal conflict at work, and workplace aggression are additional negative consequences to incongruence with one's work environment.

It is hoped that through a greater understanding of the role of individual differences on the growing problem of workplace aggression through the use of Holland's theory, the field of counseling psychology may be enhanced by having greater information about those most likely to become aggressive at work to aid in the prevention of this problem. This is important, as noted by Douglas and Martinko (2001), because individual differences appear to be a major contributor to occurrences of workplace

aggression and have been found to explain much of the variance in outcomes. This link between individual differences and subsequent acts of aggression is supported by Neuman and Baron's (2005) model that indicates that both social-situational and individual difference variables set the stage for subsequent acts of workplace aggression.

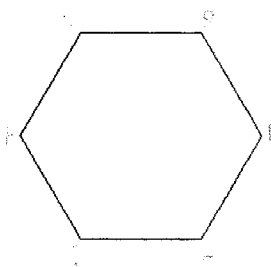
The present research aimed to explore potential implications (i.e., trait anger, interpersonal conflict at work, workplace aggression) for a poor Person-Environment fit, so that important information may be obtained to better aid in prevention and assistance for employees with work-related difficulties who seek counseling services, such as anger management. Holland (1997) explained that "with the help of a counselor or an employer, it may be possible to imagine a revision in duties to make the job more satisfying, locate a more suitable job, or find avocational activities for exercising the interests or competencies that cannot be expressed at work" (p. 195). Specific areas presented within the review of the literature on Person-Environment fit include: (1) definitions and exemplars of the six types of individual personalities and work environments, (2) presentation of the central assumptions of Holland's research, (3) presentation of methodology used for examining person and environment interactions, and (4) discussion of the empirical support for the use of congruence in the assessment of Person-Environment fit in the present research as calculated by Iachan's (1984) *M* Index.

Holland's Personality and Environment Types

The six personality and environmental types that are assessed using the Self-Directed Search and represented in Holland's hexagonal model are: 1) Realistic, 2) Investigative, 3) Artistic, 4) Social, 5) Enterprising, and 6) Conventional. The hexagonal model is considered to be "an abstract model for linking the main ideas so that the theory can be applied to practical or theoretical problems" (Holland, 1997, p. 36).

Person-Environment fit has been displayed visually by Holland (1997) using a hexagonal model, in which each of the types vary on their placement on a hexagon based on their similarity to one another in values and corresponding abilities. Reardon and Lenz (1998) explained that “the highest level of congruence occurs with an R person in an R job, and the lowest is with an R person in an S job because the S is opposite the R on the hexagon” (p. 21). A sample hexagon that visually displays the ordering of each the types is included below. “R” corresponds to the Realistic type, “I” corresponds to the Investigative type, “A” corresponds to the Artistic type, “S” corresponds to the Social type, “E” corresponds to the Enterprising type, and “C” corresponds to the Conventional type. It should be noted that those types that are closer together on the hexagon are more closely related based on Holland’s research.

Figure 1. A Visual Display of the Placement of the Six Code Types on Holland’s (1997) Hexagon (Carson, 2003).



The six types will be presented with definitions and descriptions corresponding to individuals’ who fit with each type and characteristics of environments that fit with each type. Holland (1997) explained that the types reflect possible results of growing up in a given culture and often lead to the tendency to engage in particular behaviors. The individual types have been substantiated through research using several instruments including the Self-Directed Search (Holland, Fritzsche, & Powell, 1994), and the

Vocational Preference Inventory (Holland, 1985). The environmental types have been substantiated using the Dictionary of Holland Occupational Codes (Gottfredson & Holland, 1996) based on Holland's (1997) theory and an empirically-based classification process (Holland, Sorensen, Clark, Nafziger, & Blum, 1973). Examples of preferences, values, and interests associated with each type will also be provided. It is important to understand these types because of their potential implications for workplace aggression when there is a low Person-Environment fit. For example, an individual with a personality type that differs from the predominant environmental type was anticipated to be at particular risk for victimization through interpersonal conflict at work related to values differences from co-workers' in that environment. This is a concern as the literature suggests that those who have been previously victimized have an increased likelihood of committing retaliatory aggressive acts, when other risk factors (e.g., being male) are also present (e.g., Townsend, Phillips, & Elkins, 2000). Accordingly, this section will review the six personality and environmental types and their predominate characteristics to further understanding of the ways that individual differences in these types may lead to differing thoughts and emotions in response to job expectations, and serve as potential precursors to workplace aggression.

A Realistic personality type reflects conventional values, and is characterized by belief in personal freedom, self-control, and concrete and tangible features (Holland, 1959, 1966, 1973, 1985, 1997). An individual with this type typically enjoys working with physical tools (e.g., machines, electronic equipment), and uses realistic competencies while working in various settings (Holland). Others often describe these individuals as conforming, genuine, practical, reserved, persistent, and lacking insight (Niles & Harris-Bowlsbey, 2002). Similarly, a Realistic environment typically includes

demands and opportunities involving ordered, explicit, and systematic manipulation of tools, objects, animals, or machines (Holland, 1959, 1966, 1973, 1985, 1997). It consists primarily of individuals who possess Realistic personality types and promotes technical competencies, mechanical abilities, and traditional values. Overall, individuals in a Realistic environment are valued for holding realistic traits, such as conforming and being practical (Holland, 1997). Sample occupations that are classified as Realistic include truck operator and carpenter (Reardon & Lenz, 1998).

An Investigative personality type reflects scientific and academic values, and is characterized by belief in independence, logic, openness, and intellect (Holland, 1959, 1966, 1973, 1985, 1997). An individual with this type typically enjoys scientific and research endeavors, explores a wide range of interests, and enjoys thinking through problems (Holland). Others often describe these individuals as cautious, complex, rational, pessimistic, reserved, and unassuming (Niles & Harris-Bowlsbey, 2002). Likewise, an Investigative environment typically includes demands and opportunities involving systematic and creative investigation of biological, physical, or cultural elements (Holland, 1997). It consists primarily of individuals who possess Investigative personality types and promotes scientific achievement, scholarly investigation, and complex worldviews. Overall, individuals in an Investigative environment are valued for holding investigative traits, such as being critical and intellectual (Holland, 1959, 1966, 1973, 1985, 1997). Sample occupations that are classified as Investigative include psychologist and microbiologist (Reardon & Lenz, 1999).

An Artistic personality type usually reflects self-expression, and is characterized by orientation toward aesthetic experiences, openness for ideas, and attentiveness to the emotional states of others (Holland, 1959, 1966, 1973, 1985, 1997). An individual with

this type typically enjoys writing, acting, speaking, and other expressive activities (Holland). Others often describe these individuals as complicated, idealistic, impulsive, intuitive, sensitive, and non-conforming (Niles & Harris-Bowlsbey, 2002). Similarly, an Artistic environment typically includes demands and opportunities involving free and ambiguous activities leading to the creation of artistic forms of expression (Holland, 1997). It consists primarily of individuals who possess Artistic personality types and frequently promotes artistic values, emotional and imaginative influences, and formulation of new ideas (Holland, 1959, 1966, 1973, 1985, 1997). Overall, individuals in an Artistic environment are valued for holding artistic traits, such as being open and expressive (Holland, 1997). Sample occupations that are classified as Artistic include interior designer and musician (Reardon & Lenz, 1999).

A Social personality type usually reflects interest in social and ethical concerns, and is characterized by serving others, and belief in equality for all individuals (Holland, 1959, 1966, 1973, 1985, 1997). An individual with this type typically enjoys teaching, understanding, and helping others (Holland, 1997). Others often describe these individuals as agreeable, cooperative, empathic, patient, warm, and tactful (Niles & Harris-Bowlsbey, 2002). Likewise, a Social environment typically includes demands and opportunities to inform, cure, train or enlighten others (Holland, 1997). It consists primarily of individuals who possess Social personality types and promotes humanitarian and religious influences, and social competencies (Holland, 1959, 1966, 1973, 1985, 1997). Overall, individuals in a Social environment are valued for holding social traits, such as being agreeable and kind (Holland, 1997). Sample occupations that are classified as Social include clergy member and counselor (Reardon & Lenz, 1999).

An Enterprising personality type usually reflects interest in directing others, and is characterized by freedom from control and possession of traditional values (Holland, 1959, 1966, 1973, 1985, 1997). An individual with this type typically enjoys involvement in business ventures, hard work, economic achievement, and strives to lead a comfortable life (Holland, 1997). Others often describe these individuals as careful, conscientious, orderly, inflexible, thorough, and unimaginative (Niles & Harris-Bowlsbey, 2002). Similarly, an Enterprising environment typically includes demands and opportunities involving manipulating others to obtain goals established by one's self or organization (Holland, 1997). It consists primarily of individuals who possess Enterprising personality types and often promotes competencies in sales and leadership, and encourages individuals to view the world in terms of power and status (Holland, 1959, 1966, 1973, 1985, 1997). Overall, individuals in an Enterprising environment are valued for holding enterprising traits, such as self-confidence and extroversion (Holland, 1997). Sample occupations that are classified as Enterprising include retail store manager and lawyer (Reardon & Lenz, 1999).

A Conventional personality type usually reflects conformity, preferring tasks involving organization, and is often characterized by clerical ability (Holland, 1959, 1966, 1973, 1985, 1997). An individual with this type usually values economic achievement, works toward leading a comfortable life, and has traditional values (Holland, 1997). Others often describe these individuals as efficient, obedient, and thorough (Niles & Harris-Bowlsbey, 2002). Likewise, a Conventional environment is typically characterized by ordered and systematic demands using a predetermined plan of action (Holland, 1997). It consists primarily of individuals who possess Conventional personality types, and promotes competencies in maintaining records and organizing

materials (Holland, 1959, 1966, 1973, 1985, 1997). Overall, individuals in a Conventional environment are valued for holding conventional traits, such as being methodical and conscientious (Holland, 1997). Sample occupations that are classified as Conventional include bookkeeper and production editor (Reardon & Lenz, 1999).

Considering these six types each hold varying values and abilities, it was anticipated in the present research that these differences would have implications for employees' behaviors in their current work environments. In anticipating potential implications, Neuman and Baron's (2005) General Affective Aggression Model that suggests that individual difference factors and social-situational factors are both important precursors to the physiological, affective, and cognitive processes that lead to aggressive responses, was considered. Based on the assumption that individual difference factors and social-situational factors are precursors to aggression (Neuman & Baron), it was anticipated in the present research that individuals who are employed in work settings that have values and responsibilities that conflict with their personality types (e.g., a Social individual working in a Realistic environment) would be more likely to experience negative affect (e.g., feeling frustrated) with their situations and have cognitions (e.g., *I hate coming into work*) that lead to subsequent acts of aggression. Accordingly, the present research investigated whether individuals with low Person-Environment fit engage in more acts of workplace aggression than individuals with higher levels of fit.

Central Assumptions of Holland's Theory

Holland (1997) explained that the use of the six code types to assess Person-Environment fit involves four central assumptions. First, as previously reviewed, individuals within the Western culture can be categorized into one of six personality

types (Realistic, Investigative, Artistic, Social, Enterprising, or Conventional), which each reflect a specific set of attitudes and skills for coping with environmental challenges. Second, environments can also be categorized using these six types, which are predominately represented by individuals holding a particular personality type (e.g., a Realistic environment will include individuals who predominately hold Realistic personality types) (Holland). Accordingly, there is a parallel environment for each of the six personality types (Walsh & Holland, 1992). Interestingly, stereotypes about employees that are present within various work settings (e.g., accountants are precise) often provide relevant information about the actual composition of these environments (Walsh & Holland). Third, individuals seek out environments that reflect their personal values and allow them to use their skills and abilities to excel in these settings (Holland). This seeking process is beneficial because various environments reinforce different interests and abilities (Feldman, Smart, & Ethington, 2004). Reardon and Lenz (1998) explained that this may be the reason some individuals *really love* where they work, while others *really hate* their work environments. Fourth, the interaction between the person and the environment impacts behavior in a given setting (Holland). This assumption indicates that information about particular types of persons and environments can be useful in the prediction a given person's behavior (e.g., aggression) in a particular environment (e.g., workplace).

Holland (1997) suggested that other factors, such as gender, intelligence, socioeconomic status, and level of educational attainment may also influence job-related outcomes. However, generally when an interaction reflects a good fit (e.g., Artistic individuals in an Artistic environment), employees tend to be more creative, show more job stability, report greater job satisfaction, and have high job productivity (Walsh &

Holland, 1992). This strong match between a person and environment contrasts with an interaction reflecting a poor fit (e.g., Social individuals in a Realistic environment), where employees tend to show minimal creativity, have high job turnover rates, report little job satisfaction, and display less productivity than other individuals who fit well with their work environments (Walsh & Holland). The present research has attempted to expand the understanding of the impact of fit by examining whether employees with a poor environmental fit also show greater levels of anger, have more interpersonal conflict at work with their co-workers, and engage in more workplace aggression than other individuals who fit well with their environments.

In Holland's (1997) theory, an employee's chosen career is understood to be an expression of that individual's personality type and employees frequently remain in their selected occupations because they find positive reinforcement for their personalities within their work environments (Walsh & Holland, 1992). For example, an employee who is very skilled in performing mechanical tasks may chose to remain in a plumbing occupation (i.e., Realistic environment) because of positive reinforcement for doing a good job and being offered additional customer referrals. Moreover, Holland explained that personality characteristics expressed through an employee's type may predict environmental factors that will be considered stressful, based on the lack of fit between the individual and the environmental demands. For example, a Social type of employee might find an incongruent work task, such as having to complete a lab experiment (an Investigative task), to be a particularly stressful experience.

Overall, Holland's (1997) assumptions may be interpreted to suggest that employees with personality types that differ from their environmental types are more likely to display certain behaviors (e.g., counterproductive work behaviors) than those

with greater Person-Environment fit. Since low-fit employees have not selected environments that are consistent with their skills and values, it was anticipated that there may be negative emotional consequences (e.g., anger) and social consequences (e.g., interpersonal conflict at work) that accompany the lack of fit. In contrast, those with a greater degree of fit often experience positive consequences of satisfaction and productivity in their work environments (Walsh & Holland, 1992).

Methods for Examining Person-Environment Fit

Holland (1997) reported that there are multiple methods for examining the way that a given individual interacts with a particular environment. Specifically, he explained that this interaction can be investigated through the calculation of employees' levels of congruence, consistency, and differentiation. These and other constructs are referred to as secondary constructs. Since congruence was used in the present research for the examination of Person-Environment fit, it is the focus of this review. However, the reader may also note that other secondary constructs (e.g., identity) that are not directly related to the research questions of interest for the present study have also been previously identified by Holland and will briefly be defined throughout this section.

Congruence is calculated by examining the fit between an individual's personality type, typically assessed by the Self-Directed Search (SDS) or Vocational Preference Inventory (VPI), and a particular work or scholastic environment type (Walsh & Holland, 1992). Theorists conjecture that employees who work in environments that are congruent with their personalities are predicted to report a higher degree of job satisfaction and longer periods of employment in those environments when compared to others with less congruence (e.g., Kieffer et al., 2004). Walsh and Holland explained that congruence falls along a continuum and that congruence and incongruence are not

dichotomous constructs, which were represented in the present research through the use of three groups (i.e., low fit, average fit, high fit) to help to reflect this variability. Accordingly, it is common for individuals to cycle through periods of working in environments with greater and lesser degrees of fit as their personal identities continue to develop throughout their lives. In the next section, the empirical support for the use of congruence in the assessment of Person-Environment fit will further be reviewed.

In addition to congruence, other secondary constructs include consistency, differentiation, and identity (Spokane, Luchetta, & Richwine, 2002). Consistency refers to the relationship between the first two letters in a Holland code type, where greater consistency is determined by the letters location on Holland's (1997) hexagonal model. When considering work environments, consistency is examined through the relatedness of the responsibilities and occupational demands placed on employees in those environments (Holland). It assesses "the internal coherence of an individual's type scores" (Spokane et al., 2002, p. 384). In their examination of consistency, Gottfredson, et al. found that ratings for demands associated with work environments were consistent with code type descriptions for 12,099 occupations in a series of studies (Gottfredson & Holland, 1996; Gottfredson, Holland, & Ogawa, 1982), which supports a high level of environmental consistency for many occupational types.

Differentiation examines the difference between the highest and lowest code type score for a particular individual (Spokane, et al., 2002). Reardon and Lenz (1998) explained that with a highly differentiated individual, the characteristics of one particular type will be prominent and there will be a large difference between the highest type and lowest type scores. Niles and Harris-Bowlsbey (2002) pointed out that employees resemble various personality types to different degrees, and Spokane (1996) elaborated

that types are “complex theoretical groupings based upon personality and interests” (p. 40).

Identity focuses on the degree of stability of one’s personality or environmental type over time (Holland, 1997). An environment with a small number of occupations (e.g., clerks, executives) is considered to have a high degree of identity, whereas an environment with a large number of occupations reflects a low degree of identity (Walsh & Holland, 1992). Well-defined environments, with a high degree of identity and high levels of differentiation, are posited in Holland’s theory to promote employee involvement, satisfaction, and minimal job turnover (Walsh & Holland). Overall, job responsibilities and demands are generally found to match with their assigned Holland code types for given environments (Gottfredson & Holland, 1996; Gottfredson, Holland, & Ogawa, 1982).

Empirical Support for the Use of Congruence in the Assessment of Person-Environment Fit

The empirical support for the use of congruence in the assessment of Person-Environment fit has been established through a vast amount of research examining the relationships between congruence and a variety of factors, including job satisfaction, job performance, occupational strain, and well-being (e.g., Meir, Hadas, & Noyfield, 1997; Meir, Melamed, & Dinur, 1995; Meir & Navon, 1992; Sutherland, Fogarty, & Pithers, 1995). While some previous research (e.g., Breeden, 1993; Ehrhart & Makransky, 2007; Rounds, 1990) in the area of Industrial/Organizational psychology has additionally supported the use of alternative measures of congruence, such as the Minnesota Importance Questionnaire (Gay, Weiss, Hendel, Dawis, & Lofquist, 1971) and the Career Occupational Preference System Interest Inventory- Professional Level (Knapp-Lee,

1984) which focus on employees' values, Holland's measures of congruence have been consistently used throughout the literature as the primary method for examining Person-Environment fit through either the Self-Directed Search or Vocational Preference Inventory. While value-based assessments of congruence have examined perceived employee job fit, Holland's (1997) assessments of congruence have examined actual employee fit. Although some research has found that perceived fit predicted vocational interests better than actual fit, this research has been limited in that it did not examine actual fit using either of Holland's (1997) previously established measures for congruence, and rather used a scale of 50 job characteristics developed by the researchers and provided to undergraduate students with adequate reliability but no validity information (Ehrhart & Makransky, 2007).

For the present research, actual employee fit is being examined through Holland's (1994) Self-Directed Search, which has demonstrated adequate reliability and validity for workplace samples. Specifically, the Self-Directed Search has been identified as one of the most widely used interest inventories related to career choice (Spokane & Holland, 1995). The use of Holland's measure in the present research will result in a three-letter code (e.g., RIA) that can be examined through the degree of similarity between any two letters that are in the code (Iachan, 1984). The use of a three-letter code has been substantiated to allow for a more developed picture of individual and environmental personality types in research conducted by previous investigators examining congruence including Kieffer, Schinka, and Curtiss (2004) and supported through the calculation method developed by Iachan, which allows for the similarity of each of the letters in the code to be fully examined.

The Iachan *M* Index (1984) is calculated using a weighted scoring procedure and levels of congruence range from 0 to 28. The Self-Directed Search computer scoring program organizes these values into low, average, or high fit groups based on the first, second, and third letter agreement between each employees' individual code type and the current environmental type. For an example to display the method for calculating the Iachan *M* Index, consider the situation in which a SEC individual is paired with a CEI environment. In this instance, there are 2 letters in common C and E, with the C in positions 1 and 3 creating a weight of 4 (Miller & Cowger, 1999). The E is in the second position for each code creating a weight of 5, producing an Iachan *M* Index (1984) of 9 (Miller & Cowger, 1999). Donohue (2006) explained that although congruence has been widely examined in a variety of samples "the majority of these studies have tended to focus on the influence of congruence on job satisfaction or performance" (p. 505). Throughout these studies, multiple measures of congruence (e.g., Self-Directed Search, Vocational Preference Inventory, Strong-Campbell Interest Inventory) have been used in samples of employed adults and college students. Further, a variety of methods (e.g., Iachan *M* Index, researcher group ratings, first-letter code types) have been used in the calculation of individuals' congruence with their environments, each with varying degrees of research support. These alternative methods include the *C* index (Brown & Gore, 1994), which calculates congruence values ranging between 0 and 18 with higher scores reflecting higher levels of congruence, and the *K-P* index (Kwak & Pulvino, 1982), where scores between -1 and 1 are assigned based on correlations with higher scores suggesting higher congruence.

For those studies that employed one letter calculations of congruence (e.g., Schwartz, Andiappan, & Nelson, 1986), an index was not necessary, and congruence was

simply calculated through the comparison of the individual's primary summary code letter (i.e., R, I, A, S, E, C) with the environment's corresponding primary summary code letter. In contrast, other indices or researcher ratings are used for studies that employ multiple letter codes in their examinations of congruence (e.g., SEC). This section will review the empirical support for the use of congruence in the assessment of Person-Environment fit across various instruments and indices and demonstrate the rationale for selecting the Self-Directed Search and Iachan *M* Index for the measurement and calculation of congruence in the present research.

Congruence Research with the Self-Directed Search

The findings related to congruence measured using the Self-Directed Search have been generally supported, with multiple studies matching with theoretical predictions (e.g., Donohue, 2006; Kieffer, Schinka, & Curtiss, 2004; Mazen, 1989; Meir, Hadas, & Noyfeld, 1997; Meir, Melamed, & Dinur, 1995; Meir & Navon, 1992; Meir, Keinan, & Segal, 1986) and a few others contradicting those predictions (e.g., Heesacker, Elliott, & Howe, 1988; Meir & Green-Eppel, 1999; Meir & Tzadok, 2000). Collectively, the research indicated that when investigators used both the Self-Directed Search and the Iachan *M* Index in the calculation of congruence in work environments they have found significant results during their examinations of Person-Environment fit (Greenlee, Damarin, & Walsh, 1988; Sutherland, Fogarty, & Pithers, 1995; Thompson, Flynn, & Griffith, 1994). For example, Thompson, Flynn, and Griffith examined congruence, calculated with the Iachan *M* Index, in a longitudinal study involving 87 male and female adults using the Self-Directed Search and found the similarity between employees' previously selected jobs and current job significantly predicted fit at follow-up.

In addition to studies that have examined congruence using the Iachan *M* Index, research has generally supported the assessment of congruence, as calculated through a variety of methods, with the Self-Directed Search (Meir, Hadas, & Noyfeld, 1997; Meir & Navon, 1992). For example, Meir, Hadas, and Noyfeld examined the effect of Person-Environment fit on male tank crew members and found that congruence, as calculated by first- and second-letter code types, was associated with greater work crew satisfaction and more positive evaluations from the crew commander. Meir and Navon similarly found a positive correlation between congruence and performance among a sample of 95 bank tellers calculated through two-letter code types using the Self-Directed Search. Further, Mazen (1989) examined congruence using the Self-Directed Search and first letter code types in a sample of 171 employed women working in male-dominated environments and found that women's personality types were significantly related to their selected workplace environments. In additional research involving Person-Environment fit using the Self-Directed Search, congruence has predicted Person-Environment fit six years later across multiple Holland types (Prediger & Swaney, 1986), has been positively associated with multiple measures of well-being, including occupational well-being, work satisfaction, self-esteem (Meir, Melamed, & Dinur, 1995), and job satisfaction moderated by group importance (Meir, Keinan, & Segal, 1986), and negatively associated with burnout and somatic complaints (Melamed, Meir, & Sampson, 1995). Taken together, these studies further support the use of the Self-Directed Search for the assessment of congruence in relation to a variety of constructs, including job satisfaction, well-being, self-esteem, burnout, and somatic complaints (Meir, Melamed, & Dinur; Melamed, Meir, & Sampson). They are relevant to the present research as they support the use of the Self-Directed Search for the assessment of congruence with a variety of

constructs, which has been extended to the study of trait anger, interpersonal conflict at work, and workplace aggression in the current sample.

In congruence research conducted with the Self-Directed Search examining specific personality types, Kieffer, Schinka, and Curtiss (2004) used the Self-Directed Search and calculated congruence with the *C* Index (i.e., another frequently used index for calculating congruence that ranges from 0 to 18 with higher ratings reflecting greater degrees of fit; Brown & Gore, 1994) in a sample of 514 employees working in a large national organization. They found that Investigative Person-Environment fit was significantly related to work performance and work quality in that environment. Further, possessing an Artistic personality was negatively related to work quality among those employed in a Realistic work environment (Kieffer et al., 2004). Moreover, they found support for a differential effect of gender and found that the interaction between agreeableness, Artistic, and Social types was significantly related to work performance only for female employees. Overall, while their findings suggested that type of fit (e.g., low fit, high fit) may be particularly relevant for the study of work-related outcomes, gaps remain in the examination of interpersonal conflict at work and workplace aggression, which was examined in the present research using the Self-Directed Search.

Congruence research using the Self-Directed Search has also examined potential differences related to cultural variables. Specifically, Greenlee, Damarin, and Walsh (1988) administered the Self-Directed Search to 40 Caucasian and 40 African American restaurant proprietors employed in Enterprising occupations and hospital aids employed in Social occupations and calculated congruence using the Iachan *M* Index. Overall, they did not find a significant main effect for race (i.e., Caucasian, African American) in this sample (Greenlee et al., 1988). Accordingly, while racial background information was

gathered with other demographics information, it was not examined as a variable of interest in the present research.

In a study of members of the Australian culture, Sutherland, Fogarty, and Pithers (1995) administered the Australian version of the Self-Directed Search to 154 employed males and females and found that congruence, calculated using the Iachan *M* Index, significantly predicted occupational stress and strain. Additionally, Donahue (2006) administered an Australian version of the Self-Directed Search to a sample of 461 full-time employees in Australia and found that employees who remained at their careers for a significant period of time were significantly more congruent, as calculated by the *C* Index, than those who frequently changed careers (Donahue). Taken together, these studies further support the broad applications of congruence research with the Self-Directed Search, including implications for members of a variety of cultural backgrounds.

While many of the studies reviewed above produced significant findings that were consistent with their predictions (e.g., Greenlee, Damarin, & Walsh, 1988; Meir, Hadas, & Noyfeld, 1997; Meir & Navon, 1992; Sutherland, Fogarty, & Pithers, 1995), some additional research has produced mixed (Fritzsche, Powell, & Hoffman, 1999) or statistically insignificant (Heesacker, Elliott, & Howe, 1988; Meir & Green-Eppel, 1999; Meir & Tzadok, 2000) findings in the investigation of congruence using the Self-Directed Search. For example, Fritzsche et al. (1999) administered the Self-Directed Search to 90 employed adults and found that congruence, calculated using the *C* Index, was significantly related to work quality, but not work productivity or conduct. Further, among 318 sewing machine operators, Heesacker et al. (1988) found that employee congruence, measured using the Self-Directed Search and calculated through first-letter

code types, was not significantly related to job satisfaction, productivity, absenteeism, or job-related injuries in their sample. Additional research failed to find a positive relationship between congruence and occupational achievement (Schwarz, Andiappan, & Nelson, 1986), but appears to have limitations in generalizability as it was conducted on a Canadian population, examined outcomes using a single occupation, and defined occupational achievement as one's annual income, which may not subjectively be viewed as achievement (Schwarz et al., 1986). In contrast, the present research was conducted on a sample of employees in the United States and examined outcomes across multiple occupational types.

In additional research using the Self-Directed Search, Meir and Tzadok (2000) studied congruence using researcher ratings with a sample of 205 adults employed in a variety of occupations and did not find statistically significant positive correlations with job satisfaction. Further, Meir and Green-Eppel (1999) administered the Self-Directed Search to 119 employees of the Reserve Infantry and found that congruence measured through researcher ratings was not significantly related to employees' level of anxiety, job satisfaction, or number of somatic complaints. However, the findings of their study may be limited by the unique nature of the sample for investigating congruence within a very specific military context for which "with its associated strain and risk, at least some of the reserve infantry soldiers (may have) found it impossible, irrelevant, or meaningless to respond adequately to items whose contents related to preferred civilian activities" (Meir & Green-Eppel, p. 435). Collectively, these studies (i.e., Heesacker, Elliott, & Howe, 1988; Meir & Green-Eppel; Meir & Tzadok) may have been limited by their methods used for calculating congruence, which did not employ the Iachan *M* Index in their investigations of Person-Environment fit. This explanation is supported by

Greenlee, Damarin, and Walsh's (1988) statement that Iachan's "*M* does appear to make fuller and/or more discriminating use of the information in Holland's three letter profile than any other procedure" (p. 300). Accordingly, the present research employed the Iachan *M* Index for the calculation of congruence.

Kieffer et al. (2004) explained that although congruence has been a well-researched construct assessing Person-Environment fit, several studies have indicated that there may be some limitations (e.g., certain academic contexts) to its use as a predictor of individuals' work performance. For example, Khan, Alvi, Shaukat, Hussain, and Baig (1990) administered the Self-Directed Search to 376 undergraduate students and did not find a significant relationship between congruence, as calculated by first letter code types, and readiness to begin a career. Additionally, the Maryland Longitudinal Study (1989) examined the impact of congruence, as measured by the Self-Directed Search and calculated with the Iachan *M* Index in an academic context. The findings of this study suggested that students' personality congruence with their selected undergraduate majors was not significantly related to academic performance, as assessed by obtained grade point averages. Although this study used the Iachan *M* Index in calculating congruence, it differed from the present research because it examined students', rather than employees', levels of congruence with their environments. Although some students were included in the current sample who met inclusion for the study (e.g., part-time employment in the same or a similar work setting over the past 2 years), their level of congruence was examined related to their work, not academic, environments. Accordingly, the current sample was comprised of employees to examine Person-Environment fit with employment, rather than academic settings.

It should also be noted, however, that some research has supported congruence as measured with the Self-Directed Search in academic samples in contrast to the findings of Khan et al. (1990) and the Maryland Longitudinal Study (1989). For example, Eagan and Walsh (1995) administered the Self-Directed Search to 226 male and female college students calculating congruence using the Iachan *M* Index and found that individuals significantly differed in their styles of coping with difficulties and strategies employed for coping based on their level of congruence. Additionally, previous research suggested that incongruent female students reported higher levels of anxiety than those who displayed greater congruence (Healy & Mourton, 1985), congruent students had higher grade point averages than students with lesser degrees of congruence (Henry, 1989), and congruent career environments were preferred to less congruent environments (Oleski & Subich, 1996). Additionally, Niles (1993) administered the Self-Directed Search to 279 male and female college students to assess congruence, using first-letter code types, and found that congruent career counseling environments were preferred over less congruent environments. Particularly, Enterprising and Realistic males and females strongly preferred congruent counseling environments (Niles). Collectively, these studies lend support for further application of the congruence research including coping styles and anxiety (Eagan & Walsh, 1995; Healy & Mourton, 1985). The present research has extended the examination of emotional factors, beyond anxiety, to trait anger to determine whether employees' degree of Person-Environment fit impacts their reported anger levels.

Notably, research on congruence in academic settings using the Self-Directed Search indicated that individuals with different personality types prefer different styles of counseling (e.g., Boyd & Crammer, 1995). Specifically, this research has found that there

were significant differences in career counseling style preferences based on personality types with Social types expressing interest in unlimited sessions, limited structure, self-awareness as the focus, and an informal therapeutic relationship and Realistic types preferring the opposite counseling style, reflecting session limits, structure, and a formal therapeutic relationship (Boyd & Crammer). These findings were relevant for the present research because if low Person-Environment fit was found to lead to higher levels of trait anger, interpersonal conflict at work, and workplace aggression, the preferred treatment option by employees to address these difficulties may differ based on the individual's personality type. It can be anticipated, for example, based on these findings that a low fit Realistic type may be an appropriate candidate for a structured anger management protocol, whereas a Social type may prefer a less structured form of therapy.

Summarily, the congruence research with the Self-Directed Search has generally supported theoretical predictions and shown that congruence is related to a variety of constructs including job satisfaction, performance, and well-being (e.g., Meir, Hadas, & Noyfeld, 1997; Meir & Navon, 1992; Meir, Melamed & Dinur, 1995). When this research has used the Iachan *M* Index to calculate congruence, findings have typically supported the impact of Person-Environment fit on a variety of constructs, including job satisfaction (Sutherland, Fogarty, & Pithers, 1995; Thompson, Flynn, & Griffith, 1994). When research conducted with the Self-Directed Search has failed to match with theoretical predictions, limitations can be found in those studies, such as examining outcomes using a single occupation (Schwartz, Andiappan, & Nelson, 1986). While various measures of congruence (e.g., Vocational Preference Inventory, Strong-Campbell Interest Inventory) have been used in the Person-Environment fit literature that will be reviewed in the upcoming sections, the consistent support for the use of the Self-Directed

Search with the Iachan *M* Index for the assessment and calculation of congruence, discussed throughout this review, provided the rationale for selecting this measurement of congruence for the present research.

Congruence Research with the Vocational Preference Inventory

While many studies have examined congruence with the Self-Directed Search and found results matching with theoretical predictions (e.g., Donohue, 2006; Kieffer, Schinka, & Curtiss, 2004; Mazen, 1989), other studies have also used the Vocational Preference Inventory for their assessment of congruence. Accordingly, research involving the Vocational Preference Inventory is being reviewed to highlight findings relevant to congruence, which is one of the central constructs of the present research. The Vocational Preference Inventory is an instrument that classifies individuals into each of the 6 types once desirable occupations have been selected from a list of 84 total possibilities (Holland, 1997). Studies conducted with the Vocational Preference Inventory for the examination of Person-Environment fit are relevant for the present research because they demonstrate many of the applications of congruence with a variety of constructs including counterproductive work behavior (Gottfredson & Holland, 1990), persistence (Bruch & Krieshok, 1981), and, as previously mentioned in the research using the Self-Directed Search, job satisfaction (Amerikaner, Elliot, & Swank, 1988; Salomone & Pask-McCartney, 1990; Upperman & Church, 1995). In the present research, these applications of congruence were extended to the examination of trait anger, interpersonal conflict at work, and workplace aggression. Exemplars of previous applications of congruence research using the Vocational Preference Inventory will be reviewed throughout this section.

In a particularly relevant longitudinal comparison of Person-Environment fit for the present research examined on a workplace sample, Gottfredson and Holland (1990) conducted a 4 month longitudinal study involving 126 bank tellers and found that congruence, measured by the Vocational Preference Inventory and calculated using the Iachan *M* Index, was significantly related to job satisfaction, persistence, and job involvement, but not significantly related to counterproductive work behavior. While the authors did not find a significant relationship between congruence and counterproductive behavior in this sample, the variables were related in the predicted direction, and having Realistic interests, Artistic interests, being younger, and not expecting to be satisfied with one's job were significantly related to counterproductive behavior, while having Investigative, Enterprising, Social, or Conventional interests did not reflect this significant relationship (Gottfredson & Holland). While the authors did not report a hypothesized reason for the significant relationship between some of the types of congruence and counterproductive work behavior, they explained that their "results are not inconsistent with the hypothesis that incongruent persons seek gratification by engaging in counterproductive behavior on the job, but they lend little support to the hypothesis" (Gottfredson & Holland, p. 396). Notably, Gottfredson and Holland measured counterproductive behavior using 11 items for this study created by the authors without pilot testing, and no reliability or validity information was provided for these items. Additionally, as explained by the authors, the obtained sample may have limited generalizability as it used primarily young employees in one banking organization and displayed a limited response rate to follow-up measures that may have biased the findings in unanticipated ways (Gottfredson & Holland). Further, the items examined somewhat benign areas that individuals across various levels of congruence would be likely to

endorse, such as “I am sometimes not as friendly to people as I should be because of some irritation on my job” (Gottfredson & Holland, p. 391).

In contrast, the present research has investigated workplace aggression, which is often classified as a form of counterproductive work behavior, but is not expected to be equally endorsed across various levels of congruence. Although those who fit well with their jobs may become irritated at work, they were not expected to have the motivation to regularly engage in behaviors, such as destroying their co-workers’ mail and spreading false rumors about their co-workers, which were investigated during the current study. These types of behaviors were anticipated to be more likely among with individuals who display poor job fit, interpersonal conflict at work, and elevated levels of trait anger.

While there has been consistent support in the literature for the relationship between congruence and job satisfaction (e.g., Breeden, 1993; Bretz & Judge, 1994; O’Reilly, Chatman, & Caldwell, 1991; Rounds, 1990; Saks & Ashforth, 1997), some research (e.g., Amerikaner, Elliot, & Swank, 1988; Salomone & Pask-McCartney, 1990; Upperman & Church, 1995) conducted using the Vocational Preference Inventory has failed to find a significant relationship. Although a significant relationship was not found, these authors (i.e., Amerikaner, Elliot, & Swank; Salomone & Pask-McCartney; Upperman & Church) mention several limitations of their studies including use of a small sample size, lack of representation among the general workforce (since these jobs fit with the students’ chosen majors), and lack of representation among each of the Holland types with the highest rates of returning questionnaires occurring among Artistic and Social types, and lowest rates among Conventional and Realistic types.

In additional research using the Vocational Preference Inventory, Salomone and Sheehan (1985) failed to find a positive relationship between congruence and vocational

stability over a 10-year period. As referenced by Donohue (2006), however, this study employed a median split which is problematic because it will often lead to “misleading results” (MacCallum, Zhang, Preacher, & Rucker, 2002, p. 19). In contrast to these findings, other research has supported a positive relationship between congruence and job satisfaction using the Vocational Preference Inventory and a variety of indices (i.e., Hexagonal Congruence Index, *I*achan *M* Index; Gottfredson, 1980; Swaney & Prediger, 1985). Collectively, while these studies have yielded mixed findings regarding the relationship between Person-Environment fit and job satisfaction using the Vocational Preference Inventory to measure congruence, they differ from the present research, which used of the Self-Directed Search in the measurement of congruence.

Beyond the examination of Person-Environment fit in the workplace, additional studies of congruence using the Vocational Preference Inventory have been conducted in academic environments. These studies have supported positive relationships between congruence and persistence in coursework (Bruch & Krieschok, 1981), completion of a MBA program (Martin & Bartol, 1986), and job productivity (Richards, 1993). Accordingly, while the present research focused on Person-Environment fit in the workplace, it should be noted that congruence studies have also been conducted in academic environments (e.g., Bruch & Krieschok; Martin & Bartol) that have suggested positive relationships exist between congruence and other constructs.

Taken together, the collective findings related to congruence measured using the Vocational Preference Inventory have yielded some studies matching with theoretical predictions (e.g., Bruch & Krieschok; Swaney & Prediger, 1985; Tanaka & Ogawa, 1986), and other studies contradicting those predictions (e.g., Salomone & Pask-McCartney, 1990; Salomone & Sheehan, 1985). As reviewed in this section, a particularly relevant

study for the present research addressing Person-Environment fit was conducted by Gottfredson and Holland (1990) using the Vocational Preference Inventory. As discussed throughout this section, Gottfredson and Holland failed to find a significant relationship between congruence and counterproductive work behavior in their longitudinal investigation of Person-Environment fit. Notably, their research had several limitations including the use of items with no pilot testing, reliability, or validity information, sampling from only one occupation with a limited follow-up response rate, and items examining fairly benign areas (e.g., being less friendly than is typical) that would be expected to be endorsed across individuals with various levels of congruence. Although workplace aggression may exemplify a form of counterproductive work behavior (Neuman & Baron, 2005), the present research contrasts with Gottfredson and Holland's findings through the use of a reliable and valid measure of workplace aggression, sampling including employees representing a range of occupations, and consideration of more severe areas of aggression (e.g., destroying co-workers' mail) that would not be expected to be equally endorsed across various levels of congruence. Since the findings reviewed in this section using the Vocational Preference Inventory been generally mixed, the Self-Directed Search was used to examine Person-Environment fit in the present research.

Congruence Research with the Strong-Campbell Interest Inventory and Related Measures

In addition to the Self-Directed Search and Vocational Preference Inventory, other measures for assessing congruence, such as the Strong-Campbell Interest Inventory, have been used in previous studies for the assessment of Person-Environment fit. These studies are relevant to the present research because they provide further support for the

consideration of congruence in a workplace sample (e.g., Jagger, Neukrug, & McAuliffe, 1992), and with a variety of constructs, including job satisfaction, productivity, and job stability (e.g., Hesketh & Gardner, 1993; Meir, Esformes, & Friedland, 1993; Meir & Yaari, 1988). While these studies have demonstrated that congruence has been examined using a variety of measures, samples, and settings, findings have been mixed with many studies matching with theoretical predictions (e.g., Elton & Smart, 1988; Fricko & Beehr, 1992; Jagger, Neukrug, & McAuliffe; Meir & Yaari; Tziner, Meir, & Segal, 2002), and other findings contrary to theoretical predictions (e.g., Hoeglund & Hansen, 1999). Collectively, these studies differed from the present research because they did not use the Self-Directed Search for their examination of congruence and did not consider the constructs of trait anger, interpersonal conflict at work, or workplace aggression in their assessment of Person-Environment fit.

Related to the study of congruence and job satisfaction in workplace samples, a positive relationship has been supported in a number of studies examined using the Strong Interest Inventory and related measures of congruence (e.g., Fricko & Beehr, 1992; Jagger, Neukrug, & McAuliffe, 1992, Meir & Yaari, 1988). Similarly, in longitudinal examinations of congruence, Elton and Smart (1988) examined over 17,000 employed males and females and found that individuals who displayed high congruence demonstrated less dissatisfaction with a variety of factors (i.e., income, opportunities for promotion, fringe benefits, job satisfaction) than those who displayed low congruence, nine years following their initial congruence assessment. In an investigation of congruence with employees, Rounds (1990) administered the Strong-Campbell Interest Inventory and found that congruence, as calculated by first-letter code types, significantly predicted job satisfaction among females, but not among men. In contrast, Hoeglund and

Hansen (1999) examined 16 samples of employed adults representing 16 occupations using the Strong Interest Inventory to measure congruence and calculated congruence and found congruence was significantly correlated with job satisfaction in 9 out of 85 comparisons at a .01 level of significance. The authors explained that limitations of this research include that only a small number of individuals in the sample reported being dissatisfied with their jobs, limiting the generalizability of their findings (Hoeglund & Hansen). In contrast to this study, the present research used the Self-Directed Search for the investigation of Person-Environment fit.

Collectively, these studies were relevant for the present research because it was anticipated that the consistent relationship found between job satisfaction and congruence (e.g., Elton & Smart, 1988; Fricko & Beehr, 1992; Jagger, Neukrug, & McAuliffe, 1992; Meir & Yaari, 1988) would be replicated in the current sample. As recommended by Fricko and Beehr (1992), “personnel managers valuing job satisfaction might work on improving their efforts to determine the current congruence of people in their jobs, to ensure the future congruence of applicants with jobs, and to ensure the future congruence of current employees with jobs to which they might be transferred or promoted” (p. 112). Clearly, the positive relationship between congruence and job satisfaction has been a frequent consideration in research examining Person-Environment fit. It was hoped that replication of this relationship would demonstrate that the current sample is similar to previously obtained samples of employees and thus support the generalizability of the present findings.

In the study of congruence and other constructs with a workplace sample, researchers have found that congruence improved the prediction for 13 out of the 21 measured attributes (Hesketh & Gardner, 1993), has been positively related to

performance ratings (Tziner, Meir, & Segal, 2002) and job stability (Meir, Esformes, & Friedland, 1993), and has been associated with increased employee retention and lower job turnover rates (Beale & Holinsworth, 2002). Notably, Beale and Holinsworth found that of 42 percent of employees who were interested in employment outside of the county prior to their involvement with a program designed to improve Person-Environment fit, only 5 percent left the county after seeking assistance. Further, as national turnover rates were rising for that year, Henrico County lowered their employee turnover rate to 9.7 percent in 1999-2000, in contrast to the national turnover rate of 15.6 percent (Beale & Holinsworth; Bureau of National Affairs, 2000). These findings suggest that congruence research may have practical significance for organizations interested in increasing employee retention and lowering job turnover. Accordingly, the present research has aimed to further examine future areas of interest to organizations, such as workplace aggression and interpersonal conflict at work, which may be influencing employee decisions of whether to remain in their current work settings. Accordingly, while previous research demonstrated many of the benefits of congruence in the workplace, such as job satisfaction, enhanced performance, and job stability (e.g., Hesketh & Gardner; Meir, Esformes, & Friedland; Meir & Yaari, 1988), the present research extended these findings to examine potential negative consequences of lack of congruence, which were hypothesized to include trait anger, interpersonal conflict at work, and workplace aggression.

In a qualitative study of congruence using a Grounded Theory approach, which seeks to create theoretical explanations directly from the data (Pollio, Graves, & Arfken, 2006), Blustein, Phillips, Jobin-Davis, Finkelberg, and Roarke (1997) studied 45 employed young adults. They found that individuals with greater degrees of congruence

as measured by their expressed choice code and calculated through the Iachan *M* Index, obtained more precise job information, were more likely to have obtained their job knowledge to previous work experience, were more likely to show flexibility when making decisions, and were more likely to report having many supportive co-workers than those with lesser degrees of congruence. Consistent with these qualitative findings, it was expected that in the present research congruent employees would elicit support from their co-workers and have lower levels of interpersonal conflict at work than those employees with lesser degrees of congruence.

Studying the drawbacks to low congruence was supported by previous research that suggests that negative consequences are linked to a lack of Person-Environment fit (Celeste, Walsh, & Raote, 1995). For example, previous research has indicated that incongruence is associated with negative outcomes, such as depression and anxiety (Celeste et al., 1995). Specifically, these researchers found that incongruent ministers reported more symptoms of depression, anxiety, and introversion than those with greater congruence (Celeste et al.). Their findings lend support to forming hypotheses that examine the emotional consequences of low Person-Environment fit, and as such, the impact of Person-Environment fit on trait anger was examined in the present research to further the understanding in this area.

In addition to research conducted in the workplace, congruence has also been examined in an academic context using the Strong-Campbell Interest Inventory and has been positively related to personality, self-concept, career options, self-efficacy, social support, persistence beyond abilities, cultural and social growth, and negatively related to career indecision (Lent, Brown, & Larkin, 1987; Raphael & Gorman, 1986; Schaefer, Epperson, & Nauta, 1997; Smart, 1997; Wallace & Walker, 1990). In contrast to these

findings, some researchers have failed to find a significant difference between congruent and incongruent females on career indecision (Slaney & MacKinnon-Slaney, 1986), and between congruence and age (Luzzo & Ward, 1995). Consistent with this finding, while age was obtained in the demographics information, it was not examined as a covariate of interest in the present research.

The previous research involving Person-Environment fit in an academic context has indicated that career interventions can be effective in modifying individuals' levels of congruence (e.g., Schmidt & Callan, 1992). Specifically, Schmidt and Callan provided career interventions to students and found that congruence between self-reported interests and occupational career choices was strengthened following a career intervention.

Among 2,036 undergraduate students, Smart (1997) examined congruence based on pre-college interests and calculated through first-letter code types, and found that Artistic types reported greater rates of cultural growth than Social, Enterprising, or Investigative types. Additionally, Social types reported greater rates of educational and social growth during college than the other types. In further research conducted by Chartrand, Camp, and McFadden (1992), incongruence between personality type and major significantly predicted career indecision (Chartrand et al., 1992). While the present research was in a work-related, rather than an academic context, this literature remained relevant to the present research because it exemplified the broad applications of the study of Person-Environment fit across multiple constructs. Employees' personal recognition of their lack of environmental fit may in fact lead to some of the difficulties examined in the present research. A mismatched employee was predicted to feel angry, experience interpersonal conflict in the workplace, and commit subsequent acts of workplace aggression more commonly than an employee with an excellent or moderate fit.

Additional research has also examined differences in congruence across different personality types and found that Social types preferred doing social activities with other Social individuals, while Investigative types preferred doing Investigative activities, and gave low ratings for engaging in activities with Social individuals (Wampold, Mondin, & Ahn, 1999). Further, Social types have been found to use social forms of coping more frequently than problem-solving based coping skills (Wampold, Ankarlo, Mondin, Trinidad-Carrillo, Baumler, et al., 1995). While the present research was concerned with Person-Environment fit across Holland's six personality types, these studies suggest that individuals display some differences in activity preferences and methods for coping in academic contexts. The frequencies of each of the personality types obtained in the current sample have been displayed using a contingency table in the present research to allow the reader to view the variability in personality types that were obtained.

Feldman et al. (2004) reported that advantages to using Holland's (1997) theory on college populations include: the potential for linking different patterns of student learning to different learning environments and the ability to classify academic environments into empirically consistent categories. Smart (1989) explained that the location of one's college career (e.g., private university) influences the development of Holland code types. This was supported by research that indicated that college students in different scholastic environments (i.e., majors) generally have personality types consistent with those environments (Scott & Sedlacek, 1975; Williams, 1972). This research fits with the notion that individuals generally select environments that fit with their personalities, in scholastic, as well as work environments. Taken together, there has been some attention in the literature to studying congruence with college populations. The present research differed from these studies, however, because of its focus on

workplace behaviors which were anticipated to be best examined through a broader sample than the examination of academic congruence in a college setting would allow. Accordingly, while some employed college students who have been working part- or full-time for at least 2 years were included among the current sample, they were not the primary group of interest for the present research.

In summary, previous research has examined the relationship between congruence and a variety of constructs, including job satisfaction, performance, and job stability (e.g., Fricko & Beehr, 1992; Hesketh & Gardner, 1993; Meir, Esformes, & Friedland, 1993; Meir & Yaari, 1988). However, this research has focused primarily on positive consequences to congruence, and has placed limited attention on negative consequences of congruence. Accordingly, the present research has aimed to expand the understanding of these potential negative consequences, such as workplace aggression, that have been found to be particularly damaging by leading to extensive occupational difficulties (Barling, 1996; Keashly, 1998; Keashly & Harvey, 2005; Schat & Kelloway, 2003; Neuman & Baron, 1998). Beyond the previous findings that indicate these negative consequences include depression and anxiety (Celeste, Walsh, & Raote, 1995), the present research examined whether the negative consequences of a lack of congruence also include trait anger, interpersonal conflict at work, and workplace aggression.

Job Satisfaction and the Present Research

In the present research, job satisfaction was examined in relation to the two primary constructs for this study, Person-Environment fit, as measured by congruence, and workplace aggression. As discussed throughout this manuscript, the positive relationship between congruence and job satisfaction has generally received support in the literature (e.g., Assouline & Meir, 1987; Tranberg, Slane, & Ekeberg, 1993),

particularly when examined using the Self-Directed Search (e.g., Meir, Tziner, & Glazner, 1997). This has been shown by Meir, Tziner, and Glazner who administered the Self-Directed Search to 180 employed adults and found congruence, as calculated through first letter codes, was positively related to employees' job satisfaction. Additionally, Carson and Mowesian (1993) administered the Strong Interest Inventory to 139 employed men and women and found that congruence, as measured by the Iachan (1984) *M* index, positively predicted employees' job satisfaction.

In an extensive meta-analysis of congruence, Assouline and Meir (1987) examined 41 studies that used congruence for the assessment of Person-Environment fit. Sixteen measures were used to calculate congruence in these studies (e.g., first-letter code, first-letter dichotomy comparison, three-letter dichotomy comparison, scale score, Zener and Schnuelle (1976) Index, two-letter dichotomy comparison (Assouline & Meir). Studies that were included in the meta-analysis were derived from Spokane's (1985) review, 26 additional studies were conducted with Israeli samples, and 6 studies were located through reviews of available abstracts that addressed congruence (Assouline & Meir). Within these 41 studies, across 77 correlations (i.e., 53 between congruence and satisfaction, 17 between congruence and job stability, 7 between congruence and achievement) significantly higher correlations were found between congruence and occupational job satisfaction (mean $r = .21$), occupational specialty job satisfaction (mean $r = .42$), and job satisfaction related to others in one's environment (mean $r = .29$) than congruence and college major (mean $r = .10$) or intended occupation (mean $r = -.02$). In contrast, correlations examining the relationships between congruence and job stability or achievement were consistently low across occupational and academic examinations of fit (Assouline & Meir). These meta-analytic findings suggest that the research supporting

the relationship between congruence and job satisfaction is best represented among workplace samples.

In contrast, Tsabari, Tziner, and Meir (2005) in their updated meta-analysis examining 26 studies that were conducted between 1988 and 2003 across 6,557 participants found that the correlation between congruence was weaker (r ranged from .16 to .17) than was found by Assouline and Meir (1987). In the studies that were included congruence was calculated through 9 different methods (i.e., first-letter dichotomy, first-letter hexagon, two-letter agreement, *Sb* index, Iachan *M* Index, *C* Index, *K – P* Index, *HCI* Index, and Didadic Index) (Tsabari et al., 2005). However, they explained that there was large variability across the individual studies and report that the use of “the academic setting to examine the congruence theory is inappropriate” and “certain indices, as well as certain interest questionnaires, seem to be more suitable for testing congruence than others” (Tsabari et al., p. 229-230). Accordingly, the present research investigated employee congruence with workplace settings and used a previously established measure (i.e., Self-Directed Search) and index (i.e., Iachan *M* Index) for the assessment and calculation of congruence.

Accordingly, based on the findings from Assouline and Meir’s (1987) meta-analysis, it was anticipated that the positive relationship between congruence and job satisfaction would be replicated in the current workplace sample. Additionally, the previous meta-analytic findings presented earlier that support a significant negative relationship between workplace aggression and job satisfaction (Herschovis et al., 2007) were expected to be replicated in the current sample. Taken together, it was anticipated that both of these findings (i.e., significant positive relationship between job satisfaction and congruence, significant negative relationship between job satisfaction and workplace

aggression) would be replicated, providing evidence for the similarity between the current sample and previous samples of employees obtained for the examination Person-Environment fit and workplace aggression, in support of the generalizability of the current findings.

The Present Study

The present research aimed to expand the literature on workplace aggression using Holland's (1997) theory to determine whether Person-Environment fit is among the individual difference variables impacting workplace aggression and its previously identified correlates (Herschovis et al., 2007). A wealth of research has been conducted in support of congruence for the assessment of Person-Environment fit (e.g., Breedon, 1993; Bretz & Judge, 1994; Donohue, 2006; Kieffer, Schinka, & Curtiss, 2004; Mazen, 1989; Meir, Hadas, & Noyfeld, 1997; Meir, Melamed, & Dinur, 1995; Meir & Navon, 1992; Meir, Keinan, and Segal, 1986; O'Reilly, Chatman, & Caldwell, 1991; Rounds, 1990; Saks & Ashforth, 1997), however, this literature had not previously been extended to the examining the potential effect of congruence on trait anger, interpersonal conflict at work, and workplace aggression. Exploring this area of research is consistent with the recommendation of Heesacker, Elliott, and Howe (1988) who noted that further research is needed on employees using Holland code types to examine the impact of Person-Environment congruence on subsequent workplace behaviors.

Understanding the impact of trait anger is consistent with the findings of Herschovis et al. (2007) who explained that individuals who are high on trait anger are more easily provoked during situations that they perceive as frustrating. Notably, in their meta-analysis of 191 articles related to workplace aggression, they found that trait anger was a significant predictor of workplace aggression. Accordingly, the examination of the

effect of Person-Environment fit on trait anger in the present research has aimed to further the understanding of this previously established predictor of workplace aggression by determining whether low fit employees displayed greater anger levels than those with higher degrees of fit when a mismatch between personal and environmental values was present.

Trait anger and interpersonal conflict at work were evaluated as potential covariates when assessing for an effect of Person-Environment fit on workplace aggression over alternative demographic variables, such as sex, racial background, and socioeconomic status (i.e., yearly income), because trait anger and interpersonal conflict at work have been consistently shown to be positive correlates of workplace aggression (e.g., Herschovis et al., 2007). Further, the positive relationships between trait anger, interpersonal conflict at work, and workplace aggression were replicated in the present sample. In contrast, while sex was found to be significantly positively related to interpersonal conflict at work and workplace aggression in the present sample, findings involving sex differences in workplace aggression have been mixed in previous examinations of this construct (e.g., Douglas, Witt, & Aquino, 2003; Herschovis et al., 2007; McFarlin, Fals-Stewart, Major, & Justice, 2001; Namie & Namie, 2000). Specifically, some researchers failed to find a significant relationship between sex and workplace aggression (Douglas, et al., 2003), others found a positive relationship between being male and engaging in workplace aggression (Herschovis et al.; McFarlin, et al.), and others suggested a positive relationship between being female and engaging in workplace aggression (Namie & Namie). Herschovis et al. pointed out that “the finding that men are more aggressive should be interpreted with caution” (p. 234). Based on these mixed findings and the use of nonrandom group assignment in the present research, the

decision was made to eliminate sex from the possible covariates prior to data collection. Miller and Chapman (2001) explained “there is typically no thorough basis for determining whether a given pretreatment difference reflects random error or a true group difference” (p. 40). It should also be noted that ancillary findings in the present research indicated that the controlling for sex would not have produced a significant effect of Person-Environment fit on workplace aggression.

Additionally, the present research examined the potential effect of Person-Environment fit on interpersonal conflict at work, as another significant predictor of workplace aggression (Herschovis et al., 2007). Previous findings indicated that employees who experienced frequent interpersonal conflict with co-workers are more likely to engage in workplace aggression than those who do not experience negative social influences in the workplace (Herschovis et al.). Accordingly, when an employee’s personality type differs from the predominant environmental type, it was anticipated in the present research that there may be particular risk for victimization through interpersonal conflict at work related to the lack of environmental fit and corresponding lack of overlap in personalities and values with other co-workers. For example, a Realistic individual in an Artistic environment, who is surrounded by primarily Artistic co-workers, would differ significantly in personality type and values from his or her co-workers, so that reports of conflicts with those co-workers were anticipated in the present research. This is a concern as the literature suggested that those who have been previously victimized have an increased likelihood of committing retaliatory aggressive acts, when other risk factors (e.g., being male) are also present (e.g., Townsend, Phillips, & Elkins, 2000). Since the research on workplace aggression indicated that organizational strategies focused on assisting employees with managing their difficulties

with aggression and interpersonal conflict can be beneficial (e.g., Johnson & Indvik, 1994; Nicoletti & Spooner, 1996), the present research aimed to further understand those who may benefit from the application of those strategies.

The present research further examined the potential effect of Person-Environment fit on workplace aggression. This was supported by the findings of Inness et al. (2005) that indicated aggressive individuals may not act aggressively across all of their work environments during their lifetime. Specifically, they found that employees' occurrences of aggression in their current work environments were not significantly related to their reported instances of workplace aggression in prior employment settings. Accordingly, the present research aimed to further this investigation by exploring whether the choice to act aggressively in a particular organizational context is influenced by an individual's fit within the current work environment. Although one previous study examined the impact of congruence on a similar construct, counterproductive work behavior (i.e., Gottfredson & Holland, 1990), this study examined only one occupation (i.e., bank tellers) in its sample and investigated a mild form of counterproductive work behavior, using a non-validated measure, which may be common across employees with low, average, and high levels of congruence. Accordingly, the present research aimed to address the current gap in the literature by examining the effect of congruence (i.e., low, average, or high fit), using the Self-Directed Search, between individuals' personalities and occupations on trait anger, interpersonal conflict at work, and workplace aggression.

As mentioned throughout this manuscript, the identification of individuals who are most susceptible to commit acts of workplace aggression is important because of the detrimental consequences associated with these occurrences, such as reduced job performance and subsequent retaliation attempts (Lutgen-Sandvik, Tracy, & Alberts,

2006). Additionally, employees' reported levels of interpersonal conflict at work and anger are important considerations in the present research because of the negative consequences that are associated with being victimized interpersonally, such as reducing citizenship behavior within one's organization (Townsend, Phillips, & Elkins, 2000), and the increased likelihood of becoming provoked among highly angry individuals (Herschovis et al., 2007). Inness, Barling, and Turner (2005) further noted that a "comprehensive understanding of the prediction of workplace aggression requires that both situational factors and individual difference factors be investigated simultaneously" (p. 731).

Consistent with Inness et al.'s (2005) recommendation, the present research planned to control for previously identified individual difference factors (i.e., trait anger, interpersonal conflict at work) that have been associated with workplace aggression, while subsequently considering the situational factor of fit. Taken together, the present study aimed to expand the Person-Environment fit research to further the understanding of workplace aggression and its predictors, which concerns millions of Americans (Schat et al., 2006), negatively impacting employees' ability to function effectively across employment settings.

Research Questions

1. Is there a differential effect of type of Person-Environment fit (low, average, high), as defined by congruence between personality type and environmental type, on trait anger?
2. Is there a differential effect of type of Person-Environment fit (low, average, high) on interpersonal conflict at work?

3. Is there a differential effect of type of Person-Environment fit (low, average, high) on workplace aggression, controlling for trait anger and interpersonal conflict at work?
4. Are the previously established relationships between job satisfaction and Person-Environment fit, and job satisfaction and workplace aggression, replicated in this sample?

Statistical Hypotheses

A₀1: There is a significant difference in trait anger based on type of congruence between individual personality type and environmental type.

A₀2: There is a significant difference in interpersonal conflict at work based on type of congruence between individual personality type and environmental type.

A₀3: There is a significant difference in workplace aggression based on type congruence between individual personality type and environmental type, controlling for trait anger and interpersonal conflict at work.

A₀4: There are significant relationships between congruence and job satisfaction and workplace aggression and job satisfaction.

CHAPTER II

METHOD

Participants

Demographic data indicated that 452 part-time (i.e., 164 participants) and full-time (i.e., 288 participants) United States employees working for approximately the past 2 years or more in the same or a similar setting completed, at minimum, the demographics form in the present research. Among the total sample of participants, 334 occupational titles (e.g., counselors, nurses, secretaries, managers, cashiers) were represented across 297 organizations (e.g., schools, financial institutions, supermarkets, restaurants, hospitals) in 32 states, representing Northern, Western, Eastern, and Southern regions of the United States (i.e., Alabama, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Jersey, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, Texas, Virginia, Vermont, Washington, Wisconsin). Among these employees' perceived job fit, 17 employees reported that they did not fit well at all with their jobs, 126 reported they believed they fit moderately well with their jobs, and 308 reported they believed they fit very well with their jobs.

Only 54 % of participants (i.e., $N = 244$ participants) completed the Self-Directed Search instrument that was used in the calculation of participants' Person-Environment fit in the present research, leaving 208 participants within the total sample not included in assessing the three primary research questions. Accordingly, only 244 participants from the current sample could be used in the present research toward the examination of the effect of Person-Environment fit on trait anger, interpersonal conflict at work, and

workplace aggression. Among participants who completed the Self-Directed Search, their average age was 34.81 ($SD = 13.85$; Range = 18-67) across 80 men and 164 women. *Self-Directed Search completers* refer to those participants who completed the research instrument that was used to classify participants into low, average, and high fit conditions. Among this group, 241 of the 244 Self-Directed Search completers completed all of the instruments used in the present research (i.e., the Demographics Questionnaire, the Self-Directed Search, the Trait Scale of the State-Trait Anger Inventory-2, the Interpersonal Conflict at Work Scale, the Workplace Aggression Scale, and the Overall Job Satisfaction Scale). Two hundred of the completers of the Self-Directed Search identified as Caucasian American, 29 identified as African American, five identified as Asian American/Pacific Islander, one identified as American Indian/Alaskan Native, and nine identified as "Other." Ninety-nine of these completers were employed part-time (i.e., 20-39 hours of work per week), and 145 of completers were employed full-time (i.e., at least 40 hours of work per week), and their average hours of work weekly was 38.40 ($SD = 11.84$; Range = 20-84).

Instruments

The following instruments assessing Person-Environment fit, trait anger, interpersonal conflict at work, and workplace aggression, were administered to address the primary questions of interest for the present research. Additionally, a demographics questionnaire was administered and a measure of job satisfaction was included to obtain evidence of discriminant validity from workplace aggression and concurrent validity with congruence in the current sample (see Appendix D for instruments that have been reproduced with appropriate author permission).

Person-Environment Fit

Holland, Fritzsche, & Powell's (1994) Self-Directed Search Form R (SDS) was used to measure participants' individual personality types using 228 items. Spokane and Holland (1995) have noted that this instrument has been one of the most widely used interest inventories related to career choice. Rhoton (2003) further reported that the instrument has been used widely in a variety of settings, including with industry workers. It includes an assessment manual, and 1,335 occupations representing approximately 99 percent of the American workforce (Lumsden, Sampson, Reardon, & Lenz, 2002). Scores were derived to determine the point codes (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional), and congruence with environmental code was used to examine fit. Congruence was assessed using the Iachan *M* Index (1984), which is coded with weighted values based on the agreement between each letter (i.e., first, second, third) in the three letter code for each individual and environment using a 0-28 point scale to identify the degree of similarity between any two three-letter codes in the hexagonal model. In the present research, all possible Iachan *M* Indexes (i.e., weighted scores ranging from 0-28; where 3, 7, 15, 17, 18, 19, and 25 are not possible values) were divided into thirds. The first third of all possible Iachan *M* values were classified as low fit, the middle third of all possible Iachan *M* values were classified as average fit, and the final third of all possible Iachan *M* values were classified as high fit. Holland (1997) supported the use of the Iachan *M* Index as a measure of congruence, which was consistent with Camp and Chartrand's (1992) recommendations for using sophisticated measures of congruence, rather than single-letter comparisons. Further, the Iachan *M* Index has been commonly used in previous research on congruence (e.g., Blustein, Pauling, DeMania, & Faye, 1994; Blustein, Phillips, Jobin-Davis, Finkelberg, & Roarke, 1997; Camp & Chartrand, 1992) and has been related to other measures of congruence

for the prediction of Person-Environment fit (Camp & Chartrand). Greenlee, Damarin, and Walsh (1988) observed that Iachan's "*M* does appear to make fuller and/or more discriminating use of the information in Holland's three letter profile than any other procedure" (p. 300). Internal consistency for the summary scale code coefficients for the SDS range from .90 to .94 (Holland, Fritzsche, & Powell, 1994). Test-retest reliability for the use of high-point code is .92 (Holland, 1985; Mahalik & Kivlighan, 1988), and overall ranges fall between .76 and .89 (Holland, Fritzsche, & Powell, 1994). Dumenci (1995) found support for the construct validity of the SDS through investigation of the multitrait-multimethod matrix structure of the instrument on a sample of 700 participants ranging in age from 17 to 37 (mean age of 19). Internal consistency information was not available for this instrument in the current sample because participants' results were obtained through their self-report of three-letter code types generated through the copyrighted Self-Directed Search website.

The Dictionary of Holland Occupational Codes (DHOC) is a 750-paged listing of 12,099 occupational titles (Mccllyar, 1983) that was the primary source used to code occupational environments for the present research. Environments were classified into three letter code types reflecting combinations from six ideal types: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. For those environments not identifiable through the DHOC, Reardon, Bullock and Meyer's (2007) classifications of codes, which also includes O*NET on-line database information, was used as a secondary source to code occupational environments.

Trait Anger

Spielberger's (1999, 1996) 10-item Trait Anger subscale of the State-Trait Anger Expression Inventory-2 (STAXI-2) was used to measure trait anger. The Trait Anger

subscale assesses characteristics reflecting trait anger (10 items). It includes items to assess feelings accompanying anger (e.g., fury, irritation), and the desire to act out in anger (e.g., hit someone, shout). The items were administered using a 4-point Likert-type scale, assessing how individuals generally feel about various situations, such as when they do not get recognized for doing good work. Higher scores on this subscale reflect higher levels of trait anger. In recent research, the mean score obtained on this subscale was 14.59 (Shay & Knutson, 2008). The internal consistency of the Trait subscale has been supported with alpha coefficients ranging from .70 to .91 (Douglas & Martinko, 2001; Hepworth & Towler, 2004; Spielberger, 1999) and adequate test-retest reliability (Jacobs, Latham, & Brown, 1988). Additionally, this instrument has been shown to have good convergent validity with other measures of anger, such as the anger-out scale ($r = .52-.58$) (Spielberger, Johnson, Russell, Crane, Jacobs, et al., 1985). Internal consistency of this instrument was supported in the current sample with an alpha coefficient of .80.

Interpersonal Conflict at Work

Spector and Jex's (1998) 4-item Interpersonal Conflict at Work Scale (ICAWS) was used to measure level of interpersonal conflict at work. The items were administered using a 5-point Likert-type scale (1 = *less than once per month or never* to 5 = *several times per day*) in which participants were asked how often each incident occurs at work, with higher scores reflecting greater levels of conflict. Total scores range between 4 and 20. The mean score found in the normative sample was 7.1 (Spector & Jex). Internal consistency has been supported with an alpha coefficient of .73 for the self-report version (Spector & Jex). Meta-analytic findings involving 18 studies conducted by Spector and Jex demonstrated evidence for the concurrent validity of the scale with positive correlations with outcomes on the Organizational Constraints Scale ($r = .44$), measures of

role conflict, intention to leave one's job, depression, frustration, and anxiety. They have additionally shown evidence for the discriminant validity of the scale through a negative correlation with job satisfaction ($r = -.32$) (Spector & Jex). Further, Bowling and Beehr (2006) found that the ICAWS obtained comparable results as a measure of harassment to alternative measures of harassment with regard to relationships with "role overload, gender, age, tenure, generic strains, physical symptoms, job satisfaction, and turnover intention" (p. 1004). Internal consistency of this instrument was supported in the current sample with an alpha coefficient of .73.

Demographics Questionnaire

A demographics questionnaire was created for the purpose of the present dissertation research and administered to all participants. The questionnaire obtained information about participants' age, years of education completed, socioeconomic background as assessed by annual yearly income, and location of current employment. The questionnaire also gathered information about each participant's sex, ethnic background, current job title, current job description, and location of current employment. Additionally, the demographics questionnaire included items to assess whether employees are currently working part-time or full-time, and whether they have been employed in the same or a similar work setting during the past two years. A question was also included to examine the time of day that participants completed the questionnaires.

Job Satisfaction

Agho, Price, and Mueller's (1992) 6-item *Overall Job Satisfaction* scale was used to measure individuals' job satisfaction. The questionnaire measured global satisfaction using a 5-item Likert scale (1 = *strongly disagree* to 5 = *strongly agree*) through a brief

adaptation of Brayfield and Rothe's (1951) measure of Overall Job Satisfaction. Total scores range between 5 and 30, with higher scores reflecting higher levels of job satisfaction. The mean score found in the normative sample was 20.89 (Agho et al., 1992). Although no test-retest information was found for this instrument, the internal consistency of the brief version of the instrument has been supported with alpha coefficients ranging from .83 to .90 (Fields, 2002). Additionally, evidence of concurrent validity has been shown through positive correlations with positive affect ($r = .44$), and personal autonomy ($r = .49$) (Agho et al.). Evidence of discriminant validity has also been demonstrated through negative correlation with negative affect ($r = -.26$), and work routines ($r = -.58$) (Agho et al.). Internal consistency of this instrument was supported in the current sample with an alpha coefficient of .90.

Workplace Aggression

Rutter and Hine's (2005) 33-item adapted version of Baron and Neuman's (1996) 40-item Workplace Aggression Scale was used to measure workplace aggression. The items were administered using a 5-point Likert-type scale (1 = *never* to 5 = *very often*) to assess the frequency in which individuals have engaged in a range of aggressive behaviors (e.g., *spreading false rumors about someone, directly interfering with or blocking others' work activities, destroying mail or messages needed by others*) in the workplace during the past two years. Higher scores on this instrument reflect higher incidence of workplace aggression. The total of mean score found in the normative sample including all of the subscales found in previous research was 3.97 (Rutter & Hine). The internal consistencies of each of the subscales of this instrument have been supported with alpha coefficients of .87 for the Hostile Expressions subscale, .79 for the Obstructionism subscale, and .82 for the Overt Aggression subscale (Rutter & Hine).

While no information on the test-retest reliability of the instrument was currently available, evidence for the construct validity of the instrument has been supported by Baron, Neuman, and Geddes (1999) through factor analytic findings consistent with theoretical predictions in the area of organizational psychology with behaviors expressing hostility representing 33.3 percent, behaviors designed at interfering with another's performance representing 6.4 percent, and behaviors expressing physical assault against a person or object representing 4.6 percent of the variance in their findings. Internal consistency of this instrument was supported in the current sample with an alpha coefficient of .90.

Procedure

The procedure for the present research was similar to that employed by Donohue (2006) in his examination of congruence, in which the researcher contacted individuals, employed in a diverse range of occupations, through personal, community, and academic referral sources. Individuals were asked to be representatives for this research project in their organizations of employment and to distribute a cover letter, containing a brief description of the study, during staff meetings or through email services. For the present research, community employee involvement was further obtained through flyers placed in diverse locations or posted on the Internet to attempt to gather a wide sample of personality types and degrees of congruence across occupations. Both cover letters, provided to organization representatives, and flyers, placed in various communities in the United States, contained the web address where the Internet surveys were completed.

All data were collected using Internet-based surveys. The initial page of the web address explained the purpose of the study, stated that participation is voluntary, and noted that the anonymity of respondents will be maintained (see Appendix C for the

Informed Consent form and Appendix B for the Institutional Review Board Approval Form). Employees' anonymity was protected by providing them with a code number for the purpose of this study and no personally identifying information was accessible to anyone within their organizations. Participants were provided with a user name and password to access the Self-Directed Search at the official copyrighted website for a portion of the web administration (see Appendix E for instructions to access this page). Additional instrumentation was located on the primary web address for the present research.

Participants who completed the surveys had the option to provide their email addresses and the code word provided at the end of the questionnaire administration to be entered into a raffle, which was conducted at the end of the data collection process, to win one of four 25 dollar gift cards to nationwide restaurant chains or retail stores. Additionally, for every participant who completed the surveys, one dollar was donated in support of breast cancer research. Management and Human Resource Representatives from participating organizations received a one-page summary of de-identified results comparing respondents from their organization to all respondents in the sample upon their request.

Instrumentation for the present research was administered using the Internet on employees' personal time, to further ensure to respondents that their anonymity was protected. This modality for data collection is consistent with the findings of Bachmann, Elfrink, and Vazzana (1999), Dillman (2000), and Kiesler and Sproull (1986) who found that administration through the internet produced fewer concerns about social desirability, greater honesty, and more extreme answers than those obtained through mail and telephone surveys. Based on the sensitive nature of the present research, which

examined socially undesirable factors, such as workplace aggression, minimizing employees' concerns about the privacy of their personal responses was an important consideration. It was addressed in the present research through the use of anonymous internet surveys. Instruments appeared on the website in counterbalanced order to control for potential order effects.

CHAPTER III

RESULTS

To explore the effect of Person-Environment Fit on trait anger, interpersonal conflict at work, and workplace aggression Analysis of Variance (ANOVA) (or Covariance when there were previous group differences; ANCOVA) procedures were performed. The independent variable of interest was Person-Environment fit, as assessed by the Self-Directed Search (Holland, Fritzsche, & Powell, 1994). The dependent variables of interest were trait anger, as assessed by the Trait Scale of the State-Trait Anger Expression Inventory-2 (Spielberger, 1999, 1996), interpersonal conflict at work, as assessed by the Interpersonal Conflict at Work Scale (Spector & Jex, 1998), and workplace aggression, as assessed by Rutter and Hine's (2005) adapted version of the Workplace Aggression Scale (Baron & Neuman, 1996). For concurrent and discriminant validity information, Pearson r analyses were used to examine relationships between job satisfaction, as assessed by the Overall Job Satisfaction Scale (Agho, Price, & Mueller 1992), Person-Environment fit, and workplace aggression. This chapter presents the results of these analyses including the demographic description of the sample, the mean and standard deviations for each of the instruments, a contingency table displaying person and environmental types found within the present sample, and the hypotheses and results for each of the proposed research questions. Table 1 displays the frequencies for the demographics variables found within the total sample and among Self-Directed Search completers.

Table 1

Frequencies of Demographic Variables Found Within the Total Sample (N = 452) and Self-Directed Search Completers (N = 244).

<i>Variable</i>	<i>Total Sample (Percentage)</i>	<i>Self-Directed Search Completers (Percentage)</i>
<u>Age</u>		
Mean	37.74	34.81
SD	14.63	13.85
Range	18-73	18-67
<u>Sex</u>		
Men	157 (34.73 %)	80 (32.8 %)
Women	294 (65.04 %)	164 (67.2 %)
Male to Female Transgender	1 (0.002 %)	—
<u>Racial Background</u>		
Caucasian American	383 (84.7 %)	200 (82.0 %)
African American	49 (10.8 %)	29 (11.9 %)
Asian American/Pacific Islander	6 (1.3 %)	5 (2.0 %)
American Indian/Alaskan Native	1 (0.2 %)	1 (0.4 %)
Other	13 (2.9 %)	9 (3.7 %)
<u>Highest Level of Education Completed</u>		
Grade School	2 (0.4 %)	1 (0.4 %)
High School	31 (6.9 %)	19 (7.8 %)
Some College	112 (24.8 %)	66 (27.0 %)
Community/Technical College	50 (11.1 %)	31 (12.7 %)
Four Year College	120 (26.5 %)	56 (23.0 %)
Graduate Degree	101 (22.3 %)	53 (21.7 %)
Post-Graduate Degree	36 (8.0 %)	18 (7.4 %)
<u>Yearly Annual Income</u>		
\$0-20,000	97 (21.5 %)	66 (27.0 %)
\$21,000-40,000	66 (14.6 %)	35 (14.3 %)
\$41,000-\$60,000	68 (15 %)	42 (17.2 %)
\$61,000-\$80,000	66 (14.6 %)	37 (15.2 %)
\$81,000-\$100,000	56 (12.4 %)	22 (9.0 %)
\$100,000 or greater	98 (21.7 %)	41 (16.8 %)

Table 1 (continued).

<u>Hours Worked Weekly</u>		
Part-Time (i.e., 20-39 Hours Weekly)	164 (36.0 %)	99 (40.1 %)
Full-Time (i.e., 40 or more Hours Weekly)	288 (63.5 %)	145 (59.4 %)
<u>Perceived Person-Environment Fit</u>		
Not Well At All	17 (3.8 %)	8 (3.3 %)
Moderately Well	126 (27.9 %)	83 (34.0 %)
Very Well	308 (68.1 %)	152 (62.3 %)
<u>Time of Day for Completion of Instruments</u>		
Morning	123 (27.2 %)	61 (25 %)
Afternoon	164 (36.1 %)	86 (35.2 %)
Evening	165 (36.3 %)	97 (39.8 %)

Since Holland's (1997) theory of individual and environmental types suggests that there are six primary types of persons and environments (i.e., Realistic, Investigative, Artistic, Social, Enterprising, Conventional), which combine to form three-point code types that were represented across the low, average, and high fit groups, variability in types found within the current sample was presented visually for the reader using a contingency table. Table 2 displays the frequencies of three-letter individual and environmental code types among Self-Directed Search completers, and the distribution of first letter code types found in the present sample. Individual codes displayed on Table 2 were found using the Self-Directed Search. Environmental codes were found using the Dictionary of Holland Occupational Codes (DHOC; i.e., 237 classified occupations), and O*Net (i.e., 7 classified occupations). Figure 2 displays visual representations of individual and environmental first letter code types among Self-Directed Search completers.

Table 2

*Contingency Table Displaying Frequencies of Individual and Environmental Code Types**(i.e., RIASEC) Among Self-Directed Search Completers (N =244).*

<i>Holland Code Type</i>	<i>Individual (Percentage)</i>	<i>Environment (Percentage)</i>
RAE	2 (0.8 %)	—
RAS	1 (0.4 %)	—
RCE	—	2 (0.8 %)
RCI	3 (1.2 %)	1 (0.4 %)
RCS	1 (0.4 %)	—
REC	1 (0.4 %)	1 (0.4 %)
REI	2 (0.8 %)	—
RES	1 (0.4 %)	4 (1.6 %)
RIC	3 (1.2 %)	1 (0.4 %)
RIE	2 (0.8 %)	1 (0.4 %)
RIS	2 (0.8 %)	2 (0.8 %)
RSA	1 (0.4 %)	—
RSC	1 (0.4 %)	—
RSE	1 (0.4 %)	1 (0.4 %)
Total Percentage of First Letter “R” Code Types	21 (~ 8.5 %)	13 (~ 5 %)
<i>Holland Code Type</i>	<i>Individual (Percentage)</i>	<i>Environment (Percentage)</i>
IAC	1 (0.4 %)	—
IAE	1 (0.4 %)	—
IAS	3 (1.2 %)	—
ICE	1 (0.4 %)	—
ICS	3 (1.2 %)	1 (0.4 %)
IEC	2 (0.8 %)	—
IER	1 (0.4 %)	5 (2.0 %)
IES	2 (0.8 %)	5 (2.0 %)
IRA	2 (0.8 %)	—
IRC	—	1 (0.4 %)
IRE	1 (0.4 %)	3 (1.2 %)
IRS	2 (0.8 %)	2 (0.8 %)
ISA	5 (2.0 %)	—
ISC	1 (0.4 %)	1 (0.4 %)
ISE	4 (1.6 %)	—
ISR	4 (1.6 %)	1 (0.4 %)
Total Percentage of First Letter “I” Code Types	33 (~ 13 %)	19 (~ 8 %)

Table 2 (continued).

Holland Code Type	Individual (Percentage)	Environment (Percentage)
ACS	2 (0.8 %)	—
AER	—	1 (0.4 %)
AES	4 (1.6 %)	3 (1.2 %)
AIR	1 (0.4 %)	—
AIS	3 (1.2 %)	—
ARE	1 (0.4 %)	—
ARS	1 (0.4 %)	—
ASC	2 (0.8 %)	1 (0.4 %)
ASE	5 (2.0 %)	2 (0.8 %)
ASI	2 (0.8 %)	—
ASR	1 (0.4 %)	—
Total Percentage of First Letter “A” Code Types	22 (~ 9 %)	7 (~ 3 %)
Holland Code Type	Individual (Percentage)	Environment (Percentage)
SAC	2 (0.8 %)	3 (1.2 %)
SAE	6 (2.5 %)	17 (7.0 %)
SAI	5 (2.0 %)	2 (0.8 %)
SAR	1 (0.4 %)	—
SCA	1 (0.4 %)	—
SCE	7 (2.9 %)	3 (1.2 %)
SCI	2 (0.8 %)	1 (0.4 %)
SCR	1 (0.4 %)	1 (0.4 %)
SEA	8 (3.3 %)	5 (2.0 %)
SEC	10 (4.1 %)	12 (4.9 %)
SEI	7 (2.9 %)	2 (0.8 %)
SER	1 (0.4 %)	10 (4.1 %)
SIA	8 (3.3 %)	9 (3.7 %)
SIC	1 (0.4 %)	—
SIE	7 (2.9 %)	1 (0.4 %)
SIR	1 (0.4 %)	4 (1.6 %)
SRC	1 (0.4 %)	—
SRE	—	3 (1.2 %)
SRI	1 (0.4 %)	1 (0.4 %)
Total Percentage of First Letter “S” Code Types	70 (~ 29 %)	74 (~ 30 %)

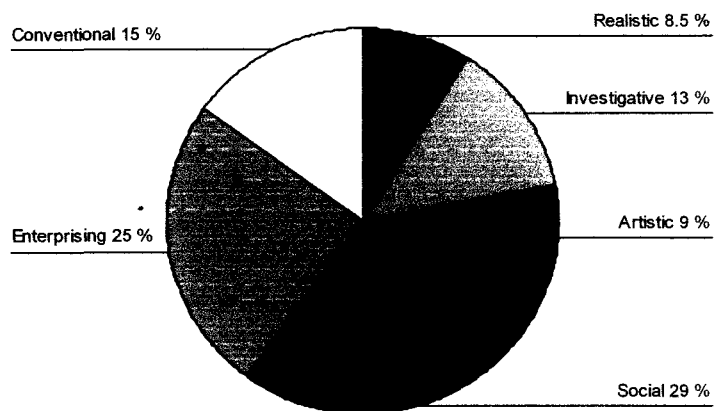
Table 2 (continued).

Holland Code Type	Individual (Percentage)	Environment (Percentage)
EAC	1 (0.4 %)	—
EAS	5 (2.0 %)	1 (0.4 %)
ECA	3 (1.2 %)	—
ECI	1 (0.4 %)	1 (0.4 %)
ECR	—	1 (0.4 %)
ECS	4 (1.6 %)	12 (4.9 %)
EIA	1 (0.4 %)	—
EIS	3 (1.2 %)	—
ERC	—	2 (0.8 %)
ERI	—	1 (0.4 %)
ERS	2 (0.8 %)	5 (2.0 %)
ESA	5 (2.0 %)	14 (5.7 %)
ESC	27 (11.1 %)	16 (6.6 %)
ESI	3 (1.2 %)	4 (1.6 %)
ESR	7 (2.9 %)	41 (16.8 %)
Total Percentage of First Letter “E” Code Types	62 (~ 25 %)	98 (40 %)
Holland Code Type	Individual (Percentage)	Environment (Percentage)
CAE	1 (0.4 %)	—
CEA	1 (0.4 %)	—
CEI	2 (0.8 %)	—
CER	—	1 (0.4 %)
CES	7 (2.9 %)	3 (1.2 %)
CIE	3 (1.2 %)	2 (0.8 %)
CIR	2 (0.8 %)	—
CIS	1 (0.4 %)	—
CRA	1 (0.4 %)	—
CRE	—	1 (0.4 %)
CRI	1 (0.4 %)	—
CRS	—	2 (0.8 %)
CSA	3 (1.2 %)	—
CSE	12 (4.9 %)	17 (7.0 %)
CSI	2 (0.8 %)	2 (0.8 %)
CSR	—	5 (2.0 %)
Total Percentage of First Letter “C” Code Types	36 (~ 15 %)	33 (~ 13.5 %)

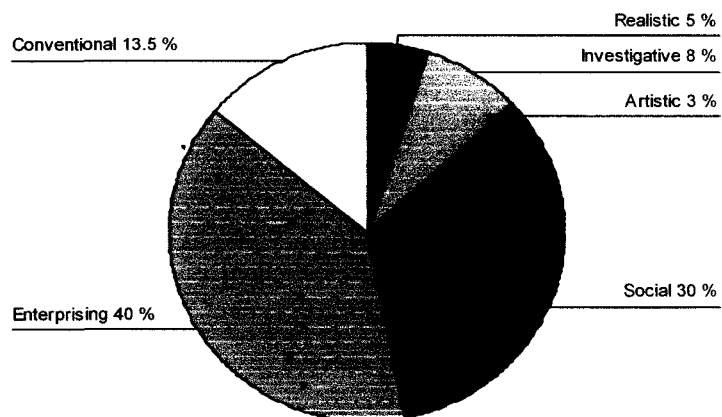
Figure 2

Graphs of Individual and Environmental Code Type Distribution Based on Holland's First Letter Code Types (N = 244).

Individual First Letter Code Type



Environmental First Letter Code Type



As Table 3 displays, among these 244 participants, the interpersonal conflict mean score was 7.01 ($SD = 2.17$), trait anger mean score was 15.98 ($SD = 3.88$), and workplace aggression mean score was 43.06 ($SD = 8.77$). The Person-Environment Fit mean score was 2.12 ($SD = 0.78$). Several demographic variables were found to be correlated among participants who completed the Self-Directed Search. Age was negatively correlated with time of day for completion of the instruments ($r = -.14, p < .03$), and positively correlated with educational background ($r = .34, p < .0001$), hours worked per week ($r = .43, p < .0001$), and yearly income ($r = .68, p < .0001$). Sex was correlated with weekly hours worked ($r = -.17, p < .01$). Employees' perceived job fit was additionally positively correlated with age ($r = .18, p < .01$), and positively correlated with income ($r = .15, p < .02$). Educational background was also correlated with weekly hours worked ($r = .44, p < .0001$) and yearly income ($r = .37, p < .0001$). Yearly income was additionally correlated with time of day for completion of the instruments ($r = -.13, p < .04$).

Additionally, perceived fit was negatively related to interpersonal conflict at work ($r = -.26, p < .01$), and workplace aggression ($r = -.15, p < .05$), and positively related to job satisfaction ($r = .60, p < .01$). Person-Environment fit, measured by the Self-Directed Search, was negatively related interpersonal conflict at work ($r = -.14, p < .05$), and positively related to the Iachan *M* Index ($r = .94, p < .01$). Age was positively related to perceived fit ($r = .18, p < .01$), job satisfaction ($r = .32, p < .01$), and negatively related to trait anger ($r = -.21, p < .01$). Regarding sex, being a woman was negatively related to interpersonal conflict at work ($r = -.18, p < .01$) and workplace aggression ($r = -.22, p < .01$). Job satisfaction was positively related to educational background ($r = .25,$

$p < .01$), hours worked weekly ($r = .26, p < .01$), and yearly income ($r = .30, p < .01$). In contrast to these findings, there was not a significant relationship between participants' perceived levels of fit and their Iachan M Index scores. Table 3 displays the means, standard deviations, and correlations for Self-Directed Search completers on the continuous variables in the present research.

Table 3

Means, Standard Deviations, and Correlations for the Continuous Variables Among Self-Directed Search Completers (N = 244).

<i>VAR</i>	1	2	3	4	5	6	7
1. Age	—						
2. Hours Worked Weekly	.43**	—					
3. Trait Anger	-.21**	-.05	—				
4. Interpersonal Conflict	-.08	.08	.17**	—			
5. Workplace Aggression	-.06	.08	.35**	.44**	—		
6. Job Satisfaction	.32**	.26**	-.04	-.33**	-.22**	—	
7. Iachan M Index	.10	.03	-.02	-.16*	-.04	.14*	—
<i>M</i>	34.81	37.64	15.98	7.01	43.05	21.07	15.70
<i>SD</i>	13.85	12.20	3.88	2.17	8.77	5.49	8.24
Range	18-67	20-84	10-36	4-13	33-94	6-30	0-28
Total Possible Range	18+	20+	10-40	4-20	33-165	6-30	0-28

Note. * $p < .05$; ** $p < .01$; M = Mean; SD = Standard Deviation.

Data Analysis

Data were analyzed using One Way ANOVAs (or a One Way ANCOVA analysis when there were pre-existing group differences) for the three primary research

hypotheses, and Pearson correlations for the final research hypothesis. Congruence was calculated using the Iachan *M* Index that produced a weighted score to determine the degree of letter agreement between the employee's three-letter individual code type, as measured by the Self-Directed Search, and his or her occupation's three-letter environmental code type, as measured by the Dictionary of Holland Occupational Types and O*Net. Employees were then classified into one of three groups, low fit (i.e., lowest third of all possible Iachan values), average fit (i.e., middle third of all possible Iachan values), or high fit (i.e., highest third of all possible Iachan values). Sampling continued until at least 60 participants were classified into each of the three groups for the present research for the detection of a moderate effect (SPSS, Inc. USA, 1997) in the current sample. The correlations, means, standard deviations, and range of scores on the instruments used to measure the variables of this research are found in Table 3. Table 4 displays the means and standard deviations for the effects of low, average, and high levels of Person-Environment fit on the dependent variables.

Table 4

Mean and Standard Deviation For Low, Average, and High Levels of Fit on Trait Anger, Interpersonal Conflict at Work and Workplace Aggression Among Self-Directed Search Completers.

Dependent Variable	Low Fit		Average Fit		High Fit	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Trait Anger (<i>N</i> = 241)	15.90 (<i>n</i> = 61)	4.46	16.25 (<i>n</i> = 89)	3.60	15.76 (<i>n</i> = 91)	3.75
Interpersonal Conflict At Work (<i>N</i> = 242)	7.48 (<i>n</i> = 61)	2.15	7.01 (<i>n</i> = 90)	2.18	6.69 (<i>n</i> = 91)	2.13
Workplace Aggression (<i>N</i> = 241)	43.20 (<i>n</i> = 61)	8.00	43.42 (<i>n</i> = 89)	8.45	42.60 (<i>n</i> = 91)	9.60

Note. *M* = Mean; *SD* = Standard Deviation; *n* = Number of Participants Assigned to the Condition.

Research Hypothesis 1

There will be a difference in trait anger based on type of congruence between individual personality type and environmental type.

There was not a significant difference in trait anger based on Person-Environment fit ($F(2, 238) = .37, p > .05$). Levene's statistic found that the assumption of homogeneity of variance was not violated during this analysis. Table 5 displays these findings.

Research Hypothesis 2

There will be a difference in interpersonal conflict at work based on type of congruence between individual personality type and environmental type.

There was not a significant difference in interpersonal conflict at work based on Person-Environment fit ($F(2, 239) = 2.41, p > .05$). As with the previous analysis, Levene's statistic found that the assumption of homogeneity of variance was not violated during this analysis. Table 5 displays these findings.

Research Hypothesis 3

There will be a difference in workplace aggression, controlling for level of trait anger and interpersonal conflict at work, based on type of congruence between individual personality type and environmental type.

Preliminary checks were conducted to examine potential violations of the assumptions of this analysis (i.e., normality, linearity, homogeneity of variances, homogeneity of regression slopes, reliable covariate measurement). Trait anger and interpersonal conflict at work were evaluated as potential covariates for use in this question. Trait anger was found to have violated the assumption of homogeneity of regression slopes, indicating differences across groups in the relationship between the

covariate and workplace aggression and was not included in the subsequent analyses. Interpersonal conflict at work did not violate this assumption. After adjusting the control variables to include only interpersonal conflict at work, the full model was significant ($F(3, 237) = 18.95, p < .001$). In examining individual effects, there was a significant difference in workplace aggression across employees' levels of interpersonal conflict at work ($F(1, 237) = 56.35, p < .001$). However, there was not a significant difference in workplace aggression based on Person-Environment fit ($F(2, 238) = .37, p > .05$). Levene's statistic found that the assumption of homogeneity of variance was not violated. Table 5 also displays these findings.

Table 5

One-Way Analysis of Variance for Effects of Person-Environment Fit on Trait Anger and Interpersonal Conflict at Work, and One-Way Analysis of Covariance for Effect of Person-Environment Fit on Workplace Aggression Among Self-Directed Search Completers.

<i>Variable and Source</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>
<u>Trait Anger</u>				
Between Groups	2	11.20	5.60	0.37
Within Groups	238	3596.65	15.11	
<u>Interpersonal Conflict at Work</u>				
Between Groups	2	22.40	11.20	2.42
Within Groups	239	1107.59	4.63	
<u>Workplace Aggression</u>				
Between Groups	2	38.99	19.49	0.31
Within Groups	237	14880.75	62.79	

Note. *df* = Degrees of Freedom; *SS* = Sum of Squares; *MS* = Mean Square; *F* values listed were not statistically significant.

Research Hypothesis 4

The previously established relationships between job satisfaction and Person-Environment fit, and job satisfaction and workplace aggression, will be replicated in the current sample.

Research Hypothesis 4 investigated whether Person-Environment fit and job satisfaction were positively related and whether workplace aggression and job satisfaction were negatively related in the current sample to support the validity of the present findings. The continuous variable, the Iachan *M* Index (i.e., Range = 0-28), was used to represent Person-Environment fit, in the examination of the potential relationship between Person-Environment fit and job satisfaction, rather than the categorical variable of fit representing low, average, and high fit conditions (i.e., Range = 1-3). The null hypothesis was rejected, and a positive relationship was replicated between job satisfaction and congruence that has been found in previous samples that have investigated Person-Environment fit (e.g., Assouline & Meir, 1987; Meir, Tziner, & Glazner, 1997; Tranberg, Slane, & Ekeberg, 1993) in support of concurrent validity. Additionally, a negative relationship was replicated between job satisfaction and workplace aggression that has been found in previous samples that have investigated workplace aggression in support of discriminant validity (e.g., Herschovis, et al., 2007). Table 6 displays these findings.

Table 6

Means, Standard Deviations, Ranges, and Correlations Between Job Satisfaction, Person-Environment Fit, and Workplace Aggression Among Self-Directed Search Completers (N= 244).

<i>Variable</i>	<i>1</i>	<i>2</i>	<i>3</i>
1. Job Satisfaction	—		
2. Person-Environment Fit	.14*	—	
3. Workplace Aggression	-.26**	-.04	—
<i>M</i>	21.07	2.12	43.05
<i>SD</i>	5.49	0.78	8.77
<i>Range</i>	6-30	1-3	33-165

* $p < .05$; ** $p < .01$

Note. Person-Environment Fit = IACHAN *M* Index Values; *M* = Mean; *SD* = Standard Deviation.

CHAPTER IV

DISCUSSION

The purpose of the present research was to increase knowledge about the potential effects of employees' fit with their occupational environments on trait anger, interpersonal conflict at work, and workplace aggression. The Self-Directed Search (Holland et al., 1994) was used to measure Person-Environment Fit as calculated by the Iachan *M* Index (Iachan, 1984). The Trait Scale of the State-Trait Anger Expression Inventory-2 (Spielberger, 1999, 1996) was used to measure trait anger. The Interpersonal Conflict at Work Scale (Spector & Jex, 1998) was used to measure employees' levels of interpersonal conflict in their work environments. The adapted version (Rutter & Hine, 2005) of the Workplace Aggression Scale (Baron & Neuman, 1996) was used to measure employees' acts of workplace aggression in their work environments. The Overall Job Satisfaction Scale (Agho, Price, & Mueller, 1992) was used to measure job satisfaction for the examination of concurrent and discriminant validity in the present sample. This chapter includes a summary of the findings as they relate to the primary constructs examined in the present research. It also includes a discussion of the results, limitations of the present research, implications for counseling, and recommendations for future research.

Trait Anger

In the present research, Person-Environment fit, as measured by the Self-Directed Search and calculated using the Iachan *M* Index, did not affect participants' levels of trait anger. This finding differs from Hershcovis et al.'s (2007) suggestion that individuals who are high on trait anger are more easily provoked during situations that they perceive as frustrating. While the current review of the literature yielded no previous studies

focused on the effect of Person-Environment fit on trait anger, in accordance with Holland's (1997) theory that assumes a lack of environmental fit leads to a variety of negative outcomes (e.g., low job performance and job dissatisfaction), it was originally anticipated that individuals who were not a good fit with their work environments would be more likely to report higher levels of anger than those who fit better with their environments. However, that finding was not reflected in the current sample.

In the present research, participants were employed in the same or a similar setting for approximately 2 years or more, suggesting they likely had the opportunity to develop relationships in their work environments that were fairly well established at the time they completed the instruments for this study. Dunn and Schweitzer (2005) found anger was more likely to disrupt trust in situations involving perceived injustice within new relationships. While it was not anticipated that workplace aggression was limited to new employees, it is possible that participants in the present sample experienced less disruption by feelings of anger, because they had the ability to address feelings within their well-established relationships. This may have been true across the three levels of Person-Environment fit (i.e., low fit, average fit, high fit). Placing value on working with others to address feelings appears to be consistent with the values of Social individuals according to Holland's (1997) research, who are likely to value their social relationships and display interest in understanding others. Notably, Social individuals were well represented in the current sample (i.e., more than $\frac{1}{4}$ of the participants who completed the Self-Directed Search).

Previous research has demonstrated that a variety of factors, including low self-esteem and low levels of agreeableness, are significantly related to trait anger (Kuppens, 2005). While a relationship with Person-Environment fit was not found, trait anger was

positively related to workplace aggression in the present research, consistent with previous findings by Douglas and Martinko (2001). Accordingly, significant positive correlations between trait anger and the other dependent variables in the present research (i.e., interpersonal conflict at work, workplace aggression) were consistent with the findings of previous studies (e.g., Herchovis et al., 2007). The present research replicated previous findings that trait anger predicts interpersonal conflict at work and workplace aggression.

Interpersonal Conflict at Work

In the present research, Person-Environment fit was not found to affect participants' levels of interpersonal conflict at work. This differed from the findings of Herschovis et al. (2007) that indicated that employees who experience frequent interpersonal conflicts with co-workers were more likely to engage in workplace aggression than those who do not experience negative social influences in the workplace. While the current review of the literature yielded no previous studies focused on the effect of Person-Environment fit on interpersonal conflict at work, it was originally anticipated that when an employee's personality type differs from the predominant environmental type that there may be particular risk for victimization through interpersonal conflict at work related to the lack of environmental fit and corresponding lack of overlap in personalities and values with other co-workers. Since low-fit employees have selected work environments that are inconsistent with their primary skills and values, it was anticipated based on Holland's (1997) theory that there may be social consequences (e.g., interpersonal conflict at work) that accompany the lack of fit.

Notably, when the effect of participants' perceived levels of fit was examined with interpersonal conflict at work using an ancillary One-Way Between Groups

ANOVA, a significant difference was found. Participants were divided into three groups according to their perceived fit with their work environments (Group 1 = *Not Well At All*; Group 2 = *Moderately Well*; Group 3 = *Very Well*), and the difference between the groups was statistically significant at the $p < .01$ level ($F(2, 238) = 8.00, p < .01$). The effect size, calculated using eta squared, was .06, suggesting a medium sized effect (Cohen, 1988). Post-hoc comparisons using Tukey's HSD analysis indicated that the difference was between participants who believed they fit moderately well ($M = 7.71$; $SD = 2.28$; 34 % of Self-Directed Search completers) and very well ($M = 6.58$; $SD = 1.94$; 63 % of Self-Directed Search completers) with their occupations, which yielded a mean difference score of 1.13. This suggests that those with high levels of perceived fit reported significantly less conflict with their co-workers than those with average levels of perceived fit. Tukey's HSD analysis indicated that there was not a statistically significant difference in interpersonal conflict at work between those with low levels of perceived fit ($M = 7.5$; $SD = 2.88$), and the other two groups. It should be noted, however, that this may be accounted for by the low representation of participants who reported that they did not fit well at all with their jobs (3 % of Self-Directed Search completers) in the present research. It appears likely that the low perceived fit group size was too small to reflect a possible effect (SPSS, Inc. USA, 1997) in the current sample.

While the primary research hypothesis was not supported, Glomb and Liao's (2003) explanation of the reciprocal nature of aggression, where being victimized by aggressive acts from others leads to subsequent aggressive acts toward others, was consistent with the findings of the present research. Specifically, being a victim of interpersonal conflict at work was positively related to committing acts of workplace aggression in the current sample. This relationship was consistent with the meta-analytic

findings of Herschovis et al. (2007), who also found a significant positive relationship between interpersonal conflict at work and workplace aggression in their examination of 57 empirical studies.

Additionally, a negative relationship was found between Person-Environment fit, and interpersonal conflict at work, ($r = -.14, p < .05$) suggesting that as Person-Environment fit increased, levels of interpersonal conflict at work decreased in the current sample. Accordingly, while Person-Environment fit did not appear to lead to differences in interpersonal conflict at work, a notable relationship was found between these two constructs, suggesting an employee's level of actual fit is relevant for understanding victimization by interpersonal conflict at work. When an employee does not fit well with his or her job, conflict with co-workers is also likely to occur, which is problematic as noted by Skarlicki and Folger (1997) because those who are frequently victimized in the workplace have been found to be more likely to retaliate aggressively against others than those who were not regularly victims of abuse in the workplace.

Workplace Aggression

In the present research, Person-Environment fit did not affect participants' acts of workplace aggression when controlling for individuals' levels of interpersonal conflict at work. In the current sample, Person-Environment fit (i.e., the grouping variable) was found to be negatively related to interpersonal conflict at work (i.e., the covariate). Miller and Chapman (2001) pointed out that it is typically not advisable to use a covariate when groups differ on the covariate. Accordingly, it was possible that the use of this covariate may have been problematic in the present research. To explore this possibility in an ancillary analysis, a One Way Between-Groups ANOVA was conducted to examine the potential effect of Person-Environment fit on workplace aggression in the absence of a

control variable. Consistent with the previous ANCOVA findings, there was not a significant effect of Person-Environment fit on workplace aggression. This suggests that the inclusion or omission of interpersonal conflict at work as a covariate did not significantly impact the results obtained in the present research.

The potential effect of Person-Environment fit on workplace aggression was examined based on the findings of Inness et al. (2005), which indicate that employees' instances of workplace aggression in their current work environments were not significantly related to their reported instances of workplace aggression in previous work environments. The situational factor of environmental fit was expected to significantly impact whether employees' committed acts of workplace aggression, related to Inness et al.'s research that found situational factors specific to particular jobs accounted for a significant proportion of the variance in acts of employee aggression. While the current review of the literature yielded no previous studies focused on the effect of Person-Environment fit on workplace aggression, it was anticipated based on the findings Inness et al. that participants' choice to act aggressively in a particular organizational context is partially determined by an individual's fit within the current work environment.

The lack of significant findings may be partially explained because of the positive relationships found with trait anger and interpersonal conflict at work in the current sample, which appear to better explain participants' variability in their levels of workplace aggression. Additionally, the results of the present research appear to be generally consistent with the findings of Gottfredson and Holland (1990) who failed to find a significant correlation between Person-Environment fit and counterproductive work behaviors, as measured by their 11 item self-report instrument to assess counterproductive work behaviors. Specifically, Gottfredson and Holland found that

among individuals with Social, Enterprising, Investigative, and Conventional personality types, there was no relationship between Person-Environment fit and counterproductive work behaviors. Interestingly, the current sample was comprised primarily of individuals with Social, Enterprising, Investigative, and Conventional personality types (i.e., approximately 82 percent of Self-Directed Search completers), and mirroring the findings of Gottfredson and Holland, a relationship was not found between the independent variable, Person-Environment fit, and the dependent variable, workplace aggression.

Job Satisfaction

In the present research, a positive relationship between Person-Environment fit and job satisfaction, and a negative relationship between workplace aggression and job satisfaction replicated the findings of previous studies (e.g., Assouline & Meir, 1987; Herschovis et al., 2007; Meir, Tziner, & Glazner, 1997; Tranberg, Slane, & Ekeberg, 1993). It should be noted that the continuous variable, the Iachan *M* Index (i.e., Range = 0-28), was used to represent Person-Environment fit, in the examination of the relationship between Person-Environment fit and job satisfaction, rather than the categorical variable of fit representing low, average, and high fit conditions (i.e., Range = 1-3).

The present research was consistent with Assouline and Meir's (1987) meta-analytic findings that supported a positive relationship between congruence and job satisfaction. Additionally, the present research was consistent with Herschovis et al.'s (2007) meta-analytic findings that supported a negative relationship between workplace aggression and job satisfaction. Collectively, these relationships support the concurrent and discriminant validity of the present findings. Specifically, as congruence and job satisfaction have been positively related in previous samples used in meta-analytic

findings (Assouline & Meir), this relationship was concurrently found in the present research, suggesting the current sample is comparable to previous samples that have been collected in the study of Person-Environment fit. Similarly, as workplace aggression and job satisfaction have been negatively related in previous samples used in meta-analytic findings (Herschovis et al.), this relationship was also found in the present research, suggesting the current sample was comparable to previous samples that have been collected in the study of workplace aggression.

Limitations of the Present Research

There were several limitations of the present research relevant to considerations of internal and external validity. These included range restriction on several of the variables of interest, sampling issues, small representation of participants who perceived their job fit as low in the current sample, the generalizability of the sample, and the drop out rate after partial completion of the research instruments. A discussion of these limitations is presented below including possible explanations of the impact of these limitations.

Range Restriction

One limitation of the present research was range restriction involving some of the variables of interest in the present research. For example, participants' levels of Person-Environment fit as examined through ANOVAs in the present research were restricted to three groups (i.e., low, average, high). This method for grouping fit may not have adequately accounted for the variance in fit in the current sample. Similarly, participants' levels of perceived fit with their work environments were also restricted to three groups in the present research.

Sampling Issues

Another limitation of the present research was that in obtaining the current sample, the majority of participants who completed the Self-Directed Search represented Social (29 %), Enterprising (25 %), Conventional (15 %), and Investigative (13 %) personality types employed in Enterprising (40 %), Social (30 %), and Conventional (13.5 %) occupations. Although Artistic occupations accounted for only approximately 3 % of the current sample they were well represented relative to the national average (Reardon, Bullock, & Meyer, 2007) that indicated Artistic occupations represented only 1 % of all occupations. Accordingly, the frequency of Artistic occupations will not be highlighted in this discussion of factors that may be accounting for the lack of significant findings in the present research. However, one explanation for the lack of significant findings for the effect of Person-Environment fit on trait anger in the current sample may be the low representation of Realistic environments.

A study of RIASEC types using the 281,421,906 individuals included in national census data (Reardon, Bullock, & Meyer, 2007) indicated that in 2000, Realistic (30 %) and Enterprising (30 %) occupations represented the most frequent types of environments where individuals were employed. This contrasts with the current sample in which Realistic types of environments represented only 5 % of participants' occupations, and Realistic types of individuals represented only 8.5 % of the current sample. Accordingly, when participants were classified as low fit in the present research, they were unlikely to have been employed in Realistic occupations that require mechanical abilities (Holland, 1997), which may lead to feelings of anger and frustration in situations where the person is not a high actual fit with the job. For example, it would be anticipated that an employee who is expected to fix a car engine, but prefers helping or managing others, may become

chronically irritated when asked consistently to perform tasks that do not match with his or her interests and abilities.

This lack of equal representation across the types is important in interpreting the present findings because the sample was primarily comprised of Social and Enterprising individuals and work environments, and the degree to which a low fit Realistic or Artistic individual would experience anger, conflict with co-workers, and workplace aggression is largely unknown based on the composition of the current sample. It is possible that employees who work primarily with mechanical objects, rather than other individuals, may respond differently to a lack of fit and produce a different pattern of findings. While it is beyond the scope of the present research, it should be noted that a chi-square analysis could explore differences in patterns of anger, conflict with co-workers, and aggression across the six types in a sample where each of the types are more evenly represented.

Small Representation of Low Perceived Person-Environment Fit

The small representation of employees who reported a low level of perceived environmental fit with their current occupations was another potential limitation of the present research. Specifically, less than 4 % of participants who completed the Self-Directed Search reported that they believed they did not fit well at all with their current occupations. This suggests that many of the 25 % of Self-Directed Search completers who were assigned to the low fit condition based on their Iachan *M* Index likely did not perceive their fit as low. Accordingly, although participants were divided into low, average, and high fit conditions based on their actual levels of fit with their environments, the majority of participants who completed the Self-Directed Search (i.e., more than 96 percent) in the present sample reported that they perceived themselves as fitting moderately well or very well with their environments. It is possible that a significant

effect of Person-Environment fit may not have been found in the current sample because the majority of participants who were assigned to the low fit group based on their Iachan *M* Indexes perceived their fit as greater than was indicated by their Self-Directed Search results.

Another possible explanation is that employees who were classified as low fit did not have well differentiated code types. With an individual who is not well differentiated, there will not be a large difference between the highest and lowest code type scores (Reardon & Lenz, 1998). Accordingly, many of the participants who were classified as low fit may have reported interests in a wide range of areas on the Self-Directed Search, making their Holland code types more ambiguous to interpret.

It should be noted that perceived fit was assessed in the present research through a single question included on the demographics questionnaire, asking participants to specify how well they believe that they fit with their jobs (i.e., *Not Well At All*, *Moderately Well*, *Very Well*), rather than an established reliable and valid measure of perceived fit or a measure with anchors helping to define fit. Perceived fit was not intended in the present research as an independent variable of interest. The reason for including only a single question aimed at assessing perceived fit was that it was initially intended as a check point for participants' actual fit in the current sample. However, this is comparable to previous research that has also used subjective questioning (e.g., "To what extent does your personality match with the personality or image of the organization") in their assessment of perceived fit (Piasentin & Chapman, 2006, p. 207). Specifically, Piasentin and Chapman found 11 previous empirical studies referenced perceived fit between individual and environmental values using a single item, suggesting

the assessment of perceived Person-Environment fit in the present research appears to be comparable to previous research conducted in this area.

In understanding the small representation of low perceived Person-Environment fit in the current sample, it should be noted that the Self-Directed Search computer scoring program (Reardon & PAR Staff, 2001) also yielded a small representation of low Person-Environment fit, relative to the representation of average Person-Environment fit in the present research. Notably, the method used for assigning actual Person-Environment fit to participants in the present research differed from the method that is used with the Self-Directed Search scoring program, which is separated based on the norms associated with the Iachan *M* Index (Reardon & PAR Staff). Specifically, the method used for assigning participants to each of the three groups (i.e., low fit, average fit, high fit) in the present research involved dividing all possible Iachan *M* Indexes (i.e., weighted scores ranging from 0-28; where 3, 7, 15, 17, 18, 19, and 25 are not possible values) into thirds. Those with Iachan *M* Indexes in the first 1/3 were labeled low fit, the middle 1/3 were labeled average fit, and the final 1/3 were labeled high fit. This method for labeling low, average, and high fit differs from the labels that are generated through the Self-Directed Search computerized scoring method (Reardon & PAR Staff). With the computerized scoring method, there is not an equal division of all possible indexes, and accordingly the majority of Iachan *M* Indexes are labeled “average fit.” In fact, dividing the current sample into groups using the computerized scoring method of classification would yield 50 low fit participants, 151 average fit participants, and 43 high fit participants, and would not have allowed for comparable groups or sufficient power (SPSS, Inc. USA, 1997) to conduct an analysis of variance to address the present research hypotheses.

Due to the high portion of the current sample who represented average fit using the computerized scoring program, it is possible that significant differences based on Person-Environment fit may have been found in a sample that included significantly more extreme scores. For example, a sample targeting part-time jobs with high turnover rates (i.e., more likely to produce many low fit participants), and full-time occupations with employees working 5 years or more in the same setting (i.e., more likely to produce many high fit participants).

Generalizability: Limited Representation of Men, Ethnically Diverse Participants, and Individuals who Had Not Attended College

Another potential limitation that may impact the generalizability of the present findings was the low representation of men, ethnically diverse participants, and individuals who had not attended college. Specifically, less than 33 % of Self-Directed Search completers were men, indicating that the current sample was most representative of women. This may be a relevant consideration when interpreting the results of the present research because of previous studies that have examined the impact of individual differences in aggression, suggesting that sex may moderate the performance of aggressive behaviors in interpersonal relationships (e.g., Archer, 2000; Mussweiler & Forster, 2000). Meta-analytic findings from a series of 82 studies related to aggression occurring in relationships, found that while men were more likely to cause physical injury to their partners, women were actually more likely than men to engage in acts of physical aggression (e.g., slapping) toward their partners. This appears to suggest that the strong representation of women in the current sample was unlikely to restrict the potential for detecting an effect with aggression in the present research. However, it should be noted

that men were positively related to experiencing interpersonal conflict at work and committing acts of workplace aggression in the current sample.

Further, 82 % of Self-Directed Search completers were Caucasian American, indicating that the generalizability of the present findings to ethnically diverse individuals is largely unknown. While African American participants comprised approximately 12 % of the remaining participants, there were no Hispanic Americans in the current sample, and Asian Americans, Pacific Islanders, American Indians and Alaskan Natives collectively made up less than 3 % of participants. While the majority of participants in the current sample were full-time employees, who represented a variety of socioeconomic backgrounds, the present findings likely have limited generalizability to those who have not completed at least some college, as individuals who had not attended college comprised only approximately 8 % of the current sample.

Drop-Out Rate of Participants

Another potential limitation of the present research was the drop out rate of participants after partial completion of the instruments. As noted by Dell, Schmidt, and Meara (2006) different response rates across the conditions can produce a selection threat and compromise the internal validity of the research. In the present research, it was not possible to assign all of the participants to the low, average, and high conditions, because approximately half of the total number of part-time and full-time employees who signed onto the Internet website that contained the on-line research instruments did not complete the Self-Directed Search instrument used to assign participants into low, average, or high fit groups. This contrasts with the findings of Kiesler and Sproull (1986) that suggest that Internet surveys are associated with fewer omitted items. Altman and Bland (2007) explain that typical ways of managing missing data include eliminating variables that

have frequent omissions, estimating the values of intended items, and eliminating participants who display frequent omissions. Since it was not possible to estimate non-completers actual levels of environmental fit and eliminating the actual fit of participants would have required the elimination of the independent variable for the present research, the final method was employed to eliminate participants who did not complete the Self-Directed Search from the examination of the research questions of interest. Accordingly, while relationships between job satisfaction and Person-Environment fit, and job satisfaction and workplace aggression supported the generalizability of the current findings, this can only be inferred for those participants who completed the Self-Directed Search.

One possibility is that many participants stopped prior to completing the Self-Directed Search and providing their three-letter Holland code types generated by this instrument, because they were required to open another Internet window and follow additional directions to complete the copyrighted Self-Directed Search on the official Internet website. Further, participants were asked to provide a password to access their three-letter Holland code type, and may have been required to attempt several password options provided on the primary website before successfully obtaining their Self-Directed Search results. Although the directions on the primary website instructed participants to attempt multiple passwords in instances where the first password did not work, it appears many participants in the total sample became frustrated with this process, and chose to drop out of the study prior to completion of all of the research instruments. Accordingly, the present research was limited by the use of on-line research instruments contained on two separate websites. Based on the high number of participants who dropped out prior to completing all of the research instruments, it is clear that it would have been beneficial to

select instruments that could be contained on the same website to improve the overall response rate.

Recommendations for Future Research

In considering the implications of the present research, it is recommended that other researchers who are using on-line research select research instruments that can be presented to participants using a single website. It is clear that the added challenge of transitioning to a second website to complete a portion of the research instruments added to the complexity of participating in the present research and contributed to the high drop out rate. It is also recommended that future research may examine the impact of participants' levels of perceived fit with their environments on their subsequent behaviors, based on ancillary findings that perceived Person-Environment fit affected participants' levels of conflict with their co-workers. It appears that further examination of relationships found with interpersonal conflict at work will be beneficial based on the many significant relationships (e.g., trait anger, workplace aggression, job satisfaction) found with this construct in the present research. In addition, recruiting employees who are likely to represent low levels of perceived job fit (e.g., part-time employees of jobs with high turnover rates), work environments where mechanical tasks are emphasized, and employees representing low socioeconomic backgrounds will be beneficial in addressing many of the gaps in the current sample. The following section summarizes areas for future research to expand the present findings in a variety of areas.

Areas for future research include examination of the impact of the following:

- 1) possible mediating effects of interpersonal conflict at work,
- 2) actual and perceived fit on workplace aggression in men, ethnically diverse employees, and employees who have not attended college,
- 3) actual and perceived fit in work environments not well

represented in the present research based on national census data, 4) perceived person-environment fit on counterproductive work behaviors, 5) perceived fit on anger management treatment outcomes, 6) themes in workplace aggression across each of the Holland types, 7) academic fit on trait anger and aggression, and 8) actual fit on workplace aggression in adolescents.

Possible Mediating Effects of Interpersonal Conflict at Work

Hershcovis et al. (2007) conducted a meta-analysis of 57 empirical studies related to workplace aggression and found that interpersonal conflict at work was related to organizational forms of workplace aggression and predicted employee retaliation through relational forms of workplace aggression. In the current sample, this positive relationship between interpersonal conflict at work and workplace aggression was replicated.

Additionally, interpersonal conflict at work was negatively related to both perceived and actual Person-Environment fit, as well as job satisfaction. Suls, Martin, and David (1998) found that individuals higher in agreeableness were more distressed when faced with interpersonal conflict than less agreeable individuals. Further, workplace aggression was negatively related to job satisfaction. Based on these findings, further research may explore the impact of interpersonal conflict at work as a potential mediator in the relationship between perceived and actual Person-Environment fit and workplace aggression.

The Impact of Person-Environment Fit on Workplace Aggression in Men, Ethnically Diverse Employees, and Employees who Have Not Attended College

Future studies may also examine the impact of perceived and actual Person-Environment fit on workplace aggression in groups that were not well represented in the current sample, such as men, ethnically diverse employees, and employees who have not

attended college. Further understanding of individual differences in workplace aggression in men may be particularly important based on findings by Archer (2000) and Mussweiler and Forster (2000) that suggest sex may moderate the performance of aggressive behaviors in interpersonal relationships. Additionally, exploration of the impact of Person-Environment fit on workplace aggression among ethnically diverse employees will aid in determining whether the present findings are generalizable to employees representing other ethnic groups, such as Hispanic Americans. Notably, the current sample was particularly well-educated with over 90 percent attending some college or more. Consistent with Holland's (1997) report that level of educational attainment may influence job-related outcomes, exploration of the impact of Person-Environment fit on workplace aggression among employees who have not attended college may be helpful in informing research in this area.

The Impact of Fit on Workplace Aggression in Realistic Environments

When comparing the distribution of environments sampled in the present research to the national average (Reardon, Bullock, & Meyer, 2007), there was a relatively low representation of Realistic types of environments. Accordingly, it may be beneficial in additional studies to examine these types of environments more closely since they were not well represented in the current sample. For example, future research may examine the effect of perceived and actual Person-Environment fit on workplace aggression and its correlates among employees of Realistic environments. This would expand on the present research in determining whether anger, conflict with co-workers, and workplace aggression are found in employees who are working primarily with objects, rather than other individuals, since it is relatively unknown how the present findings generalize to members of this group.

The Impact of Perceived Person-Environment Fit on Counterproductive Work Behaviors

A growing body of research has examined the impact of employees' perceived levels of Person-Environment fit (e.g., Amram, 2004; Cable & DeRue, 2002; Cooper-Thomas, van Veenin, & Anderson, 2004; Saks & Ashforth, 2002) on various organizational outcomes, including employee socialization, work-related attitudes, and employee turnover (Mosley, 2002). Perhaps additional research exploring the effect of Person-Environment fit on counterproductive work behaviors, such as workplace aggression and its correlates, may be examined in future studies based on employees' perceived Person-Environment fit, using a reliable and valid measure of this construct.

The Effect of Perceived Person-Environment Fit on Anger Management Outcomes

Previous research has suggested differences in various factors, such as life satisfaction (Zao, 2002) and job satisfaction (Resick, Baltes, & Shantz, 2007), based on individuals' levels of perceived environmental fit. Ancillary findings in the present research indicated that perceived Person-Environment fit significantly impacted participants' levels of interpersonal conflict at work, suggesting that those who believed they fit very well with their work environments reported less conflict with coworkers than those who perceived their fit as moderate. A future treatment study could contribute to this research by examining potential differences in outcomes for anger management training among those who believe they do not fit at all, fit moderately well, or fit very well with their current jobs. It may be found, for example, that employees' who perceive their job fit as low may be more likely to engage in aggressive behaviors in their work environments. It is anticipated that they would be likely to display a reduced fear of potential consequences for becoming aggressive (e.g., getting fired) compared to those

who perceive their job fit as high who likely view the potential consequence of losing their jobs as a significant deterrent from acting aggressively.

Themes in Workplace Aggression Across Each of Holland's Types

A qualitative study may also be beneficial for identifying themes in aggression among those who engage in workplace aggression that could be conducted across individuals representing Realistic, Investigative, Artistic, Social, Enterprising, and Conventional environments. In the present research, Social and Enterprising types were the most well-represented, and the ways Realistic and Artistic types experience anger and aggression remain largely unknown. Accordingly, a future study could aid with determining whether different themes (e.g., physical aggression toward individuals, physical aggression toward objects, verbal aggression toward individuals) emerge across the various environmental types. For example, it would be expected that the most frequent types of aggression found in a Social environment (e.g., teacher) where people work with others would be different from those found in a Realistic work environment (e.g., carpenter). In the present research the strong representation of Social individuals and environments may have naturally led to the resolution of anger and aggression based on the value Social individuals place on working with others in relationships (Holland, 1997). It is suggested that a qualitative study examining themes across types would be complementary to other qualitative research that has been conducted in the area of Person-Environment fit, such as research conducted by Blustein, Phillips, Jobin-Davis, Finkelberg, and Roarke (1997) that examined factors including job knowledge and flexibility in decision making.

The Impact of Academic Fit on Trait Anger and Aggression

While the present research examined Person-Environment fit in the context of work environments, the impact of fit in academic environments may be a further area of extension for the present research. Smart and Feldman (1998) explained that “growing evidence (indicates) that patterns of student change and stability in a number of important outcomes vary depending on their academic majors, and those patterns are generally consistent with expectations from Holland’s theory” (p. 390). The previous research examining fit with academic environments has explored a variety of areas including personality, self-concept, career options, self-efficacy, social support, persistence beyond abilities, cultural and social growth, career indecision (Lent, Brown, & Larkin, 1987; Raphael & Gorman, 1986; Schaefer, Epperson, & Nauta, 1997; Smart, 1997; Wallace & Walker, 1990). Future studies may extend this research to examine whether students whose values and interests greatly differ with their college majors affect levels of anger and aggression toward their instructors and classmates.

The Impact of Person-Environment Fit on Workplace Aggression in Adolescents

Additionally, the impact of Person-Environment fit on trait anger, interpersonal conflict at work, and workplace aggression may be examined in other groups, such as adolescents who are working in part-time jobs. Chappell and Di Martino (2006) reported that young workers are particularly at risk for becoming victims of workplace aggression. Hughes and Tadic (1998) drew similar conclusions in their research involving young women employed in retail work environments, where 2/3 reported experiencing sexual harassment from previous customers. Accordingly, exploring the role of Person-Environment fit with this group may be beneficial in increasing knowledge of risk factors among adolescents.

Collectively, these suggestions for future studies have aimed to extend the research in the areas of workplace aggression and Person-Environment fit. It is hoped that as scientific knowledge of the impact of fit in Realistic, Investigative, Artistic, Social, Enterprising, and Conventional environments on workplace aggression and its correlates is broadened across a variety of populations that counseling psychology will come closer to addressing the growing problem of workplace aggression and increase understanding of the impact of Person-Environment fit.

Implications for Counseling Psychology

Neuman and Baron (2005) suggested that both social-situational factors and individual difference variables serve as precursors to the physiological arousal, negative affect, and hostile cognitions that lead to aggression. Although a significant difference in levels of workplace aggression based on the individual difference factor of Person-Environment fit was not found in the present research, significant positive relationships were found between trait anger, interpersonal conflict at work, and workplace aggression. The presenting findings support both trait anger and conflict with co-workers as relevant areas of consideration when addressing workplace aggression. Previous studies by Johnson and Indvik (1994) and Nicoletti and Spooner (1996) have demonstrated that it is helpful to target the growing problem of workplace aggression. For example, current research on workplace aggression indicates that organizational strategies focused on assisting employees with managing their difficulties with aggression and interpersonal conflict at work can be beneficial (e.g., Johnson & Indvik, 1994; Nicoletti & Spooner, 1996).

It is hoped that the present research may assist counseling psychologists in considering relevant factors when working with clients through a scientist-practitioner

perspective in the treatment of anger management problems and difficulties with environmental fit. For example, the positive relationship replicated in the current sample between Person-Environment fit and job satisfaction, indicates that it may be beneficial to assess for Person-Environment fit, using the Self-Directed Search (Holland, 1994) or another assessment of fit, when employees present for counseling services for work-related difficulties. For clients who are found to be a low fit with their current jobs based on their Self-Directed Search results, alternative job options that may be a better fit with their personalities can be discussed. Counseling psychologists may inform their clients that some previous research, such as the present study and meta-analytic findings by Assouline and Meir (1987), has suggested that having a high level of fit with your work environment is positively related to feeling satisfied with your job. Possible questions for clients in addressing their fit with their work environments include “Tell me a little bit about what led you to select your present job,” and “When you think about your future as an employee, where would you like to see yourself in five years?” Overall, it is suggested that the positive relationships between trait anger, interpersonal conflict at work, and workplace aggression found in the current sample should be considered when working with clients who present for counseling services with anger management difficulties. In addition, it is recommended that the positive relationship between Person-Environment and job satisfaction replicated in the current sample is taken into account when working with clients with work-related problems.

Conclusion

The present research has aimed to expand knowledge of Person-Environment fit to further the understanding of workplace aggression and its predictors, which concern millions of Americans (Schat et al., 1996) and negatively impacts employees' ability to

function effectively across employment settings. While significant effects of actual Person-Environment fit were not found on trait anger, interpersonal conflict at work, and workplace aggression in the present research, the positive relationship between Person-Environment fit and job satisfaction and negative relationship between workplace aggression and job satisfaction were both replicated in the current sample. This suggests the concurrent and discriminant validity of findings for Self-Directed Search completers was supported in the current sample. Additionally, positive relationships between trait anger, interpersonal conflict at work, and workplace aggression were replicated in the present research. Limitations of this study, implications for practitioners, and ideas for future research were also presented.

APPENDIX A

Definitions

1. **Aggression:** refers to a goal directed and intentional behavior that involves actions that are aimed towards a specific target (Neuman & Baron, 2005).
2. **Bullying:** refers to the act of committing physical or psychological forms of workplace aggression (Lutgen-Sandvik, Tracy, & Alberts, 2006; Salin, 2003).
3. **Congruence:** refers to degree of fit between a particular individual's personality type and the predominate characteristics that comprise that individual's work environment (Holland, 1997). In the current study, congruence was examined using Iachan's *M* Index to calculate a low fit, average fit, or high fit, on the basis of the locations of the individual's personality code type and work environment type on Holland's (1997) hexagonal model.
4. **Counterproductive Work Behavior:** behavior that occurs in one's employment setting that runs counter to the organizational goals and norms for acceptable employee behavior, which can include acts of workplace aggression (Andersson & Pearson, 1999).
5. **Hexagonal Model:** a graph used to represent the relationships between the six Holland types where each point on the hexagon is labeled with the name of a corresponding type (Holland, 1997). The six types vary on their placement on the hexagon based on their similarity to one another in values and corresponding abilities (Holland).
6. **Holland Code Types:** consists of 6 individual types that correspond to 6 types of environments: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (Holland, 1997).

- Realistic Type: reflects traditional values, and is characterized by technical and mechanical abilities (Holland, 1997).
 - Investigative Type: reflects scientific and academic values, and is characterized scientific and research competencies (Holland, 1997).
 - Artistic Type: reflects self-expression, and is characterized by artistic and imaginative abilities (Holland, 1997).
 - Social Type: reflects interest in social and ethical concerns, and is characterized by serving others, and belief in equality for all individuals (Holland, 1997).
 - Enterprising Type: reflects interest in directing others, and is characterized by involvement in business ventures, and economic achievement (Holland, 1997).
 - Conventional Type: reflects traditional values, and is characterized by systematic and clerical abilities (Holland, 1997).
7. Iachan *M* Index: a measure of congruence that is coded using a 0 – 28 scale with lower scores indicating lower degrees of fit to examine the degree of similarity between any two three-letter codes in Holland's (1997) hexagonal model (Iachan, 1984).
 8. Interpersonal Conflict at Work: the degree to which an individual is victimized through verbal abuse by co-workers in the contexts of arguments or other verbal attacks (e.g., being yelled at) in the workplace (Spector & Jex, 1998).
 9. Person-Environment Fit: the degree to which an individual's Holland personality code type matches with the code type for that individual's work environment, as calculated by the degree of congruence between the two types (Holland, 1997).

10. Psychological Aggression: often referred to as relational aggression, this term includes using of threatening statements, verbal outbursts, and verbal abuse (Haines, Marchand, and Harvey, 2006) in the role of a perpetrator, and excludes physical forms of aggression.
11. Physical Aggression: refers to acts of physical assault toward another individual or non-living object that are aimed to harm others (Crick & Grotpeter, 1995).
12. Trait Anger: the degree to which an individual generally feels angry across different situations (Spielberger, 1996)
13. Workplace Aggression: refers to acts of psychological and physical aggression that occur within the context of one's work environment.



THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

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HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 27111203

PROJECT TITLE: **The Effect of Holland's Person-Environment Fit on Trait Anger, Interpersonal Conflict at Work, and Workplace Aggression**

PROPOSED PROJECT DATES: 12/01/07 to 12/01/08

PROJECT TYPE: **Dissertation or Thesis**

PRINCIPAL INVESTIGATORS: **Aimee Chantelle Pseekos**

COLLEGE/DIVISION: **College of Education & Psychology**

DEPARTMENT: **Psychology**

FUNDING AGENCY: **N/A**

HSPRC COMMITTEE ACTION: **Expedited Review Approval**

PERIOD OF APPROVAL: **11/29/07 to 11/28/08**

Lawrence A. Hosman
 Lawrence A. Hosman, Ph.D.
 HSPRC Chair

12-09-07
 Date

HUMAN SUBJECTS REVIEW FORM
UNIVERSITY OF SOUTHERN MISSISSIPPI
(SUBMIT THIS FORM IN DUPLICATE)

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Proposed Project Dates: From 12-1-07 To 12-1-2008
(specific month, day and year of the beginning and ending dates of full project, not just data collection)

Title The Effect of Holland's Person-Environment Fit on Trait Anger, Interpersonal Conflict

Funding Agencies or Research Sponsors N/A at work, and Workplace Aggression

Grant Number (when applicable) N/A

New Project

Dissertation or Thesis

Renewal or Continuation: Protocol # _____

Change in Previously Approved Project: Protocol # _____

A. Chitt M Principal Investigator 11-6-2007 Date

[Signature] Advisor 11-7-07 Date

[Signature] Department Chair 11/7/07 Date

RECOMMENDATION OF HSPRC MEMBER

Category I, Exempt under Subpart A, Section 46.101 () (), 45CFR46.

Category II, Expedited Review, Subpart A, Section 46.110 and Subparagraph (b).

Category III, Full Committee Review.

[Signature] HSPRC College/Division Member 11-14-2007 DATE

Laurence G. Harmon HSPRC Chair 12-09-07 DATE

APPENDIX C

INFORMED CONSENT FORM

The purpose of the present dissertation research is to determine whether the degree to which employees' fit with their current environment impacts various workplace-related outcomes. Participation will involve completion of questionnaires found on two websites, and instructions will be provided on how to complete all questionnaires. It is anticipated that all of the questionnaires should take approximately 45-50 minutes to complete.

If you choose to participate in this study, your identity will remain anonymous and you will be assigned a code number for the purpose of this investigation. Individuals in management or human resources who distribute information about this research to their employees may request a one page summary of findings reporting the number of employees who responded from their particular employment setting and how their responses generally compared to the responses obtained in the total sample (e.g., 15 of the total 200 participants sampled were obtained from your organization. Of those respondents, 35 percent reported high levels of anger compared to 40 percent who reported high levels of anger in the total sample, etc.). If management or human resources from your organization of employment requests information about the general findings from this research, none of your personal information (i.e., job title, sex, age, etc.) will be provided. You will be asked for this information on the On-line demographics questionnaire only for the purpose of calculating your fit with your environment and determining the distribution of employees from various locations throughout the United States.

While there are no foreseeable risks to participating, your participation in this research is completely voluntary and you may choose to withdraw your participation at any time with no penalty. If you do not wish to participate, you will not receive or be asked to complete or return any questionnaires. Your self-disclosure on the questionnaires is completely voluntary. All of the questionnaires involve self-report and are non-invasive. Information collected on the demographics form that may in any way become personally identifying will not be accessible to your employer, management, or human resource department.

There are several benefits to participating in this research, including a one dollar donation made on behalf of every participant toward breast cancer research that is anticipated to total approximately 200 dollars at the end of the data collection. Following your completion of the questionnaires, you will receive a code word to email to the primary investigator for entry into a raffle to win one of four possible gift cards to nationwide stores or restaurant chains. Additionally, you will receive an interpretative report, following your Self-Directed Search administration, which will provide information about your personality type, based on your reported interest areas. This On-line report would typically cost \$9.95 to receive outside of the present research and you may print your results to keep for your own information at no personal cost.

This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, 601.266.6820. You may ask questions regarding this research and any of the questionnaires at any time. Should you have questions, please contact A. Chantelle Pseekos, M. A. by email: chantelleUSM@yahoo.com or by phone: 601.579.9262. Additionally, you may contact the primary investigator's faculty advisor, Emily Bullock, Ph. D. by email: Emily.Bullock@usm.edu or by phone: 601.266.6603.

Please print off a copy of this form for your personal records.

If you agree to participate in this study, please click on the link below to begin the questionnaires.

<LINK WILL BE INSERTED HERE>

APPENDIX D
INSTRUMENTS

Demographic Questionnaire

Directions: Please fill in the blank or check the response that best applies to you.

Age: _____ (You must be 18 years or older to continue)

Job Title (e.g., administrative assistant, professor, hospitality manager, cashier, retail sales person, etc.): _____

*Please be as specific as possible on this question. It is very important for this research.

Please provide a description in two sentences or less of your current job responsibilities in the space below:

Gender: _____

Racial/Ethnic Background:

- American Indian/Alaskan Native
- Asian/Pacific Islander
- Black (Non-Hispanic)
- Hispanic
- White (Non-Hispanic)
- Other _____ (please specify)

Educational Background (please specify your highest level completed):

- Grade School
- High School
- Some College
- Community/Technical College Graduate
- 4-year College Graduate
- Graduate Degree
- Post Graduate Degree

Have you been working in the same/similar job setting for the past 2 years? _____

How many hours do you work on average per week? _____

In what city/state are you currently employed? _____

What company is your current employer? _____

Yearly Household Income:

- \$0-\$20,000
- \$21,000-\$40,000
- \$41,000-\$60,000
- \$61,000-\$80,000
- \$81,000-\$100,000
- \$101,000+

How well do you think your personality fits with your current job duties?

- Not Well at All
- Moderately Well
- Very Well

Currently, I am completing these surveys in the:

- Morning
- Afternoon
- Evening

Trait Anger Subscale (Spielberger, 1999)

Read each of the following statements that people have used to describe themselves, and then blacken the appropriate circle to indicate how you <i>generally</i> feel or react. There are no right or wrong answers. Do not spend too much time on any one statement. Mark the answer which best describes how you <i>generally</i> feel or react.				
	Almost Never	Sometimes	Often	Almost Always
1. I am quick tempered.				
2. I have a fiery temper.				
3. I am a hotheaded person.				
4. I get angry when I'm slowed down by others' mistakes.				
5. I feel annoyed when I am not given recognition for doing good work.				
6. I fly off the handle.				
7. When I get mad, I say nasty things.				
8. It makes me furious when I am criticized in front of others.				
9. When I get frustrated, I feel like hitting someone.				
10. I feel infuriated when I do a good job and get a poor evaluation.				

Interpersonal Conflict at Work Scale, ICAWS (Spector & Jex, 1998)

	Never	Rarely	Sometimes	Quite Often	Very Often
1. How often do you get into arguments with others at work?					
2. How often do other people yell at you at work?					
3. How often are people rude to you at work?					
4. How often do other people do nasty things to you at work?					

Overall Measure of Job Satisfaction (Agho, Price, & Mueller, 1992)

	Strongly Disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
1. I find real enjoyment in my job.					
2. I like my job better than the average person.					
3. I am seldom bored with my job.					
4. I would not consider taking another kind of job.					
5. Most days I am enthusiastic about my job.					
6. I feel fairly well satisfied with my job.					

Workplace Aggression Scale, WAS (Baron & Neuman, 1996), Modified Version (Rutter & Hine, 2005)

Please indicate how many times you have engaged in the following behaviors in the workplace during the past two years:					
	Never	Rarely	Occasionally	Often	Very Often
1. Spreading false rumors about someone.					
2. Staring, dirty looks or other negative eye contact.					
3. Belittling someone's opinions to others.					
4. Giving someone the "silent treatment".					
5. Failing to object to false accusations against others.					
6. Sexual harassment of a verbal nature.					
7. Flaunting status by acting in a superior or condescending manner.					
8. Criticizing or attacking someone's protégé.					
9. Failing to deny false rumors about others.					
10. Purposely leaving the work area when others enter.					
11. Holding others or their work up to public ridicule.					
12. Sending unfairly negative information about others to superiors in the company.					
13. Making negative or obscene gestures toward others.					
14. Delivering unfairly negative performance appraisals.					
15. Interrupting others when they are speaking.					
16. Failing to return phone calls or respond to memos.					
17. Intentional work slowdowns.					
18. Intentionally showing up late for meetings run by others.					
19. Directly interfering with or blocking others' work activities.					
20. Failing to transmit information needed by others.					
21. Needlessly consuming resources needed by others.					
22. Causing others to delay action on matters of importance to them.					
23. Failing to warn others of impending danger or difficulty.					
24. Refusal to provide needed resources or equipment.					
25. Failing to defend others' plans or proposals.					
26. Physical attack or assault.					
27. Theft or destruction on others' personal property.					
28. Damaging or sabotaging company property that other need to work.					
29. Attack with a weapon.					
30. Threats of physical violence.					
31. Failing to take steps that would protect others' welfare or safety.					
32. Stealing or removing company property needed by others to work.					
33. Destroying mail or messages needed by others.					

APPENDIX E

INSTRUCTIONS FOR ACCESSING THE SDS WEBSITE

Please **Do Not Close this Page** while you complete **this part** of the survey data. Simply minimize this page and open a second internet window and type in the following address: <http://www.self-directed-search.com/>

Once you have entered in the address listed above, click on “**Take the SDS Now.**” When you are prompted **after taking the survey**, select “Prepaid Group Account” and the Group Account code for your **free** survey participation is: <omitted> and select a password from the following options: <omitted>

Please note that you can select multiple passwords from the options below if the first one selected does not work. You will be asked to record the password that you selected in an upcoming question, so please be sure to remember your password.

Using this code there is not a \$9.95 fee. This portion of the survey data should take approximately 15-20 minutes. Once you have completed this survey, the computer will generate a report with your “summary code” on page 1 of the Interpretive Report.

Sample: Summary Code: ESC

Simply scroll down under “General Information” on the SDS page, and type your code below along with the password that you have selected:

My Summary Code is: _____ (Please Note DO NOT RETYPE Your Password here, simply provide your 3 LETTER CODE from the other website. This question is very important for this research.)

The password that I selected for my free administration was: _____

If applicable, please list any passwords that you tried to use that did not work to improve the quality of future survey administrations. _____

<PLEASE CLICK HERE TO PROCEED WITH THE REMAINDER OF THE
SURVEY>

APPENDIX F

PERMISSION TO USE AND REPRODUCE INSTRUMENTS

Thu, 26 Apr 2007 15:56:48 -0400
(EDT)

From: "Paul Spector (PSY)"
<spector@shell.cas.usf.edu> [Add to Address Book](#) [Add Mobile Alert](#)

To: "Chantelle Pseekos" <chantelleusm@yahoo.com>

CC: jex@vaxa.cis.uwosh.edu

Subject: Re: request related to my dissertation

Dear Chantelle:

You have my permission to use and reproduce the ICAWS in your dissertation.

Best,

Paul E. Spector
Department of Psychology
University of South Florida
Tampa, FL 33620
(813) 974-0357 Voice
(813) 974-4617 Fax
spector@shell.cas.usf.edu
website <http://shell.cas.usf.edu/~spector>

Subject: RE: dissertation related question
Date: Thu, 26 Apr 2007 12:37:14 -0400
From: "Agho, Augustine" <aagho@umflint.edu>
To: "Chantelle Pseekos" <chantelleusm@yahoo.com>

You have my permission to use and reproduce the instrument. Please be sure to acknowledge Dr. James Price and Charles Mueller as authors of the instrument. Best wishes.
Austin

Augustine O. Agho, Ph.D.
Dean and Professor
School of Health Professions and Studies
The University of Michigan-Flint
303 East Kearsley Street, Room 2205
Flint, Michigan 48502
Phone #: 810-237-6503
Fax #: 810-237-6532
Email: aagho@umflint.edu

Subject: RE: question related to my dissertation

Date: Mon, 30 Apr 2007 10:14:47 -0400

From: "Baron, Robert" <baronr@rpi.edu> [Add to Address Book](#) [Add Mobile Alert](#)

To: "Chantelle Pseekos" <chantelleusm@yahoo.com>

Dear Chantelle:

You can certainly have my permission to use the scale. Please write to my co-author, Joel Neuman—he can provide you with a usable copy of the instrument and anything else you need.

My own research has taken me into the field of entrepreneurship for the past eight years, so I'm not as up-to-date on workplace aggression research as was true in the past. But Joel is a wonderful person and can help you, I'm sure.

Good luck with your research!

Cordially,

Robert

Robert A. Baron
Wellington Professor of Management
Lally School of Management & Technology
RPI
Troy, NY 12180-3590
(518) 276-2864

Date: Mon, 30 Apr 2007 19:33:09 -0500

To: "Chantelle Pseekos" <chantelleusm@yahoo.com>, neumanj@newpaltz.edu

From: "Joel H. Neuman" <neumanj@newpaltz.edu> [Add to Address Book](#) [Add Mobile Alert](#)

Subject: Re: question related to my dissertation

Dear Ms. Pseekos.

In response to your request, I'm attaching a copy of the Workplace Aggression Research Questionnaire (WAR-Q), which is an expanded version of the questionnaire developed by Dr. Baron and myself. You have my permission to use this in your research. I would, of course, be interested in seeing the results of your research so that Dr. Keashly (co-author of the WAR-Q) and I can add to our validation of the instrument. Also, I am interested in learning more about your research linking P-E fit and workplace aggression.

Good luck with your research.

Best regards,
JN

JOEL H. NEUMAN, Ph.D.
Associate Professor of Management & Organizational Behavior
and Director of the Center for Applied Management
State University of New York at New Paltz
School of Business
1 Hawk Drive
New Paltz, NY 12561-2443
Voice: (845) 257-2928 Fax: (845) 257-2947
E-Mail: NEUMANJ@NEWPALTZ.EDU

Tue, 01
May
2007
15:17:00
+1000

Subject: Re: question related to my dissertation...

From: "Don Hine" <dhine@une.edu.au>

To: "Chantelle Pseekos" <chantelleusm@yahoo.com>

Sure... No problem. Good luck with your project. If you need any additional information, just let me know.

Don

On 1/5/07 2:21 PM, "Chantelle Pseekos" <chantelleusm@yahoo.com> wrote:

Dear Dr. Hine,

My name is Chantelle Pseekos and I am a 4th year doctoral student at The University of Southern Mississippi. I am currently working on my dissertation in which I intend to examine the relationship between person-environment fit, workplace aggression, and multiple predictors of workplace aggression. I was hoping to include the version of the Workplace Aggression Scale that was modified by you and Dr. Rutter in my instruments for this project. I would like to request your permission to use and permission to reproduce the instrument for my dissertation document. If that would be possible please let me know. I have currently also requested and received permission from Dr. Baron and Dr. Neuman. I look forward to proposing the project over the summer and beginning the data collection process in the fall. Thank you for your time.
~Chantelle

"Spielberger, Charles" <spielber@cas.usf.edu> wrote:

Chantelle Pseekos . MA Doctoral Student

University of Southern Mississippi

Dear Ms. Pseekos:

I was pleased to receive your Request to use the STAXI-2 T-Anger scale in your dissertation research, which came in today's mail. A copy of my letter giving you permission to reproduce to use this measure in your research is attached. We are sending the signed copy of my letter to you at the address that you provided on your Request Form.

Warm personal regards and very best wishes in your research on the effects of person-environment fit on workplace conflict, anger and aggression. I look forward to hearing more about the procedures and the results of your study when these are available.

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