RETIREMENT PLANNING MOTIVATION FROM A REINFORCEMENT SENSITIVITY THEORY (RST) PERSPECTIVE

Luke Poulter

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A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
in
Industrial and Organizational Psychology

by
Luke David Poulter
December 2020
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ABSTRACT

Retirement planning is a complex issue. There are plenty of challenges that individuals and governments confront regarding retirement planning. Understanding what motivates retirement planning is a critical element for individuals and governments to understand. Therefore, the primary goal of the current study was to extend the literature on retirement planning by expanding knowledge of what influences retirement planning by incorporating Reinforcement Sensitivity Theory (RST). RST is a neuroscientific theory of emotion, motivation, and learning, extended to personality psychology. It suggests three systems, the Behavioral Approach System (BAS), Fight–Flight–Freeze system (FFFS), and the Behavioral Inhibition System (BIS). The BAS mediates responses to reward (attractors) and non-punishment and allows individuals to approach a goal. The FFFS mediates responses to punishment (repulsors) and non-reward and stimulates individuals into avoidance. The BIS resolves conflict if both BAS and FFFS are activated at the same time. In this study, I investigated how the BAS, FFFS, and BIS influences retirement planning among a sample size of 128 individuals between the ages of 18-67. I found a positive relationship between Reward Interest, Goal-Drive Persistence, Reward Reactivity, and retirement planning. No significant relationships were found between Impulsivity, FFFS, BIS and retirement planning. Both theoretical and practical implications are discussed. Followed by limitations and future research suggestions.
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DEDICATION

I would like to dedicate this to my wife. Thank you for your support during this journey!
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CHAPTER ONE
RETIREMENT PLANNING MOTIVATION FROM A REINFORCEMENT SENSITIVITY THEORY (RST) PERSPECTIVE

Researchers in the area of retirement have produced a plethora of articles and studies about its nature and challenges. These studies have ranged from the changing nature of retirement and retirement outcomes to the saving choices and various policy implications. Retirement is a process (Muratore & Earl, 2010). As Wang and Shultz (2010) and Shultz and Wang (2011) note, the retirement process is temporal in nature. Figure 1 shows both the process and temporal nature of retirement. The left side of Figure 1 illustrates how a variety of factors can influence the retirement process. Furthermore, the four boxes highlight that not all individuals experience the process in the same manner. The right side of the figure shows how time influences elements of the retirement process and how those elements may influence each other.
The retirement process begins with a pre-retirement planning phase. Both informal and formal planning can influence expectations of retirement (Taylor-Carter, Cook, & Weinberg, 1997). Retirement planning is positively associated with retirement satisfaction (Topa, Moriano, Depolo, Alcover, & Morales, 2009). However, planning for retirement often does not happen until an individual is closer to their actual retirement decision (Wang & Shultz, 2010). Individuals who feel that they had prepared for retirement tend to be satisfied and
adjusted well to retirement (Spiegel & Shultz, 2003) and those who plan financially generally have more wealth than non-planners (Vivel-Búa, Rey-Ares, Lado-Sestayo, & Fernández-López, 2019). Unsurprisingly, goal clarity has been shown to help in planning (França & Hershey, 2018; Stawski, Hershey, & Jacobs-Lawson, 2007), and procrastination has a negative influence on goal setting and on behavior towards achieving set goals.

There are various aspects that go into retirement decision making on the right side of Figure 1. For example, education influences an individual’s economic condition before and after retirement (Mishra, 2019). Furthermore, it has been found to effect retirement decisions (Wang & Shultz, 2010; Von Bonsdorff, Shultz, Leskinen, & Tansky, 2009). The amount of retirement planning has been found to increase as individuals begin to approach retirement age (Ekerdt, Hackney, Kosloski, & Deviney, 2001; Hira, Rock, & Loibl, 2009). Health conditions and family dynamics can also influence retirement decisions (Shultz & Wang, 2007; Szinovacz, & Davey, 2004; Wang, & Wanberg, 2017). For example, poor self-rated health has been found to be a predictor of retiring early (Elovainio, Forma, Kivimäki, Sinervo, Sutinen, & Laine, 2005). Furthermore, poor working conditions and stress may lead individuals to retire early (Wahrendorf, Dragano, & Siegrist, 2013), whereas having dependents at home tends to lead to delayed retirement.

There are conflicting findings about the transition and adjustment of retirees. There are reports that retirees suffer from depression, poorer physical
health, and lower life satisfaction while others have found retirement to have a positive effect on health and life satisfaction (see. Wang & Shultz, 2010; Wang, 2017 for review). These findings suggest that the transition and adjustment of retirement affect individuals differently (Wang, 2007). Retirement decisions are not always intentional and may lead to negative attitudes towards retirement (Shultz, Morton, & Weckerle, 1998). The planned activities in retirement also vary. Eismann, Verbeij, and Henkens (2019) found that most older workers do not plan to participate in bridge employment but plan to take part in self-developmental or social activities.

For those who do pursue bridge employment, individuals may look for career bridge employment (i.e. in their same field) or bridge employment in a separate field (Wang, 2017; Wang et al., 2008; Wang & Shultz, 2010). Bridge employment can be expressed as the labor force transition from their career jobs towards withdrawal from the labor force (Wang, Zhan, Liu, & Shultz, 2008; Wang, 2017). This may include self-employment, a part-time job, or temporary employment. The motivations to seek bridge employment vary. Loi and Shultz (2007) found older retirees to be motivated to seek jobs with a more flexible schedule, while younger retirees were motivated to seek bridge employment opportunities for financial reasons.

Retirement financial planning is a multifaceted issue that involves one assessing their current and future financial condition. There are plenty of challenges that individuals and governments confront with regard to retirement
planning. There have been various studies and reviews of retirement planning (Gough & Niza, 2011; Kerry, 2018; Kumar, Tomar, & Verma, 2019; Topa et al., 2009). Research has demonstrated various demographic, psychological, cognitive, and social factors that influence retirement planning. The goal of the current study was to extend the literature on retirement planning by expanding knowledge of what influences retirement planning by incorporating Reinforcement Sensitivity Theory (RST) (Gray & McNaughton, 2000; McNaughton & Corr, 2008). Below I review the literature of retirement planning and RST. I will then present the research questions followed by the methods for my study.

Retirement Planning

Various factors may hinder or assist retirement planning and researchers have not always found consistent results. Studies have shown that there are different variables that prompt women to plan differently for retirement than men (Jacobs-Lawson, Hershey, & Neukam, 2004).

Income

Income level has been found to be a significant indicator of maximum retirement contributions (Hira, Rock, & Loibl, 2009) and has been an important variable in retirement planning (Jacobs-Lawson, et al., 2004). Having discretionary income can be used for savings purposes that can influence an individual’s willingness to engage in financial planning activities. Men generally report having more income than women (Fisher, 2010; Heilman & Kusev, 2017;
Lee, Hassan, & Lawrence, 2018). Mahdavi and Horton (2014) found as household income increased, predicted financial knowledge scores increased. However, Fisher (2010) found no significant relationship between income and short-term savings or the likelihood of saving regularly after controlling for other variables.

In a 2015 study using twin samples, Zyphur, Li, Zhang, Arvey, and Barsky looked at the relationship between income, personality, and subjective financial well-being (SFWB). They defined SFWB as, “a general attitude about one’s financial situation, including overall satisfaction with it but also perceived financial strains, perceived manageability of finances, and perceived financial prospects” (Zyphur et al., 2015 p.1). They found personality was an important variable for understanding how people feel about their economic circumstances for both men and women. When looking at the differences between genes and the environment, both genetics and environmental factors influence personality and a sense of economic well-being. However, when it comes to income’s influences on perceptions of their economic circumstances, only men were influenced by income. Furthermore, it is important to note that only environmental factors were significant for the income-SFWB relationship, not genetics. They suggest that environmental influences that allow men to earn more money is what impacts their SFWB.

An individual’s tendency to plan for retirement can be affected by their financial situation. Individuals with a higher income may be more likely to focus
on different retirement goals that require income security such as leisure, travel, and housing (Jacobs-Lawson, et al., 2004). Hershey and Jacobs-Lawson (2012) found that unmarried women appeared to be at more of a disadvantage in their perceived future income shortfalls when compared to unmarried men, and to married women and men. Higher-income households have been found to have clearer retirement goals, stronger future time perspective (discussed below), higher levels of perceived financial knowledge, more retirement planning, and view their savings to be more acceptable (Hershey, Jacobs-Lawson, McArdle, & Hamagami, 2007).

Knowledge

Financial knowledge is one of the most recognized predictors of financial planning (Hershey, Henkens, & Van Dalen, 2010). Researchers found that among college students, the general concepts of financial knowledge were understood by almost all participants of the sample (Koposko & Hershey, 2016). However, the understanding of more technical concepts was not as strong. Furthermore, those who did understand the more technical concepts reported learning about them between 14-17 years of age.

Financial knowledge has been shown to have a strong positive relationship with planning (Lusardi & Mitchell, 2008; Niu & Zhou, 2018). As individuals age, there seems to be an increase in financial knowledge (Mahdavi & Horton, 2014). However, gender differences have been found in the amount of financial knowledge. Men have rated their financial knowledge higher than
women (Kiso & Hershey, 2017; Hershey, Jacons-Lawson, et. al., 2007).

Perceived knowledge (what we think we know) and actual knowledge (objective knowledge) are two distinct constructs (Flynn & Goldsmith, 1999). Self-rated financial knowledge scores and actual financial knowledge scores have been shown to be correlated around the .50 range. (E. Goldsmith & R. Goldsmith, 1997; R. Goldsmith, E. Goldsmith, & Heaney, 1997). Furthermore, in a sample of women 50+, older women scored low on their financial literacy (Lusardi & Mitchell, 2008). However, women who did display higher financial literacy were more likely to plan and be successful planners.

Risk

People have different tolerance levels of risk. According to information from approximately 2000 mutual fund investors, Dwyer, Gilkeson, and List (2002) found evidence that indicates men’s investments take more risk than women’s investments. However, when they included financial investment knowledge as a control variable in the regression model, the difference in risk-taking was significantly reduced. Another possible explanation could be explained through Fisher’s (2010) observation that women who reported low-risk tolerance were significantly less likely to save over the short term, as well as, to be regular savers. This same effect was not found in their sample of men. Furthermore, another study suggests that after controlling for demographic, wealth, and income, women do not show significantly higher risk aversion than men (Arano, Parker, & Terry, 2010). Though research has shown that there is a gender
difference in risk tolerance, these findings suggest that as wealth increases and with proper interventions targeting investment knowledge, these differences can diminish. An additional reason for the differences of risk tolerance is due to a person’s general tendency to view the world. Palmer, Chung, Park, and Wang (2020), found that people who scored high on negative affect saw a negative effect on the riskiness of investment decisions. This suggests that those individuals may be risk-averse and prevention-focused.

**Savings**

An individual’s savings has repeatedly been a variable of interest to researchers who study retirement planning. For example, Hershey, Henkens, and Van Dalen (2007) found in their study that men reported saving a larger percentage of their annual income compared to women. Younger men have been found to be less active in their retirement planning compared to older men, suggesting that concern about financial stability increases as they age (Phua & Mcnally, 2008).

Women have reported being less financially prepared and to experience lower living standards (Noone, Alpass, & Stephens, 2010). Furthermore, Spanish women were found to invest less than Spanish men in private pension schemes (Vivel-Búa, Rey-Ares, Lado-Sestayo, & Fernández-López, 2019). However, in a contradictory finding, Huberman, Iyengar, and Jiang (2007) found that more women than men save, and they tended to save more than men. They explained that this may be due to women possibly having a greater keenness for saving
and possibly because they tend to live longer. Another explanation they offer is that the saving decisions are made by the household and not the individual. Reviewing their data, they saw that when comparing similar men and women in compensation, tenure, and age, women tended to live in wealthier neighborhoods. They reasoned that women are more likely to have a working spouse with a higher overall income and can contribute more to saving.

**Attitudes**

Attitudes have also been found to influence retirement planning as well. Grace, Weaven, and Ross (2010) found that men tended to view retirement as a natural progression of life and they believe that they have some control over this stage of life. Women were found to be more conscious of unplanned difficulties that could hamper their financial stability in retirement.

A construct referred to as Future Time Perspective (FTP) has been found to influence retirement planning. FTP is defined as a “psychological dimension that is purported to tap the extent to which individuals focus on the future, rather than on the present or the past” (Hershey, Henkens et. al., 2007, p. 365). FTP has been examined in various studies and has shown to be related to both planning and saving behaviors (Jacobs-Lawson & Hershey, 2005; Hershey, Henkens et. al., 2007, Hershey, Jacobs-Lawson et.al., 2007). For example, after controlling for age and income, FTP was found to be a significant predictor of time spent planning for women (Jacobs-Lawson et al., 2004). In men, there was an interaction. Specifically, the effect of age, income, and FTP on men’s time
spent planning depended on how concerned they were about reaching their retirement goals. This suggests that different variables influence men and women to plan for retirement.

In financial planning, it is important to have a clear goal. For both men and women, as they become older, they develop higher retirement goal clarity (Hershey, Henkens, et. al., 2007). Stawski, Hershey, and Jacobs-Lawson (2007) found that goal clarity helped motivate individuals to plan for the future. Though there may be some cultural differences in the strength of goal clarity (Hershey, Henkens, et. al., 2007) it does help predict financial planning (Hershey, Henkens, & Van Dalen, 2010).

Hershey, Jacobs-Lawson, and Neukam (2002) found that men and women generated the same amount of goals, but that women’s goals were more abstract. In addition, women were less likely to mention leisure goals than men. Furthermore, women were more likely to have self-oriented goals and strive for contact with others than men. They suggest that this may be due to how women are socialized differently than men to create and retain interpersonal relationships. Petkoska and Earl (2009) found that women tended to plan for health, interpersonal, and leisure in retirement. Similarly, another study shows that women were more likely to prepare for self-developmental leisure (Eismann, Verbeij, & Henkens, 2019). Furthermore, compared to men, women reported greater self-protection planning effort (i.e. health lifestyle choices, participating in
social support networks, and a safe physical environment), than men (Muratore & Earl, 2010).

Health

Health is another factor that is a consideration of retirement planning. Shultz and Wang (2007) found a difference between major health conditions and minor health conditions in their influence on retirement. Major health conditions were more likely to lead to retirement and minor health conditions could lead to retirement or a change in job. Lee et al. (2018) found that men and women ages 46-56 who considered their health to be excellent or good had a positive effect on their retirement plan contributions. They reason that those who are healthier will tend to have fewer medical expenses and therefore can contribute to their retirement plans more than those who are unhealthy. Zick, Mayer, and Smith (2015) found that women were less likely to prepare for retirement if their mother or sisters have had breast cancer. This suggests that the health of significant others can also influence one’s retirement planning.

Gender differences have been found in health’s effect on retirement planning (Szinovacz & Deviney, 2000). If the health of the wife is poor, the husband had a higher chance of retiring. This effect was not found if the husband was sick and the wife was working. This may be due to a gender division of family labor, with women typically having experienced problems with family and work. Another study suggests pressure from one’s partner to retire early may be due to them trying to protect one’s health (Henkens & Van Solinge, 2002).
Furthermore, older workers who expect health benefits from retiring, are more likely to have a positive retirement intention (Henkens, 1999).

**Relationships**

There are various gender differences in how family and relationships influence retirement planning. Individuals who had children dependent on them were less likely to retire (Szinovacz, DeViney, & Davey, 2001) and had less partner support to retire (Henkens & Van Solinge, 2002). Szinovacz and Deviney (2000) found the wife’s retirement was more dependent on the overall economic situation, while the husbands tended to delay their retirement until their wives could receive their pension or Social Security. One’s postretirement relationship influences their retirement decisions. A good relationship influenced the spouse’s retirement likelihood. However, if the marital quality would suffer because of problems, the spouse is less likely to support early retirement (Henkens, 1999). The wife’s retirement decisions strongly influence the husbands, but this same effect is not found when the opposite is true (Szinovacz & Deviney, 2000). Finally, for both husbands and wives, if one spouse retires, it may accelerate the other spouse’s retirement as well.

**Retirement and Personality**

Other studies have looked at personality to see how it effects various aspects of retirement planning including some reported above. The Big Five personality factors were recovered from early lexical investigations in the English language (Goldberg, 1993). These factors are Extraversion, Agreeableness,
Conscientiousness, Emotional Stability (vs. Neuroticism), and Openness to Experience. Hundreds maybe thousands of traits are integrated in these vast domains.

Sutin, Costa, Miech, and Eaton, (2009) found that participants high in Conscientiousness reported higher annual incomes more while those high in Neuroticism report lower incomes. In a study that focused on wealth among American men aged between 60 and 66, Agreeableness was found to increase the probability of low wealth, whereas Conscientiousness was related to a lowered probability of low wealth (Motika, 2019). Agreeableness, Conscientiousness, and Openness had a significant relationship for participants in the 10th and 20th percentiles of the residual log wealth however, for the 80th percentile, none remained significant.

Balasuriya, and Yang (2019) considered how personality affects a person participation in employers and personal pensions. They found that Extraversion related to a person refraining to participate in both employers’ and personal pension schemes. Openness was negatively and Conscientiousness was positively associated with personal pension participation. Conscientiousness has also been found to have a positive connection with voluntary pension savings and bank savings (Kausel, Hansen, & Tapia, 2016). Furthermore, Agreeableness related to investment in an employer run pensions but not personal pensions. Neuroticism did not correlate with pension participation (Balasuriya, and Yang, 2019)
However, in another study, none of the Big Five personality traits had a direct effect on saving behavior (Asebedo, Wilmarth, Seay, Archuleta, Kristy, Brase, & MacDonald, 2019). Only indirect effects were found. The authors found that openness and neuroticism showed a negative indirect connection with saving behavior, while conscientiousness and extroversion showed a positive indirect connection. Given the mixed results, there may be another way to see how personality influences retirement.

Reinforcement Sensitivity Theory (RST)

The Reinforcement Sensitivity Theory (RST), from the neuropsychologist Jeffrey Gray, is a neuroscientific theory of emotion, motivation, and learning, extended to personality psychology (Corr, McNaughton, Wilson, Hutchison, Burch, & Poropat, 2017). The RST of personality signifies an effort to account for the neuropsychological regulation of behavior and how individual differences in neuropsychological systems explain personality. RST has evolved from its beginning in 1970 and has gone through numerous modifications. It continues to be developed and refined by other theorists and researchers (e.g., Gray & McNaughton, 2000; McNaughton & Corr, 2008).

The construction of RST progressively developed to include three major systems of emotion (Corr, 2004). First, the Fight-Flight system (FFS) was theorized to be sensitive to unconditioned aversive/painful stimuli. This system was connected to the state of negative affect (NA) (accompanying pain). Second, the Behavioral Activation System (BAS) was theorized to be sensitive to
conditioned positive stimuli. This system was connected to the state of positive affect (PA) and related to impulsivity. Third, the Behavioral Inhibition System (BIS) was theorized to be sensitive to conditioned negative stimuli. This system was related to anxiety, but also to extreme novelty, high-intensity stimuli, and innate fear stimuli. Recently this theory has been revised (Gray & McNaughton, 2000) and the difference between fear and anxiety has been clarified.

Background of RST

RST initially came from basic animal learning research, not personality research using human models (Corr, 2008). Rather than nonpharmacological studies of human behavior or affect, Gray focused primarily on animal behavior and the effects of drugs (Carver & White, 1994). For example, Gray would inject rodents with anxiety drugs and look at the changes in the behavior of the rodent.

Another characteristic of RST is that it recognized the distinction between the parts of the theory that belong to either the central nervous system (CNS) or the conceptual nervous system (cns) (Corr, 2008). The cns component of RST offers the behavioral scaffolding that is formalized within some theoretical framework (Corr, 2008; Gray & McNaughton, 2000). The CNS, understood from the latest knowledge of the neuroendocrine system, specifies which brain systems are involved (McNaughton & Corr 2008).

RST is constructed upon an explanation of the direct/short-term state of neural systems (i.e. how animals react to a motivational stimuli), and which neuropsychological systems mediate these responses (Corr, 2008). Built upon
these state systems, are longer-term trait dispositions of emotion, motivation, and behavior. Motivation may be viewed as an immediate state process whereas, personality may be viewed as the long-term trait of typical motivation (Corr & Krupic, 2017).

This perspective adopts the view that personality is the long-term instantiation of motivation (Corr & Krupic, 2017). RST assumes that personality factors discovered by multivariate statistical analysis are representative of the individual and show sources of distinction in neuropsychological systems that are stable over time (Corr, 2008). Personality traits explain the uniformity of behavior seen in any one individual over time and behavioral differences between individuals presented with identical environments. According to this argument, the goal of personality research is to identify the comparatively stable biological variables that determine the factor structure that is shown from statistical analysis of behavior (Corr, 2004; McNaughton & Corr, 2004).

The true motives for behavior can never be known, only inferred (Corr & Krupic, 2017). Therefore, focusing on the functional and structural properties of motivation at the most general levels is desirable. Concentrating on approach and avoidance systems that are universal to all people regardless of the particular stimuli of which they are repulsed or attracted may help one understand what is motivating all major personality traits.
Summary of Pre-2000 RST

The Behavioral Inhibition System (BIS)

As noted above RST suggests three systems. The BIS is sensitive to signals of punishment, non-reward, and novelty as well as an assortment of other inputs of high-intensity stimuli and innate fear stimuli (Carver & White, 1994; Corr, 2008). This system, in the face of threat, was thought to oversee suppressing ongoing operant behavior. This allowed for improved information-processing and attentiveness. The BIS impedes behavior that could possibly lead to negative or painful outcomes. When the BIS is activated it causes a reduction of movement toward goals. Gray also thought that BIS in response to these cues is accountable for the experience of negative feelings such as fear, anxiety, frustration, and sadness. The BIS is related to the trait of anxiety (Corr, 2008). The neural representation of the BIS was suggested to be in the septo-hippocampal system of the brain.

According to Gray, drugs that help with anxiety work by weakening the activity of the BIS (Carver & White, 1994). The reduced outputs of BIS make behavior less risk-averse and the consequences of those behaviors are seen with less potential sources of danger. In individual differences in personality, a greater BIS sensitivity should be reflected as anxiety more often if the person finds themselves in the proper situational cues.
The Fight-Flight System (FFS)

The Fight-Flight system (FFS) was thought to be sensitive to unconditioned negative stimuli and mediated the emotions of rage and panic (Corr, 2008). This system was connected to the state of negative affect (associated with pain). The neural instantiation of the FFS was hypothesized to be in the periaqueductal grey and (various nuclei of) the hypothalamus. The FFS system was not as well researched by Gray or the scientific community as were the BIS and BAS.

The Behavioral Approach System (BAS)

The physiological mechanism believed to control appetitive motivation has been called the behavioral approach system (Gray, 1990). The BAS was thought to be sensitive to conditioned positive stimuli (Carver & White, 1994; Corr, 2008). Activity in this system causes the person to start or increase movement toward goals (Carver & White, 1994). Gray also suggested that BAS is responsible for the experience of positive moods such as hope, happiness, and elation (Gray, 1990). Individual differences in BAS sensitivity should show that the greater one’s sensitivity of BAS, the more likely a person will engage in goal-directed efforts (Carver & White, 1994). A high sensitivity of BAS should also lead to more experiences of positive feelings when the person is exposed to signals of impending reward.

BAS forms a positive feedback loop and is activated by the appearance of stimuli related with reward and the termination or omission of signs of
punishment (Carver & White, 1994; Corr, 2008). BAS was related to state positive affect and impulsivity. The neural basis of the BAS was thought to be through the catecholaminergic, especially dopaminergic, pathways believed to play a central role. However, it was less clearly specified than that of the BIS.

Post-2000 RST

Gray and McNaughton (2000) significantly revised BIS theory and RST. These modifications updated and elaborated the older theory and made different predictions (Corr, 2004; 2008; Corr & McNaughton, 2008; McNaughton & Corr, 2004; 2008). The revised RST still suggests three systems.

Fight–Flight–Freeze System (FFFS)

The Fight–Flight–Freeze System (FFFS) updates the FFS to include freezing. The FFFS is now responsible for mediating reactions to all aversive conditioned and unconditioned stimuli. The theory also proposes a hierarchical array of neural modules that are responsible for a specific defensive behavior, such as avoidance or freezing. The FFFS does not mediate anxiety, it now mediates the emotion of fear. The related personality factors include fear-proneness and avoidance, which clinically may be connected to disorders such as phobias and panic (Corr, 2008; Corr & McNaughton, 2012).

Behavioral Approach System (BAS)

The Behavioral Approach System (BAS) is changed the least of the three systems (Corr, 2008). It mediates reactions to all appetitive stimuli, conditioned and unconditioned. It interacts with dedicated consummatory systems, such as
eating and drinking, which are responsible for the final eating of unconditioned stimuli (e.g., food). BAS is responsible for creating the emotions of anticipatory pleasure and hope. The associated personality factors consist of optimism, reward-orientations, and in very high BAS-active individuals, impulsiveness. Impulsiveness can be connected to addictive behaviors, and various varieties of high-risk, impulsive behavior. There is evidence that BAS is multidimensional (Carver & White, 1994; Corr & Cooper, 2016) however, the responsibilities in approach behavior of BAS processes are still questioned (Corr & Krupić, 2017; Krupić & Corr, 2017).

Behavioral Inhibition System (BIS)

The most changed system in revised RST is the Behavioral Inhibition System (BIS) (Corr, 2008). It is responsible for the resolution of goal conflict in general, such as between BAS-approach and FFFS-avoidance. The BIS is part of the process that generates anxiety. It entails the inhibition of dominant conflicting behaviors, analyzes the risk, and scans previous memories and the environment to help resolve the simultaneous goal conflict. This goal conflict is experienced individually as worry, uneasiness, and the feeling that one’s actions may lead to a bad outcome.

The revised BIS resolves goal conflicts by activating the FFFS, through increasing the negative influence of stimuli, until a resolution occurs either in favor of approach or avoidance (Corr, 2008). There is a close relationship between the BIS and FFFS (Corr, 2008; McNaughton & Corr, 2008).
difference between the FFFS and BIS can be viewed as one of defensive direction. The FFFS controls behaviors that remove the animal from danger, while the BIS controls behaviors that allow the animal to (carefully) approach danger (Corr & McNaughton, 2012; Gray & McNaughton, 2000; McNaughton & Corr, 2004; 2008).

BIS is associated with the personality factor of worry-proneness and anxious contemplation (Corr, 2008). This leads to being continually on the lookout for possible signs of danger, which is connected clinically to conditions, such as generalized anxiety and obsession-compulsive disorder (OCD).

Approach and Avoidance Systems

Motivational stimuli can be categorized as ‘rewards’ (attractors) and ‘punishments’ (repulsors) (Corr, DeYoung, & McNaughton, 2013; Corr & McNaughton, 2012). Corr and McNaughton (2012) state that by using less ambiguous terms “attractors” and “repulsors” it denotes that it is not the stimulus itself that matters, but the evaluated reactions to it that depend on context, drive, memory, and conditioning (Corr & Krupić, 2017). Rewards (attractors) are expected to increase the occurrence of the behavior while punishments (repulsors) will decrease the occurrence of the behavior (Corr, DeYoung, & McNaughton, 2013). It can be thought that a person will approach a reward, while avoiding punishment. Also, it is important to note that how any individuals react to the same stimuli are likely to differ because of the individual’s perception. Furthermore, a ‘reward’ may include the taking away of or the absence of an
expected punishment. Comparably, ‘punishment’ may include the taking away of or the absence of an expected reward. Simply, rewards are any stimuli that suggest improvement toward or completion of a goal, whereas punishments are any stimuli that interrupt movement toward a goal. A goal, within the current context, has cognitive and motivational characteristics (Corr & Krupić, 2017). Cognitive characteristics permit recognition of places and times and include interpretations and meanings of patterns of stimuli. Motivational characteristics relate to the animal’s current need to procure a specific stimulus or outcome.

BAS is triggered by stimuli signaling the chance of attaining a reward, while the FFFS is triggered by aversive stimuli, and the BIS by stimuli that suggest a conflict between goals (Figure 2). The effects of BIS and FFFS have sometimes been intermixed leading to confusion (Corr, DeYoung, & McNaughton, 2013). As noted above, when evasion is the only motivation, FFFS is activated. When there is a conflict between two goals or motivators (i.e. approach-avoidance, avoidance-avoidance, and approach-approach) the BIS is activated. Approach-avoidance conflict is seen more often than avoidance-avoidance, and approach-approach. An example of an approach-avoidance is wanting to ask someone out for coffee but fear being rejected, while an example of approach-approach conflict is choosing between two equally good colleges to attend. People generally show loss aversion (Kahneman & Tversky, 1979), and the potential of making a wrong decision could be intimidating. It is important to note that the phrase ‘behavioral inhibition’ does not mean that all behavior is
constrained or reduced (Corr, DeYoung, & McNaughton, 2013). The BIS inhibits actions that are tied to conflicting goals. In an instantaneous threat, the unwilling freezing is associated with the FFFS.

Figure 2. Relationships between Stimuli, the Fight-Flight-Freeze System (FFFS), the Behavioral Approach System (BAS), and the Behavioral Inhibition System (BIS).

Note: The Inputs to the system are categorized in terms of the delivery (+) or omission (−) of primary positive reinforcers (PosR) or primary negative reinforcers (NegR) or conditional stimuli (CS) or innate stimuli (IS) that predict such primary events. The BIS is activated when it detects conflict—suppressing prepotent responses and eliciting risk assessment and displacement behaviors. Figure and legend adapted from McNaughton and Corr (2014).

RST and Workplace Behavior

As explained above, the BAS responds to stimuli evaluated as rewarding and controls all reward-seeking behavior (Corr et al., 2017). At normal
levels of operation, this reflects what we typically refer to as motivation or drive. In contrast, the FFFS responds to stimuli evaluated as punishing, as a result, it is associated with distress, fear, and avoidance, and with a general moving away from approaching stimuli of all kinds. These two systems come together to produce net drive, level, and quality of performance. In addition to performance, these personality factors also relate to work-related health (van der Linden, Taris, Beckers, & Kindt, 2007), which may also have an impact upon performance (Corr et al., 2017).

In the workplace, both the BAS and FFFS may be activated at the same time. If this happens, the control of behavior will reflect the deduction of one motivational urge from the other and will produce net drive (Corr et al., 2017). However, where there is a goal conflict, where no single behavioral output is enough to deal with the assessment of perceived reward and punishment, then the BIS is activated (Corr & McNaughton, 2012; Gray & McNaughton, 2000; McNaughton & Corr, 2004; 2008).

The BIS may stimulate a number of relevant psychological processes in the workplace, such as risk assessment, threat checks, and a reduction of ongoing behavior (Corr et al., 2017). In ordinary operation, this is a beneficial process of caution where one is weighing all the possibilities (Perkins & Corr, 2006). However, in hyper-BIS individuals, its activation may lead to reduced performance because of consistent doubt, indecisiveness, anxiety, and engagement of time-wasting activities (Corr et al., 2017). Nevertheless, although
experienced as undesirable, the processing of goal conflict by the BIS can lead to adaptive solutions to current problems (Perkins & Corr, 2014) and creative solutions where contemplating over resolutions is required (Perkins, Arnone, Smallwood, & Mobbs, 2015).

BAS and Workplace Behavior

Better understanding RST may help in examining a variety of workplace behaviors (Corr et al., 2017). For example, drive and exploration in the workplace will be heavily influenced by the BAS. The primary function of the BAS is to move the person from a start state toward the final biological reinforcer. For example, from a new project to the completion of project goals and obtaining rewarding feedback that acts as a reinforcer. To move along from start to finish, some intermediate goals are needed. This process consists of identifying the final outcome, planning behaviors that are in-line with achieving the goal, and executing the plan. These approach behaviors lead to the final desired reinforcer outcome by involving a sequence of sub-processes, some of which may oppose each other. For example, a meeting where the boss gives the subordinate another task that is not related to the original task. Managing these contradictory sub-processes entails the oversight of the BIS.

Working with RST

All else being equal, individuals with a strong BAS have a heightened approach drive, but this motivational inclination should be expected to be
moderated by the activity of the FFFS and BIS (Corr et al., 2017). These interactions between the numerous mechanisms of RST, along with the personal definition of what counts as a reward or punishment for an individual, signal that the links between RST traits and organizationally relevant outcomes will be multifaceted. It is still anticipated that the BAS will have a significant effect on workplace performance, with high BAS forecasting high productivity, and low BAS forecasting low productivity. Without a reasonably strong BAS, there would be no motivation for action.

Corr et al. (2016) suggest that a person’s general level of FFFS motivation moderates the effects of BAS. More effective decision-making, by recognizing the aversive outcomes of making a wrong decision, is expected in a person with a healthy level of FFFS sensitivity that lessens high BAS. Perkins and Corr (2006) found in a group of business managers and military personnel, neuroticism-related worry improved performance in those who were more cognitively able. They argued that improved performance was due to them directing their risk assessment toward job-related factors rather than self-focused worry. An excessively strong FFFS, where immediate decisions are needed, would increase avoidance motivation, a loss aversive disposition, or a defensive panicky type of action in other situations (Corr et al., 2017). Excessive punishment (FFFS/BIS) sensitivity would stop a person’s drive for results. However, if a person’s punishment sensitivity is too low, it could lead to drive becoming uncontrolled and lead to reckless and unpredictable behavior.
Activation of the FFFS will usually take away from BAS effects, but if the activation of the FFFS is adequately strong, this will lead to a conflict, which will activate the BIS resulting in cautious and indecisive action (Corr et al., 2017). In some organizational contexts, this may be a beneficial behavior. However, the long-term activation of BIS is expected to impair performance. Goal conflict in BIS theory includes conflict between two equally balanced, but incompatible, goals. These goals can both be viewed positively, but expect a decreased performance, especially if the negative consequences of making the wrong decision is evaluated as a form of loss.

When thinking about combinations of the FFFS, BIS, and BAS, with regard to personality and motivational types, various factors should be considered (Corr et al., 2017). The environment is one of these factors. In a highly managed environment, even a low BAS level can be encouraged to work to an acceptable standard. However, in a loosely managed environment, then high, but not too high, BAS along with appropriate levels of FFFS and BIS activity are needed. Another factor to consider is cognitive ability. Cognitive ability is likely to be important, in non-manual professions, but even in low skill occupations, it should still be considered. For example, a person may or may not achieve anything of substance if their motivation is not coupled to cognitive ability.
RST and Retirement Planning

As explained above, the BAS responds to stimuli evaluated as rewarding and controls all reward-seeking behavior (Corr et al., 2017). Evidence suggests that BAS is a multidimensional construct (Corr & Cooper, 2016; Carver & White, 1994). At normal levels of operation, this reflects what one may typically refer to as motivation or drive. Corr and Cooper (2016) in their scale show four distinct facets of BAS; Reward Interest, Goal-Drive Persistence, Reward Reactivity, and Impulsivity.

Reward Interest demonstrates one’s openness to experience and to explore for novel and possibly rewarding stimuli. Goal-Drive Persistence demonstrates maintenance in one’s effort in pursuing goals. Reward Reactivity demonstrates one’s reactivity on rewarding stimuli. Impulsivity demonstrates one’s non-planning and quick reactions (Corr & Cooper, 2016; Krupić & Corr, 2020).

In contrast, the FFFS responds to stimuli evaluated as punishing. As a result, FFFS is associated with distress, fear, and avoidance, and with a general moving away from approaching stimuli of all kinds. In retirement planning, both the BAS and FFFS may be activated at the same time. If this happens, the control of behavior will reflect the deduction of one motivational urge from the other and will produce net drive (Corr et al., 2017). However, where there is a goal conflict, where no single behavioral output is enough to deal with the assessment of perceived reward and punishment, then the BIS is activated (Corr
RST has been applied and shown to influence levels of anti-social behavior in adolescents (Bacon, Corr, & Satchell, 2018). RST has also been shown to influence one’s belief incremental (malleable) and entity (fixed) theories of intelligence (Satchell, Hoskins, Corr, & Moore, 2017). Within the subgroups of BAS, Reward Interest and Reward Reactivity predicted intrinsic goals and Goal-Drive Persistence predicted both intrinsic and extrinsic goals (Krupić & Corr, 2020). In another study, BAS was positively correlated with risk-taking while the BIS and FFFS were negatively correlated with risk-taking (Satchell, Bacon, Firth, & Corr, 2018). Bennett and Bacon (2019) found in a student sample that Goal Drive Persistence was negatively associated with various forms of procrastination. Impulsivity was positively associated with procrastination. Furthermore, in their non-student population Impulsivity was positively correlated with general procrastination.

Present Study

The primary objective of this study was to examine the relationship between RST and retirement planning. No other studies, to the authors’ knowledge, have looked at the relationship between the revised RST and retirement planning behaviors. However, Neukam and Hershey (2003) developed two personality-based measures for financial savings, the Financial Inhibition Scale (FIS) and Financial Activation Scale (FAS). The FIS measures fear-based
motives thought to impede saving, while FAS measures goal-based motives that would enable savings. They used the Caver and White (1994) scale of the BIS/BAS as a model to follow in the creation of their scale. Caver and White’s scales were based on original RST and do not account for the theory development that has taken place in the last 20 years (e.g., Corr, & Cooper 2016; Krupić, Corr, Ručević, Križanić, & Gračanin, 2016).

BAS, in broad terms, mediates responses to reward and non-punishment. It stimulates approach behaviors toward biological reinforcers and to participate in actions that lead to consummatory behavior (Corr, 2008; Gray & McNaughton, 2000; Krupić, Gračanin, & Corr, 2016). This approach behavior involves a variety of subprocesses, some of which compete against each other (Corr, 2013; Corr & Cooper, 2016; Corr & Krupić, 2017). Activation of BAS should stimulate individuals to create retirement plans.

Krupić and Corr (2017) suggest the initial searching for new rewards can be measured by Reward Interest. The persistence in achieving desired goals can be measured by Goal-Drive Persistence. The emotional reactivity to the reward can be measured by Reward Reactivity, and Impulsivity indicates a fast reaction at the final state of capturing the reinforcer.

In contrast, the FFFS mediates responses to punishment and non-reward. It is associated with stress, fear, and avoidance and stimulates withdrawal behaviors from all aversive stimuli. When both the BAS and FFFS are activated at the same time, but unevenly, the focus and intensity of behavior will show by
the subtraction of one motivational impulse from the other. When the BAS and FFFS are activated at the same time and (nearly) equally activated, it creates a goal-conflict in which the BIS becomes active. BIS triggers various processes such as risk assessment, checking for threats, and the inhibition of ongoing behavior. This may lead to worry or anxiety. The activation of FFFS and/or BIS may lead individuals to shy away from creating or perhaps fully developing retirement plans. Neukam and Hershey (2003) did find that individuals who scored high in FAS decreased their savings contributions as their FIS scores increased.

Planning for retirement is a multifaceted process and can be stressful. During this process, individuals with higher or lower levels of BAS, FFFS, and BIS should be expected to behave differently in their retirement planning activity levels. The following hypothesis are shown in Figure 3.

**Hypothesis 1a.** As Reward Interest scores increase Retirement Planning Activity Level scores are predicted to increase.

**Hypothesis 1b.** As Goal-Drive Persistence scores increase Retirement Planning Activity Level scores are predicted to increase.

**Hypothesis 1c.** As Reward Reactivity scores increase Retirement Planning Activity Level scores are predicted to increase.

**Hypothesis 1d.** As Impulsivity scores increase Retirement Planning Activity Level scores are predicted to decrease.
Hypothesis 2. BIS will demonstrate incremental prediction over and above the four BAS variables. Specifically, as BIS scores increase the Retirement Planning Activity Level scores are predicted to decrease when the four BAS variables are controlled for.

Hypothesis 3. FFFS will demonstrate incremental prediction over and above the four BAS variables. Specifically, as FFFS scores increase the Retirement Planning Activity Level scores are predicted to decrease when the four BAS variables are controlled for.

Figure 3. Hypothesized Model of Retirement Planning Activity
CHAPTER TWO

METHOD

Participants
A total of 131 participants between the ages of 18-67 (94 men, 36 women, 1 Gender Queer) completed an online questionnaire through Amazon’s Mechanical Turk (MTurk) survey system. Furthermore, 82.4 percent of respondents indicated they are considered working full-time and 8.4 percent part-time employees, while 7.6% stated they were self-employed and 1.5% were not employed. 87% of participants stated they are the primary financial or co-financial planner of retirement in their household.

Measures

Demographics

Participants were asked to report their age, gender, ethnicity, education level, income, and job type. See Appendix A for the specific wording of the demographic items.

Table 1 Demographics

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
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<td>Men</td>
<td>92</td>
<td>71.9</td>
</tr>
<tr>
<td>Women</td>
<td>35</td>
<td>27.3</td>
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<td>Gender Queer</td>
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<table>
<thead>
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<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
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<tr>
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<td>0.8</td>
</tr>
<tr>
<td>Age Group</td>
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<td>Percentage</td>
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<td>-----------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>&lt;25</td>
<td>11</td>
<td>8.6</td>
</tr>
<tr>
<td>25-34</td>
<td>65</td>
<td>51.2</td>
</tr>
<tr>
<td>35-44</td>
<td>30</td>
<td>23.6</td>
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<td>45-54</td>
<td>16</td>
<td>12.6</td>
</tr>
<tr>
<td>55+</td>
<td>8</td>
<td>6.3</td>
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**Marital status**

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<th>Status</th>
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<tr>
<td>Married</td>
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<td>67.2</td>
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<tr>
<td>Living together</td>
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<tr>
<td>Separated</td>
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<td>0.8</td>
</tr>
<tr>
<td>Divorced</td>
<td>3</td>
<td>2.3</td>
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<tr>
<td>Widowed</td>
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<td>0.8</td>
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<tr>
<td>Single, never married</td>
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<td>25.0</td>
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**Employment status**

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<tr>
<td>Full time (35 hours a week or more)</td>
<td>105</td>
<td>82.0</td>
</tr>
<tr>
<td>Part time (1-34 hours a week)</td>
<td>11</td>
<td>8.6</td>
</tr>
<tr>
<td>Self-employed</td>
<td>10</td>
<td>7.8</td>
</tr>
<tr>
<td>Not employed</td>
<td>2</td>
<td>1.6</td>
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</table>

**Ethnicity**

<table>
<thead>
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<th>Ethnicity</th>
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<tr>
<td>Asian</td>
<td>19</td>
<td>14.8</td>
</tr>
<tr>
<td>African American</td>
<td>19</td>
<td>14.8</td>
</tr>
<tr>
<td>Latino/Hispanic</td>
<td>5</td>
<td>3.9</td>
</tr>
<tr>
<td>Native American or Alaskan Native</td>
<td>4</td>
<td>3.1</td>
</tr>
<tr>
<td>Native Hawaiian or other Pacific Islander</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>White</td>
<td>78</td>
<td>60.9</td>
</tr>
<tr>
<td>From multiple races</td>
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<td>0.8</td>
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**Education level**

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<tr>
<th>Level</th>
<th>Count</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>High school degree or equivalent (e.g., GED)</td>
<td>6</td>
<td>4.7</td>
</tr>
<tr>
<td>Some college but no degree</td>
<td>16</td>
<td>12.5</td>
</tr>
<tr>
<td>Associate degree</td>
<td>8</td>
<td>6.3</td>
</tr>
<tr>
<td>Bachelor degree</td>
<td>83</td>
<td>64.8</td>
</tr>
<tr>
<td>Graduate/Professional degree</td>
<td>15</td>
<td>11.7</td>
</tr>
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</table>

**Household income**

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$20,000</td>
<td>15</td>
<td>11.5</td>
</tr>
<tr>
<td>$20,000 - $39,999</td>
<td>25</td>
<td>19.1</td>
</tr>
<tr>
<td>$40,000 - $59,999</td>
<td>39</td>
<td>29.8</td>
</tr>
<tr>
<td>$60,000 - $79,999</td>
<td>16</td>
<td>12.2</td>
</tr>
</tbody>
</table>
$80,000 - $99,999  16  12.2
$100,000 - $119,999  9  6.8
>-$120,000  11  8.4

**Defined benefit pension through employer**
- Yes  66  51.6
- No  56  43.8
- Don't Know  6  4.7

**What Sector do you work in?**
- Public  32  25.2
- Private  91  71.7
- Other  4  3.1

**Primary financial planner or co-planner for retirement**
- Yes  111  86.7
- No  15  11.7
- N/A  2  1.6

**RST-PQ**

Corr and Cooper (2016) developed and validated an updated reinforcement sensitivity theory (RST) of personality questionnaire (PQ: RST-PQ). Their exploratory analyses revealed a six-factor structure, four distinct BAS factors including Reward Interest (α = .75), Goal-Drive Persistence (α = .86), Reward Reactivity (α = .78), and Impulsivity (α = .74) with the last two factors being FFFS (α = .78) and BIS (α = .93). This questionnaire supports Carver and White’s (1994) original questionnaire, but updates it with the current theoretical understanding. Furthermore, they investigated correlations with other established measures of general personality including the five-factor and EPQ-R models and found acceptable correlations.
The FFFS factor consists of 10 items, an example item being “I would be frozen to the spot by the sight of a snake or spider.” The BIS consist of 23 items, an example item being “I am often preoccupied with unpleasant thoughts.” The BAS four factors being, Reward Interest (7 items) “I am a very active person,” Goal-Drive Persistence (7 items), “I put in a big effort to accomplish important goals in my life,” Reward Reactivity (10 items), “Sometimes even little things in life can give me great pleasure,” Impulsivity (8 items) “I often do risky things without thinking of the consequences.” Participants rated how accurately each statement described them on a 4 point scale (1=Not at all, 4=Highly). See Appendix B for specific items.

Retirement Planning Activity

Retirement planning activity level was measured using Stawski et al.’s (2007) financial planning measure with the additional item from Hershey, Jacobs-Lawson, et al. (2007). The coefficient alpha for the scale was .89, and the minimum item-total correlation was .53. The 10-item scale is intended to examine the frequency of both information seeking and instrumental planning activities of the individual. A 7-point Likert-type response format (1 = strongly disagree, 7 = strongly agree) was used. A sample item from this scale is: Gathered or organized your financial records. See Appendix C for specific items.

HEXACO–60

Ashton and Lee (2009) developed and validated a condensed measure of the HEXACO model of personality structure. The correlations between the
HEXACO–60 and original HEXACO–PI(–R) scales ranged from .89 to .93. The six factors are Honesty-Humility (α = .74 - .79), M (SD) 3.23 (.61) / 3.20 (.64), Emotionality (α = .73 - .78), M (SD) 3.42 (.62) / 3.30 (.63), Extraversion (α = .73 - .80), M (SD) 3.48 (.57) / 3.52 (.59), Agreeableness (α = .75 - .77), M (SD) 2.96 (.59) / 3.10 (.66), Conscientiousness (α = .76 - .78), M (SD) 3.44 (.58) / 3.43 (.63), and Openness to Experience (α = .77 - .80), M (SD) 3.37 (.60) / 3.16 (.62). The scale intercorrelations were all below .30 and its correlations with measures of the Big Five factors fit as expected theoretically.

Each of the six factors are measured by 10 questions each. An example question of Honesty-Humility being; “I wouldn’t use flattery to get a raise or promotion at work, even if I thought it would succeed,” Emotionality; “I sometimes can’t help worrying about little things,” Extraversion; “I prefer jobs that involve active social interaction to those that involve working alone,” Agreeableness; “I rarely hold a grudge, even against people who have badly wronged me,” Conscientiousness; “I always try to be accurate in my work, even at the expense of time,” and Openness to Experience; “I’m interested in learning about the history and politics of other countries.” A 5-point Likert-type response format (1 = strongly disagree, 5 = strongly agree) was used. See Appendix D for specific items.
CHAPTER THREE

RESULTS

Correlation and regression analyses were conducted through SPSS 26 in order to test each of the proposed hypotheses. Two separate sequential regressions were used to determine if additional information regarding BIS and FFFS scores improved prediction of Retirement Planning Activity Levels. The statistical assumptions underlying the model were tested and descriptive statistics examined. The total sample size was 131 with two participants’ information removed because they failed two or more of the attention checks and one outlier later removed from the data set for a total of N=128 with some missing data. Retirement Planning Activity Level (RPAL), Perceived Saving Adequacy (PSA), Perceived Financial Knowledge (PFK), and Retirement Goal Clarity (RGC) were negatively skewed and Emotionality was also kurtotic (see Table 2). Using a p<.001 criterion for Mahalanobis distance, no multivariate outliers were found. Using the missing variable analysis in SPSS, the data was found to be missing completely at random (MCAR).

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>α</th>
<th>Skewness (SE=.22)</th>
<th>Kurtosis (SE=.43)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>34.64</td>
<td>10.46</td>
<td>0.99</td>
<td>-0.09</td>
<td>0.34</td>
</tr>
<tr>
<td>BIS</td>
<td>56.20</td>
<td>14.68</td>
<td>0.94</td>
<td>-0.20</td>
<td>-0.57</td>
</tr>
<tr>
<td>FFFS</td>
<td>26.06</td>
<td>6.54</td>
<td>0.85</td>
<td>-0.43</td>
<td></td>
</tr>
<tr>
<td>BAS-</td>
<td></td>
<td></td>
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</table>
Table 3 displays the intercorrelations between the RST-PQ factors and other established retirement measures and personality measure. The RST-PQ BAS factors demonstrate a variety of interesting relationships. To test Hypothesis 1a I computed a bivariate Pearson’s Product-Moment Correlation Coefficient (r) to assess the size and direction of the linear relationship Reward Interest and found it was positively correlated with all the retirement measures used in França and Hershey (2018). Specifically, results from this analysis indicate support for Hypothesis 1a in that there is a significant positive association between Reward Interest and Retirement Planning Activity Level (r(123)=.44, p<.01). There is a positive relationship with Honesty/Humility (.26), Extraversion (.58), and Agreeableness (.30). These findings are similar to what was reported in the
development of RST-PQ where there was a positive correlation between RI and Extraversion (.42) and Agreeableness (.19) (Corr & Cooper, 2016). It should be noted that Corr and Cooper used the Mini-IPIP Five-Factor Model Personality Scale, while in the current study I used the HEXACO-60 scale, which may in part account for some of the differences in the size of the correlations, however the pattern of correlations remained the same. No significant relationship is seen between Reward Interest and Emotionality, Conscientiousness, and Openness (see Table 3).

To test Hypothesis 1b I computed a bivariate Pearson’s Product-Moment Correlation Coefficient (r) to assess the size and direction of the linear relationship. Goal-Drive Persistence is positively correlated with all the retirement measures. Specifically, results from this analysis indicate support for Hypothesis 1b in that there is a significant positive association between Goal-Drive Persistence and Retirement Planning Activity Level (r(125)=.46, p<.01). In addition, there is a positive relationship with Extraversion (.47), Conscientiousness (.25), and Openness (.22). These findings are similar to what was reported in the development of RST-PQ where there was a positive correlation between GDP and Extraversion (.20), Conscientiousness (.38), and Openness (.07) (Corr & Cooper, 2016). However, no significant relationship is found between Goal-Drive Persistence and Honesty-Humility, Emotionality, and Agreeableness.
To test Hypothesis 1c I computed a bivariate Pearson’s Product-Moment Correlation Coefficient (r) to assess the size and direction of the linear relationship. Reward Reactivity is positively correlated with all the retirement measures. Specifically, results from this analysis indicate support for Hypothesis 1c in that there is a significant positive association between Reward Reactivity and Retirement Planning Activity Level (r(124)=.24, p<.01). There is a positive relationship with Emotionality (.29), Extraversion (.31), and Agreeableness (.22). Emotionality (.29) has a stronger and positive relationship with Reward Reactivity which is different than previous research showed with Neuroticism (-.02) (Corr & Cooper, 2016). Reward Reactivity had a similar relationship with Extraversion (.36) and Agreeableness (.15) in previous research. However, no significant relationship is seen between Reward Reactivity and Honesty-Humility, Conscientiousness, and Openness.

To test Hypothesis 1d I computed a bivariate Pearson’s Product-Moment Correlation Coefficient (r) to assess the size and direction of the linear relationship. Impulsivity is positively correlated with Perceived Saving Adequacy and Perceived Financial Knowledge. Results from this analysis do not indicate support for Hypothesis 1d. No relationship was found with Retirement Planning Activity Level and Retirement Goal Clarity. There is a negative relationship with Honesty/Humility (-.49), Conscientiousness (-.56), and Openness (-.37). The relationship of Impulsivity and Openness in this study is different than previous research (.16) (Corr & Cooper, 2016). Impulsivity had a similar relationship with
Conscientiousness (-.33) in previous research. However, no significant relationship is seen between Impulsivity and Emotionality, Extraversion, and Agreeableness.
Table 3 – Bivariate Pearson Product Moment Correlation Coefficients

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

Behavioral Inhibition System (BIS), Fight–Flight–Freeze System (FFFS), Behavioral Approach System (BAS), Reward Interest (RI), Goal-Drive Persistence (GDP), Reward Reactivity (RR), and Impulsivity (IMP), Retirement Planning Activity Level (RPAL), Perceived Saving Adequacy (PSA), Perceived Financial Knowledge (PFK), and Retirement Goal Clarity (RGC)
To test Hypothesis 2 a two-step sequential regression was conducted with Reward Interest (RI), Goal-Drive Persistence (GDP), Reward Reactivity (RR), and Impulsivity (IMP) entered at step one and Behavioral Inhibition System (BIS) entered at step 2 (see Table 4). With all the IVs in the equation R² = .29, F(5, 113) = 11.83, p < .001. The adjusted R² value of .27 indicates that 27% of the variance in Retirement Planning Activity Levels is predicted by Reward Interest and Goal-Drive Persistence. After step 1, R² = .29, Finc(4, 113) = 11.825, p < .001. After step 2 R² = .29, Finc(1, 113) = 0.02, p = .89. Thus, the addition of BIS did not improve R². Age and Income were added to step one of the Regression model and did not change the outcome or contribute a significant level of variance explained.
To test Hypothesis 3 a two-step sequential regression was conducted with Reward Interest (RI), Goal-Drive Persistence (GDP), Reward Reactivity (RR), and Impulsivity (IMP) entered at step 1 and Fight–Flight–Freeze System (FFFS) entered at step 2 (see Table 5). With all the IVs in the equation $R^2=.29$, $F(5,113)= 11.72$, $p < .001$. The adjusted $R^2$ value of .26 indicates that 26% of the
variance in Retirement Planning Activity Levels is predicted by Reward interest and Goal-Drive Persistence. After step 1, R2= .28, Finc(4,113)=11.72, p<.001.

After step 2, R2= .29, Finc(1,113)=1.58, p=.21. Thus, the addition of FFFS did not improve R2. Age and Income were added to step one of the Regression model and did not change the outcome or contribute a significant level of variance explained.

Table 5  Sequential Regression of BAS Variables and FFFS on Retirement Planning Activity Level

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Behavioral Approach System (BAS), Reward Interest (RI), Goal-Drive Persistence (GDP), Reward Reactivity (RR), and Impulsivity (IMP), Fight–Flight–Freeze System (FFFS)
CHAPTER FOUR

DISCUSSION

The literature on retirement is vast and ever expanding. The literature has ranged from the changing nature of retirement and retirement outcomes, to the saving choices and various policy implications (Muratore & Earl, 2010; Shultz & Wang, 2011; Wang & Shultz 2010). Retirement is a process and this process is temporal in nature (Shultz & Olson, 2013). Expectations of retirement are influenced by informal and formal planning (Taylor-Carter, Cook, & Weinberg, 1997). However, planning for retirement often does not happen until an individual is closer to their actual retirement decision (Wang & Shultz, 2010).

There are various aspects that go into retirement decision making. Retirement planning is positively linked with retirement satisfaction (Topa et. al., 2009). Individuals who feel that they had planned for retirement tend to be satisfied and adjusted well to retirement (Spiegel & Shultz, 2003) and those who plan financially generally have more wealth than non-planners (Vivel-Búa et. al., 2019). Retirement financial planning is a multifaceted issue that involves one assessing their current and future financial condition. There are plenty of challenges that individuals and governments confront regarding retirement planning. Various demographic, psychological, cognitive, and social factors influence retirement planning. The primary goal of the current study was to extend the literature on retirement planning by expanding knowledge of what
influences retirement planning by incorporating Reinforcement Sensitivity Theory (RST) (Gray & McNaughton, 2000; McNaughton & Corr, 2008).

**RST-HEXACO**

This is the first time to the author’s knowledge that the HEXACO model of personality has been applied with RST. This study adds to the strength of both RST and HEXACO personality theory. The findings generally support previous research and allows for an expanded understanding of RST.

The initial searching for new rewards can be measured by Reward Interest (Krupić & Corr, 2017). In previous research Reward Interest was positively correlated with the Mini-IPIP Five-Factor Model Personality Scale (FFM) Extraversion (.42) and Openness (.23), and negatively correlated with FFM Neuroticism (.30). The current study also finds that Reward Interest is positively correlated with the HEXACO Extraversion (.58) and has a stronger relationship with HEXACO Agreeableness (.30) compared to FFM (.19). However, unlike previous research, the relationship with HEXACO Openness (.15) is weaker and not significant. Furthermore, the relationship with HEXACO Emotionality (.04) is not present in the current study. This may be due to both HEXACO Agreeableness and Emotionality partially but incompletely overlapping with the big five agreeableness and FFM neuroticism (de Vries, Tybur, Pollet, & Van Vugt, 2016). Additionally, Reward Interest has a negative relationship with Honesty-Humility. Honesty–Humility has been defined by traits such as sincerity and fairness versus conceit and greed (Ashton & Lee, 2008). These relationships
suggest the temperament of an individual with a high score of Reward Interest as: Extraverted, agreeable, and feasibly conceited and greedy (Ashton, Lee, & de Vries, 2014; Corr & Cooper, 2016). Perhaps Reward Interest is capturing a form of “greediness” that allows an individual to look for a goal to approach. More research should be done to replicate these findings.

The persistence in achieving desired goals can be measured by Goal-Drive Persistence. In previous research Goal-Drive Persistence was positively correlated with (FFM) Conscientiousness (.38) (Corr & Cooper, 2016). The current study also finds HEXACO Conscientiousness (.25) to be significantly related but does not have as strong of a relationship. Furthermore, HEXACO Openness (.46) has a much stronger positive relationship and Extraversion a similar relationship (.22) compared to previous studies (.07) and (.20) respectively. These relationships suggest the temperament of a goal-drive persistent individual: open, conscientious, and extraverted (Ashton, Lee, & de Vries, 2014; Corr & Cooper, 2016). These findings further support previous research. Goal-Drive Persistence has been shown to predict both extrinsic and intrinsic goals (Krupić & Corr, 2020). Two important elements of Goal-Drive Persistence are the effort in resisting momentary distraction and pursuing goals. This is reflected in its correlations with extraversion and conscientiousness as shown in this study and previous studies (Corr & Cooper, 2016).

Reward Reactivity demonstrates one’s reactivity on rewarding stimuli. In previous research Reward Reactivity was positively correlated with FFM
Extraversion (.36) (Corr & Cooper, 2016). The current study also finds HEXACO Extraversion (.31) to be significantly related but does not have as strong of a relationship. Furthermore, HEXACO Agreeableness (.22) and Emotionality (.29) have a stronger positive relationship compared to previous studies (.15) and (-.02). An individual scoring high on this scale suggest someone who is reward oriented along conventional extraverted lines, sensitive, and agreeable (Ashton, Lee, & de Vries, 2014; Krupić & Corr, 2017). Specifically, in measuring Extraversion, it has been demonstrated to be a sign of latent variables that include positive affect and reward sensitivity (Corr, DeYoung, & McNaughton, 2013). These findings further support the theoretical underpinnings of the BAS (Krupić & Corr, 2017).

Impulsivity demonstrates one’s non-planning and quick reactions (Corr & Cooper, 2016; Krupić & Corr, 2020). In previous research Impulsivity was positively correlated with FFM Extraversion (.45) and is low in FFM Conscientiousness (-.33) (Corr & Cooper, 2016). The current study also finds that Impulsivity is negatively correlated with HEXACO Conscientiousness (-.56). However, there is no relationship found between Impulsivity and HEXACO Extraversion (.00). Furthermore, there is a negative relationship with HEXACO Openness (-.37) compared to FFM (.16) and Honesty-Humility (-.49). De Vries, Tybur, Pollet, and Van Vugt (2016) note that Humility is characterized by traits relating to fairness, sincerity, greed avoidance, and modesty versus deceitfulness, slyness, greediness, and pretentiousness. An individual scoring
high on Impulsivity suggest someone who is low in conscientiousness, sly, greedy, and not open to experiences or conditions that allow for exploration. The lack of any relationship between Impulsivity and Extraversion is surprising given previous findings in the literature (Corr & Cooper, 2016). However, this suggests that one does not need to be extraverted in order to be impulsive.

FFFS is associated with distress, fear, and avoidance, and with a general moving away from approaching stimuli of all kinds. In previous research FFFS was positively correlated with FFM Neuroticism (.35) (Corr & Cooper, 2016). Within the current study we also find that FFFS is positively correlated with HEXACO Emotionality (.49). Adjectives that define Emotionality, include vulnerable, sensitive, anxious, and sentimental versus fearless, tough, independent, and unemotional (Ashton, Lee, & de Vries, 2014). Moreover, there is also a negative relationship with HEXACO Extraversion (-.23) and Openness (-.19) that coincide with previous findings (-.12) and (-.18) respectively (Corr & Cooper, 2016). This suggest that individuals who score high on the FFFS scale are not extraverted and open to new experiences, feel vulnerable and are sensitive.

A cautious yet expanded understanding may be interpreted from these results by including extraversion and openness. Logically, one could suppose that a person who is fearful to not be extraverted and open. An individual would need to not be fearful in order to explore (or be open for) potential rewards in various environments (Krupić & Corr, 2017).
BIS is associated with the personality factor of worry-proneness and anxious contemplation (Corr, 2008). In previous research BIS was positively correlated with FFM neuroticism (.71) (Corr & Cooper, 2016). The current study also finds that BIS is positively correlated with HEXACO Emotionality (.42). Furthermore, there is a negative correlation with Honesty-Humility (-.20), Extraversion (-.48), Agreeableness (-.31), Conscientiousness (-.38), and Openness to Experience (-.39). These negative relationships are stronger than previous research has indicated, FFM Openness (-.01), Conscientiousness (-.13), Extraversion (-.27) and Agreeableness (-.01) (Corr & Cooper, 2016). This suggest that individuals who score high on the BIS scale are not extraverted, agreeable, and opened to new experiences. Instead, they may be low in conscientiousness, feel vulnerable and are anxious.

BAS mediates responses to reward and non-punishment. It encourages approach behaviors toward biological reinforcers and to take part in actions that lead to consummatory behavior (Corr, 2008; Krupić, Gračanin, & Corr, 2016; Gray & McNaughton, 2000). A logical connection can be made that an extraverted individual may show approach behaviors. Furthermore, unique personality factors that correlate with the sub-facets within BAS show the theoretical multi-dimensionality of BAS. The FFFS mediates responses to punishment and non-reward. It is linked with stress, fear, and avoidance and stimulates withdrawal behaviors from all aversive stimuli. BIS triggers various processes such as risk assessment, checking for threats, and the inhibition of
ongoing behavior. This may lead to worry or anxiety. The HEXACO model of personality and its interpretation generally supports these findings. However, it is important that these findings be replicated given that not all the relationships were found to match previous research.

**HEXACO-Retirement**

As noted above, other studies have looked at personality to see how it effects various aspects of retirement planning. However, these studies have been done using the Big Five or Five Factor Model. No other studies to the authors knowledge have used the HEXACO model to see the relationships between personality and retirement. As a result, I expanded the use of HEXACO personality theory by connecting it to retirement planning.

Perceived Saving Adequacy measures an individual’s perception of their savings and if they think they are saving enough to retire comfortably. Previous research suggest that Conscientiousness has a positive connection with voluntary pension savings and bank savings (Kausel, Hansen, & Tapia, 2016). Another study showed that conscientiousness and extroversion showed a positive indirect connection (Asebedo et. al., 2019). Furthermore, openness and neuroticism have shown a negative indirect connection with saving behavior. Balasuriya and Yang (2019) found Openness was negatively, and Conscientiousness was positively, associated with personal pension participation. However, in a contradictory finding, Extraversion related to a person not participating in both employers’ and personal pension schemes.
In the current study I found that Perceived Saving Adequacy is positively correlated with HEXACO Extraversion and negatively correlated with Honest-Humility and Emotionality. Thus, the results of the present study support Asebedo et. al.’s (2019) claim of Extraversion having an effect on saving, but instead of an indirect effect, there is a direct relationship between Extraversion and saving.

These findings suggest that an individual who saves more may be more extraverted, greedy, and independent. While an individual who does not save or saves less is more introverted, modest, and anxious. An individual’s savings is an important part of retirement planning and those who plan financially have generally been found to have more wealth than non-planners (Vivel-Búa et al., 2019).

Perceived Financial Knowledge measures an individual’s perception of their financial Knowledge. Previous research suggests that perceived knowledge was positively correlated with conscientiousness and negatively correlated with emotional stability (Hershey & Mowen, 2000; Killins, 2017). Results of the current study find that Perceived Financial Knowledge is positively correlated with HEXACO Extraversion and negatively correlated with Honest-Humility and Emotionality. This suggest that an individual is who perceives themselves to be knowledgeable of retirement finances may be more extraverted, conceited, and independent. While an individual who does not perceive themselves to be knowledgeable is more introverted, modest, and anxious.
In addition, previous researchers have shown a positive connection between financial knowledge and retirement planning (Hershey, Jacobs-Lawson, et. al., 2007; Lusardi & Mitchell, 2008; Niu & Zhou, 2018). This suggest that one method to increase retirement planning is to increase financial knowledge. More specifically, as demonstrated by previous research and the current study, an extraverted and conscientious person may already possess the financial knowledge and therefore a targeted approach to increase knowledge for introverted, modest, and anxious person need to be considered. Perhaps instead of a classroom setting for educating financial tools where extraverts may thrive, an online options could be presented for those who may be less comfortable in such a setting.

Retirement Goal Clarity measures an individual’s perception of their retirement goals. Previous research relating to financial preparedness goals show a positive relationship with Conscientiousness and a negative relationship with Emotional Stability (Hershey & Mowen, 2000). In the current study I found that Retirement Goal Clarity is positively correlated with HEXACO Extraversion and negatively correlated with Honest-Humility and Emotionality. This suggest that an individual who has retirement goals may be more extraverted, conceited, and independent. While an individual who does not have retirement goals is more introverted, modest, and anxious.

These findings suggest that it may be easier for an independent, extraverted person to have or create goals. In turn, goal clarity can help motivate
individuals to plan for the future (Stawski, Hershey, & Jacobs-Lawson, 2007). However, goal clarity strengthens as age increases. This agrees with Wang and Shultz’s (2010) assertion that planning for retirement often does not happen until an individual is closer to their actual retirement decision. It may be that as an individual increases in age, it influences individuals to create retirement goals specifically those who may be more introverted or anxious.

Retirement Planning Activity Level measures an individual’s actions taken to inform themselves about retirement planning, benefits, and preparation. Previous researchers have looked at how personality can influence aspects of retirement planning such as income (Sutin et. al., 2009), wealth (Motika, 2019), pension participation (Kausel, Hansen, & Tapia, 2016; Balasuriya, & Yang, 2019), and saving behavior (Asebedo, et al., 2019). In this study I used a more general measurement of retirement planning that has been used in other research (Stawski, Hershey, & Jacobs-Lawson, 2007; França, & Hershey, 2018). By doing so, it may be possible to see how personality traits are related to general retirement planning. The current study results indicate that Retirement Planning Activity Level is positively correlated with HEXACO Extraversion and negatively correlated with Honest-Humility and Emotionality. This suggests that an individual whose planning level is higher may be more extraverted, pretentiousness, and independent. While an individual whose planning level is lower is more introverted, modest, and anxious.
Given the multifaceted nature of retirement planning and the small but significant relationships between personality and retirement, any conclusions should be drawn carefully. Generally, Extraversion is shown to have a positive influence on retirement. Furthermore, it seems that individuals who do not react emotionally but react unemotionally tend to score higher on these retirement measures. The small negative relationship between Honesty-Humility and the retirement outcomes is intriguing. It may suggest that there is a form of greediness or pretentiousness being measured that influences retirement planning.

RST-Retirement Planning

In this study, I have examined how incorporating Reinforcement Sensitivity Theory influences retirement planning. The data seem to indicate that aspects of the Behavioral Approach System (BAS) influences retirement planning, while the Fight–Flight–Freeze system (FFFS) and the Behavioral Inhibition System (BIS) do not.

As noted above, RST proposes that individual differences of the evaluation of a stimulus (gain and loss) are affected by variations in brain structures (Corr & Krupić, 2017). This evaluation leads to the stimuli being considered a reward (attractor) or punishment (repulsor). A stimulus motivates, which is defined in terms of goals (note, goals can affect the evaluation of stimuli). The strength of the goals is governed by context, drive, conditioning, and what the environment permits. Depending on the strength and conflict potential of
the goals, there is an activation of the three systems, approach (BAS), avoidance (FFFS), and conflict resolution (BIS).

In the present sample, as predicted, Reward Interest, Goal-Drive Persistence, and Reward Reactivity were positive associated with Retirement Planning Activity Level. Corr and Krupić (2017) suggest that individuals higher on Reward Interest are curious about many things and worth investigating. They are expected to have a larger range of goals, and therefore could be seen as having higher incentive motivation. Results of this study further supports this supposition because of the positive relationship that has been found between reward interest and Retirement Planning Activity Level. Furthermore, the positive relationship with other retirement variables Perceived Saving Adequacy, Perceived Financial Knowledge, and Retirement Goal Clarity suggest a range of goals.

When a goal captures one’s interest, the next step is goal planning and persevering towards the goal (Corr & Krupić, 2017). The goals may vary in intricacy or achievability. Individuals high on Goal-Drive Persistence should show a predisposition to persist in achieving more complex or difficult long-term goals. Results from this study supports this claim because of the positive relationship that was seen between Goal-Drive Persistence and Retirement Planning Activity Level. Furthermore, the positive relationship with other retirement variables Perceived Saving Adequacy, Perceived Financial Knowledge, and Retirement Goal Clarity suggest that individuals are making retirement goals and willing to put in the effort to get the knowledge needed to make decisions.
Furthermore, the positive relationship between Goal-Drive Persistence and the other measured retirement variables Perceived Saving Adequacy, Perceived Financial Knowledge, and Retirement Goal Clarity suggest that individuals are making retirement goals and willing to put in the effort to obtain the knowledge needed to make decisions. This is supported by other researchers as well. For example, retirement planning has been shown to have a positive relationship with financial knowledge (Lusardi & Mitchell, 2008; Niu & Zhou, 2018), and goal clarity helps motivate individuals to plan for the future (Hershey & Jacobs-Lawson 2007).

The experiencing of an emotional response to a reward (i.e., ‘pleasure’) and its level is linked to Reward Reactivity. Furthermore, it gives the positive reinforcement for BAS behavior (Krupić, Gračanin, & Corr, 2016). It is therefore understandable that there is a weaker positive relationship between Reward Reactivity and Retirement Planning Activity Level. It can be argued that within the goal of retiring, there are several smaller goals that need to be achieved in order to complete the main goal. This is supported by this study as well with the positive relationship between Reward Reactivity and the other retirement measures. These retirement measures of Perceived Saving Adequacy, Perceived Financial Knowledge, and Retirement Goal Clarity could be viewed as subcomponents of general retirement planning and have been used in previous studies (Hershey & Jacobs-Lawson 2007; Hershey, Henkens, & Van Dalen, 2007; Lusardi & Mitchell, 2008; Niu & Zhou, 2018). An individual’s emotional
response towards these subgoals may provide the positive reinforcement needed to continue towards the main goal. It should be noted that the relationship was small, so any evaluation should be done with caution.

Finally, I predicted that Impulsivity, FFFS and BIS would be negatively related to Retirement Planning Activity Level, suggesting that an individual’s impulsivity, fear, and anxiety would reduce retirement planning. In the present data, no significant relationship was found to suggest this is transpiring. In fact, Impulsivity showed a small positive correlation with Perceived Savings Adequacy and Perceived Financial Knowledge. This may be due to an impulsive person impulsively thinking that they are saving and know enough financially.

Perhaps these findings are due to the lack of stimuli being evaluated as punishing. Since retirement is perceived to be far away for some, there is not an immediate threat to induce a reaction (McNaughton & Corr, 2004). Furthermore, if there is not a perceived conflict, the BIS would not be activated.

Interestingly age is negatively correlated with Impulsivity, FFFS and BIS. This might suggest that as people age, they are less impulsive and less motivated by anxiety and fear. Both age and income did not show significant relationships with any of the retirement outcome. This finding is the opposite of what most research would suggest (Hira, Rock, & Loibl, 2009; Wang & Shultz, 2010).
Theoretical Implications

The results of the current study contribute to the theoretical implications for both RST and retirement planning. RST is built upon an explanation of the direct/short-term state of neural systems and which neuropsychological systems facilitate these responses (Corr, 2008). Longer-term trait dispositions of emotion, motivation, and behavior are built upon these state systems. Motivation may be viewed as an immediate state process whereas, personality may be viewed as the long-term trait of typical motivation (Corr & Krupic, 2017). Retirement is a process (Muratore & Earl, 2010). By looking at motivational personality traits, this study contributes to the understanding of this process and its planning.

Wang and Shultz (2010) in their review of the retirement literature discuss retirement conceptualizations, corresponding theories, and research examples. Conceptualizing retirement as decision making accentuates retirement as a motivated choice behavior. Wang and Shultz note that this approach presumes that workers consider various factors to make their retirement decisions. These factors include the workers’ work and nonwork environment and their own characteristics. If retirement is a motivated choice behavior, then RST can help researchers understand the motivational personality traits that underlie the individual’s motivation. Specifically, in this study I show that Reward Interest, Goal-Drive Persistence and Reward Reactivity were positive associated with Retirement Planning Activity Level. Any planning or lack of planning will affect one’s retirement (Taylor-Carter, Cook, & Weinberg, 1997; Spiegel & Shultz,
2003; Topa et al., 2009; Vivel-Búa, et al., 2019). Reward Interest, Goal-Drive Persistence, and Reward Reactivity are sub-components of BAS (Corr & Cooper, 2016). BAS mediates reactions to all appetitive stimuli, conditioned and unconditioned (Corr, 2008). It is responsible for creating the emotions of anticipatory pleasure and hope. The associated personality factors involve optimism, reward-orientations, and impulsiveness.

Given that BAS is multidimensional (Carver & White, 1994; Corr & Cooper, 2016) it is important to note that one component of the BAS questionnaire did not relate to retirement planning. Impulsivity did not correlate with retirement planning but did with perceived savings and knowledge as noted above. This supports the notion that these approach behaviors involve a sequence of sub-processes, some of which may oppose each other, may lead to the final desired reinforcer (Corr & Cooper, 2016; Krupić & Corr, 2017). The responsibilities in approach behavior of BAS processes are still being questioned (Corr & Krupić, 2017; Krupić & Corr, 2017).

Furthermore, the positive relationship between Reward Interest, Goal-Drive Persistence, Reward Reactivity, and perceived savings, knowledge, and goal clarity show that approach personality traits are valuable to understanding aspects of retirement planning. Reward Interest demonstrates one’s openness to experience and to explore for novel and possibly rewarding stimuli (Corr & Cooper, 2016; Krupić & Corr, 2020). It follows that in order for an individual to start the process of planning for retirement that they first need to search for
resources that will help them gain knowledge or a guide on how to start planning.

The retirement process begins with a pre-retirement planning phase (Shultz & Olson, 2013; Wang & Shultz, 2010). Both informal and formal planning can influence expectations of retirement (Taylor-Carter, Cook, & Weinberg, 1997). The results of this study demonstrate that a higher score on Reward Interest corresponds with a higher score of perceived savings, knowledge, and goal clarity. However, this does not demonstrate causality. Thus, it may be easier to contend that a personality trait that measures ones’ willingness to explore for novel stimuli would precede one’s perceived knowledge, savings, and goal clarity, adding to the knowledge of retirement planning literature and strengthening the theory of RST.

Goal-Drive Persistence demonstrates maintenance in one’s effort in pursuing goals (Corr & Cooper, 2016; Krupić & Corr, 2020). The retirement process is temporal in nature (Wang & Shultz 2010; Shultz & Wang, 2011). This signifies that an individual will need to persevere in their efforts in pursuing their goal of retirement. This study demonstrates that a higher score on Goal-Drive Persistence corresponds with a higher score of perceived savings, knowledge, and goal clarity. Reward Reactivity shows one’s responsiveness toward rewarding stimuli and is a positive reinforcement for approach behavior (Krupić, Gračanin, & Corr, 2016). The relationships found in this study suggest that individuals who react more strongly towards approaching and achieving a goal may be what helps them to continue pursuing their goal. These finding add to the
understanding of retirement planning literature by demonstrating the needed for continual effort and rewards while demonstrating the value of RST.

Practical Implications

Supposing that individuals higher on Reward Interest are curious about many things (Corr & Krupić, 2017), this could suggest that in order to influence individuals who score lower on Reward Interest one would need to pique their interest into retirement planning. Perhaps a company seminar or meeting with a retirement planner could be enough to pique their interest (especially for those who have little to no experience with retirement planning). Given the relationship between retirement planning with goal clarity and perceived financial knowledge (Hershey, Henkens, et. al., 2007; Hershey, Henkens, & Van Dalen, 2010; Lusardi & Mitchell, 2008; Niu & Zhou, 2018; Stawski, Hershey, & Jacobs-Lawson 2007) perhaps a simple but comprehensive educational meeting would increase curiosity about retirement planning. Furthermore, making plans that include family members (Henkens & Van Solinge, 2002; Szinovacz & Deviney 2000; Szinovacz, DeViney, & Davey, 2001) or concerns about health (Shultz & Wang, 2007) could be the catalyst an individual needs to start planning for retirement. The objective of an intervention would be to help the individual “want-to” pursue a goal instead of “have-to” (Werner & Milyavskaya, 2018).

Once an individual starts planning for retirement, creating long-term goals will help them in their planning. Krupić, Gračanin, and Corr (2016) demonstrated that individuals who scored high on Goal-Drive Persistence showed greater
motivation toward entering a mutually beneficial exchange of resources. They argue that this suggest the individuals are planning for a long-term strategy. Perhaps individuals who score low on the Goal-Drive Persistence scale need a highly organized method to prepare for retirement (Corr et al., 2017). An individual may want to consult a financial planner or someone they trust to help them create goals and a highly structured schedule to follow up on these goals. There may be however, some anxiety in meeting with a financial adviser (Gerrans, & Hershey, 2017). Goal clarity has been shown to helped motivate individuals to plan for the future (Stawski, Hershey, & Jacobs-Lawson, 2007). Though, one should avoid going overboard with goal setting (Ordóñez, Schweitzer, Galinsky, & Bazerman, 2009).

Reward Reactivity is responsible for the experiencing of an emotional response to a reward and the positive reinforcement for BAS behavior (Krupić, Gračanin, & Corr, 2016). This knowledge should be used when planning for retirement. Setting other objectives that can be achieved will allow the individual to experience the emotional response and reinforce the goal of planning for retirement. Specifically, finding a reward that will help the individual react strongly will benefit them.

Limitations

This study was based solely on self-report questionnaire. Particularly limiting, is the use of self-report data to assess participant’s own financial knowledge, goal clarity, planning activities and savings practices. As a result, the
results might be distorted by the participants own biases. Objective data would be ideal to measure values for these variables. However, the delicate nature of the topic, as well as confidentiality issues, could possibly make this type of objective data difficult to acquire. Ideally any errors or biases would be random and not systematic in nature.

In addition, given the longitudinal nature of retirement planning, it would be beneficial to look at retirement planning from a longitudinal viewpoint. Historical event and health issues may affect one’s retirement planning. The current study used data from a single sample at one point in time. Previous studies have shown that personality can change over time (Jones, & Meredith, 1996; McCrae et al., 1999). A longitudinal study would allow for personality and behavioral variables to be monitored in real-time. This data over time has the possibility to expand the capability to answer issues about personality, but it also entails more complicated analyses (Biesanz, West, & Kwok, 2003). Furthermore, no studies to the authors’ knowledge have looked at RST longitudinally. A longitudinal study could offer a unique perspective of retirement planning.

Another limitation that needs to be addressed is the use of MTurk participants. These participants are not from the conventional undergraduate student subject pool or community sample. They are anonymous and are paid for their responses. There is a concern that MTurkers are less attentive to instructions, may provide false data, share information to other participants, and thus lead to poor-quality data (Hauser, & Schwarz, 2015; Necka, Cacioppo,
Norman, & Cacioppo, 2016). In the present study, we used various attention checks in an attempt to prevent participants simply selecting random responses. Furthermore, Necka, et al., (2016) found participants who complete more studies and believe that surveys measure real phenomena report less engagement in potentially problematic respondent behaviors. These and other measures may be used to mitigate the potential problems that arise when using crowd sourcing data techniques. However, it should be duly noted what potential problems may arise and its prospective consequences.

**Directions for Future Research**

Given that the HEXACO model measures six instead of five personality traits and Honesty-Humility being the primary addition, the significant relationship found between Honesty-Humility and RST-PQ and the retirement measurements calls for further research. Honesty-Humility is characterized by words such as honest and sincere versus greedy and opportunistic (Ashton, Lee, & de Vries, 2014). This may explain why Reward Interest and Impulsivity correlated negatively as both are related to approaching opportunities. Future research should look to replicate this relationship and expand upon it by looking more closely to which of the facets of Honesty-Humility could explain this relationship.

The small negative relationship between the retirement measures and Honesty-Humility is intriguing. It may suggest that there is a form of greediness or opportunistic traits being measured that influence retirement planning. Future research is needed to see if greed is indeed a trait that influences retirement
planning. If so, is there an optimal level of greed or perhaps a certain form of greed that is beneficial for planning?

Furthermore, Reward Reactivity is theoretically responsible for the feeling of an emotional response to a reward, giving the positive reinforcement for BAS behavior (Krupić, Gračanin, & Corr, 2016). An individual’s emotional response towards a subgoal may provide the positive reinforcement needed to continue towards the main goal. Although Reward Reactivity was positively corelated with the measures regarding savings, knowledge, and goals supporting this aspect of the theory. Future research could strengthen it by including other sub goals or components of retirement planning.

Future research would benefit from looking at retirement planning from a longitudinal viewpoint given the longitudinal nature of retirement planning. Previous research has shown the general concepts of financial knowledge were understood by almost all participants in the sample of college students (Koposko & Hershey, 2016). The understanding of more technical concepts was not as strong but those who did understand more technical concepts stated learning about them between 14-17 years of age. There may be personality or environmental factors across time that will allow for a better understanding of retirement planning.

Conclusion

Retirement planning is a complicated issue. There are many challenges that individuals and governments confront regarding how to best prepare for
retirement. Studies on retirement have varied from the changing environment of retirement and retirement outcomes to the saving choices and various policy implications. The retirement process is progressive in nature (Shultz & Wang, 2011; Wang & Shultz 2010). Planning can influence expectations of retirement (Taylor-Carter, Cook, & Weinberg, 1997). Retirement satisfaction is positively linked with retirement planning (Spiegel & Shultz, 2003; Topa, et. al., 2009). Goal clarity has been shown to help in planning (França & Hershey, 2018; Stawski, Hershey, & Jacobs-Lawson, 2007).

However, planning for retirement frequently does not happen until an individual is closer to their actual retirement decision (Wang & Shultz, 2010). Researchers have demonstrated various demographic, psychological, cognitive, and social factors that influence retirement planning. The current study extends the literature on retirement planning by incorporating Reinforcement Sensitivity Theory (RST) (Gray & McNaughton, 2000; McNaughton & Corr, 2008).

Understanding the motivation of retirement planning is a critical element for individuals and governments to understand.

RST suggests that the various evaluations of a stimulus (gain and loss) is affected by variations in brain structures (Corr & Krupić, 2017). The stimulus is then considered a reward (attractor) or punishment (repulsor) by this individual. A stimulus motivates, which is defined in terms of goals. The strength of the goals is governed by context, drive, conditioning, and what the environment permits. There is then an activation of the three systems, approach (BAS), avoidance
(FFFS), and conflict resolution (BIS). This perspective assumes that personality is the long-term representation of motivation. Focusing on approach and avoidance systems that are universal to all individuals, regardless of the stimuli, may help one understand what is motivating all major personality traits.

This study has theoretical and practical implications for both RST and retirement planning. The application of RST to retirement planning expands the utility of the theory while explaining the personalities that motivate retirement planning. Given the significant findings regarding Reward Interest, Goal-Drive Persistence, Reward Reactivity, and retirement planning this suggest that approach personality traits are an important motivational factor (Corr et al., 2017). Future researchers should look to replicate the results using longitudinal data and see if the interventions suggested would help individuals
APPENDIX A

DEMOGRAPHIC VARIABLES
Demographic Variables

Self-generated

Please answer the following questions: (select one of each response)

DEMOGRAPHICS

Please answer the following demographic questions. For questions with multiple choices, please choose the one response that best applies to you.

1. What is your gender?
   - Male
   - Female
   - Transgender
   - Gender Queer
   - I identify another way (please Specify) ___________________

2. What is your age? ______ years

3. What is your marital status?
   - Married
   - Living together
   - Separated
   - Divorced
   - Widowed
   - Single, never married

4. Which of the following best describes your employment status? (Check the box)
   - Full time (35 hours a week or more)
   - Part time (1-34 hours a week)
   - Self-employed
   - Not employed

5. How many people live in your household? ________

6. How many dependents (e.g., children under 18 years of age) do you have? _______

7. What is your ethnicity?
   - Asian
African American
Latino/Hispanic
Native American or Alaskan Native
Native Hawaiian or other Pacific Islander
White
From multiple races
☐ I identify another way (Please Specify) _________________

8. What is your education level?
☐ Less than a high school degree
☐ High school degree or equivalent (e.g., GED)
☐ Some college but no degree
☐ Associate degree
☐ Bachelor degree
☐ Graduate/Professional degree

9. How many years have you been employed in your current field of work? __________

10. What type of job do you currently hold?
☐ Service (e.g., sales, fast food, retail, etc.)
☐ Clerical
☐ Trade/Labor/Craft
☐ Managerial
☐ Professional
☐ Armed Forces
☐ Other (Please Specify) _________________

11. What Sector do you work in?
☐ Public
☐ Private
☐ Other (Please Specify) ____________________

12. What is your household income?
☐ <$20,000
☐ $20,000 - $29,999
☐ $30,000 - $39,999
☐ $40,000 - $49,999
☐ $50,000 - $59,999
☐ $60,000 - $69,999
13. How many hours on average do you work per week? ________

14. Do you have a defined benefit pension through your employer?
   - Yes
   - No
   - Don’t Know

15. Are you the primary financial planner or co-planner for retirement in your household?
   - Yes
   - No
APPENDIX B

THE REINFORCEMENT SENSITIVITY THEORY PERSONALITY QUESTIONNAIRE (RST-PQ) AND SCORING KEY
The Reinforcement Sensitivity Theory Personality Questionnaire (RST-PQ) and Scoring Key

From:

*Instructions*
Below are a list of statements about everyday feelings and behaviors. Please rate how accurately each statement describes *you in general*. Circle only one response. Do not spend too much time thinking about the questions and please answer honestly. Your answers will remain confidential.

<table>
<thead>
<tr>
<th></th>
<th>How accurately does each statement describe <em>you</em>?</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel sad when I suffer even minor setbacks.</td>
<td>Not at all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>I am often preoccupied with unpleasant thoughts.</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Sometimes even little things in life can give me great pleasure.</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>I am especially sensitive to reward.</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>I put in a big effort to accomplish important goals in my life.</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>I sometimes feel ‘blue’ for no good reason.</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>When feeling ‘down’, I tend to stay away from people.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Statement</td>
<td>1</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>8</td>
<td>I often experience a surge of pleasure running through my body.</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>I would be frozen to the spot by the sight of a snake or spider.</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>I have often spent a lot of time on my own to “get away from it all”.</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>I am a very active person.</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>I’m motivated to be successful in my personal life.</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>I am always ‘on the go’.</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>I regularly try new activities just to see if I enjoy them.</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>I get carried away by new projects.</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Good news makes me feel over-joyed.</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>The thought of mistakes in my work worries me.</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>When nervous, I sometimes find my thoughts are interrupted.</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>I would run quickly if fire alarms in a shopping mall started ringing.</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>I often overcome hurdles to achieve my ambitions.</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>I often feel depressed.</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>I think I should ‘stop and think’ more instead of jumping into things too quickly.</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>I often feel that I am on an emotional ‘high’.</td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>I love winning competitions.</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>I get a special thrill when I am praised for something I’ve done well.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>1</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>26</td>
<td>I take a great deal of interest in hobbies.</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>I sometimes cannot stop myself talking when I know I should keep my mouth closed.</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>I often do risky things without thinking of the consequences.</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>My mind is sometimes dominated by thoughts of the bad things I’ve done.</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>I get very excited when I get what I want.</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>I feel driven to succeed in my chosen career.</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>I’m always finding new and interesting things to do.</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>I’m always weighing-up the risk of bad things happening in my life.</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>People are often telling me not to worry.</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>I am very open to new experiences in life.</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>I always celebrate when I accomplish something important.</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>I find myself reacting strongly to pleasurable things in life.</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>I find myself doing things on the spur of the moment.</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>I would instantly freeze if I opened the door to find a stranger in the house.</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>I’m always buying things on impulse.</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>I am very persistent in achieving my goals.</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>When trying to make a decision, I find myself constantly chewing it over.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Statement</td>
<td>Score</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>43</td>
<td>I often worry about letting down other people.</td>
<td>1</td>
</tr>
<tr>
<td>44</td>
<td>I would go on a holiday at the last minute.</td>
<td>1</td>
</tr>
<tr>
<td>45</td>
<td>I would run fast if I knew someone was following me late at night.</td>
<td>1</td>
</tr>
<tr>
<td>46</td>
<td>I would leave the park if I saw a group of dogs running around barking at people.</td>
<td>1</td>
</tr>
<tr>
<td>47</td>
<td>I worry a lot.</td>
<td>1</td>
</tr>
<tr>
<td>48</td>
<td>I would freeze if I was on a turbulent aircraft.</td>
<td>1</td>
</tr>
<tr>
<td>49</td>
<td>My behavior is easily interrupted.</td>
<td>1</td>
</tr>
<tr>
<td>50</td>
<td>It’s difficult to get some things out of my mind.</td>
<td>1</td>
</tr>
<tr>
<td>51</td>
<td>I think the best nights out are unplanned.</td>
<td>1</td>
</tr>
<tr>
<td>52</td>
<td>There are some things that I simply cannot go near.</td>
<td>1</td>
</tr>
<tr>
<td>53</td>
<td>If I see something I want, I act straight away.</td>
<td>1</td>
</tr>
<tr>
<td>54</td>
<td>I think it is necessary to make plans in order to get what you want in life.</td>
<td>1</td>
</tr>
<tr>
<td>55</td>
<td>When nervous, I find it hard to say the right words.</td>
<td>1</td>
</tr>
<tr>
<td>56</td>
<td>I find myself thinking about the same thing over and over again.</td>
<td>1</td>
</tr>
<tr>
<td>57</td>
<td>I often wake up with many thoughts running through my mind.</td>
<td>1</td>
</tr>
<tr>
<td>58</td>
<td>I would not hold a snake or spider.</td>
<td>1</td>
</tr>
<tr>
<td>59</td>
<td>Looking down from a great height makes me freeze.</td>
<td>1</td>
</tr>
<tr>
<td>60</td>
<td>I often find myself ‘going into my shell’.</td>
<td>1</td>
</tr>
<tr>
<td>Item</td>
<td>Statement</td>
<td>Scores</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>61</td>
<td>My mind is dominated by recurring thoughts.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>62</td>
<td>I am the sort of person who easily freezes-up when scared.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>63</td>
<td>I take a long time to make decisions.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>64</td>
<td>I often find myself lost for words.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>65</td>
<td>I will actively put plans in place to accomplish goals in my life.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

**RST-PQ Scoring Key**

Fight-Flight-Freeze System (FFFS) 10 items: 9, 19, 39, 45, 46, 48, 52, 58, 59, 62

Behavioral Inhibition System (BIS) 23 items: 1, 2, 6, 7, 10, 17, 18, 21, 29, 33, 34, 42, 43, 47, 49, 50, 55, 56, 57, 60, 61, 63, 64

Behavioral Approach System (BAS = RI + GDP + RR + I)

- **Reward Interest (RI)** 7 items: 11, 13, 14, 15, 26, 32, 35
- **Goal-Drive Persistence (GDP)** 7 items: 5, 12, 20, 31, 41, 54, 65
- **Reward Reactivity (RR)** 10 items: 3, 4, 8, 16, 23, 24, 25, 30, 36, 37
- **Impulsivity (I)** 8 items: 22, 27, 28, 38, 40, 44, 51, 53
APPENDIX C

RETIREMENT PLANNING ACTIVITY LEVEL
Retirement Planning Activity Level

From:

Using the scale below, please indicate the extent to which each statement applies to you.
1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

1. Calculations have been done to determine how much will need to be saved for retirement.
2. I have read books and brochures on retirement planning.
3. I have informed myself about future retirement benefits.
4. I have informed myself about retirement preparation
APPENDIX D

PERCEIVED SAVING ADEQUACY
Perceived Saving Adequacy

From:

Using the scale below, please indicate the extent to which each statement applies to you.
1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

**Perceived Saving Adequacy (coefficient alpha = .51)**
1. I am saving enough to retire comfortably.
2. Do you think you’ll have enough to live comfortably in retirement?
3. I expect to have a good retirement.
APPENDIX E

PERCEIVED FINANCIAL KNOWLEDGE
Perceived Financial Knowledge

From:

Using the scale below, please indicate the extent to which each statement applies to you.

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

**Perceived Financial Knowledge (alpha = .69)**
1. I know a great deal about financial planning for retirement.
2. I know more than most people about retirement planning.
3. When I need financial services, I know exactly where to obtain information on what to do
APPENDIX F

RETIREMENT GOAL CLARITY
Retirement Goal Clarity

From:

Using the scale below, please indicate the extent to which each statement applies to you.
1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

**Retirement Goal Clarity (alpha = .56)**
1. I have thought a great deal about quality of life in retirement.
2. I have set specific goals for how much will need to be saved for retirement.
   I have a clear vision of how life will be in retirement.
APPENDIX G

HEXACO–60
HEXACO–60

From:

Instructions, Items, and Scoring of the HEXACO–60

On the following pages, you will find a series of statements about you. Please read each statement and decide how much you agree or disagree with that statement. Then indicate your response using the following scale:
5 = strongly agree
4 = agree
3 = neutral (neither agree nor disagree)
2 = disagree
1 = strongly disagree
Please answer every statement, even if you are not completely sure of your response.

1. I would be quite bored by a visit to an art gallery.
2. I plan ahead and organize things, to avoid scrambling at the last minute.
3. I rarely hold a grudge, even against people who have badly wronged me.
4. I feel reasonably satisfied with myself overall.
5. I would feel afraid if I had to travel in bad weather conditions.
6. I wouldn’t use flattery to get a raise or promotion at work, even if I thought it would succeed.
7. I’m interested in learning about the history and politics of other countries.
8. I often push myself very hard when trying to achieve a goal.
9. People sometimes tell me that I am too critical of others.
10. I rarely express my opinions in group meetings.
11. I sometimes can’t help worrying about little things.
12. If I knew that I could never get caught, I would be willing to steal a million dollars.
13. I would enjoy creating a work of art, such as a novel, a song, or a painting.
14. When working on something, I don’t pay much attention to small details.
15. People sometimes tell me that I’m too stubborn.
16. I prefer jobs that involve active social interaction to those that involve working alone.
17. When I suffer from a painful experience, I need someone to make me feel comfortable.
18. Having a lot of money is not especially important to me.
19. I think that paying attention to radical ideas is a waste of time.
20. I make decisions based on the feeling of the moment rather than on careful thought.
21. People think of me as someone who has a quick temper.
22. On most days, I feel cheerful and optimistic.
23. I feel like crying when I see other people crying.
24. I think that I am entitled to more respect than the average person is.
25. If I had the opportunity, I would like to attend a classical music concert.
26. When working, I sometimes have difficulties due to being disorganized.
27. My attitude toward people who have treated me badly is “forgive and forget.”
28. I feel that I am an unpopular person.
29. When it comes to physical danger, I am very fearful.
30. If I want something from someone, I will laugh at that person’s worst jokes.
31. I’ve never really enjoyed looking through an encyclopedia.
32. I do only the minimum amount of work needed to get by.
33. I tend to be lenient in judging other people.
34. In social situations, I’m usually the one who makes the first move.
35. I worry a lot less than most people do.
36. I would never accept a bribe, even if it were very large.
37. People have often told me that I have a good imagination.
38. I always try to be accurate in my work, even at the expense of time.
39. I am usually quite flexible in my opinions when people disagree with me.
40. The first thing that I always do in a new place is to make friends.
41. I can handle difficult situations without needing emotional support from anyone else.
42. I would get a lot of pleasure from owning expensive luxury goods.
43. I like people who have unconventional views.
44. I make a lot of mistakes because I don’t think before I act.
45. Most people tend to get angry more quickly than I do.
46. Most people are more upbeat and dynamic than I generally am.
47. I feel strong emotions when someone close to me is going away for a long time.
48. I want people to know that I am an important person of high status.
49. I don’t think of myself as the artistic or creative type.
50. People often call me a perfectionist.
51. Even when people make a lot of mistakes, I rarely say anything negative.
52. I sometimes feel that I am a worthless person.
53. Even in an emergency I wouldn’t feel like panicking.
54. I wouldn’t pretend to like someone just to get that person to do favors for me.
55. I find it boring to discuss philosophy.
56. I prefer to do whatever comes to mind, rather than stick to a plan.
57. When people tell me that I’m wrong, my first reaction is to argue with them.
58. When I’m in a group of people, I’m often the one who speaks on behalf of the group.
59. I remain unemotional even in situations where most people get very sentimental.
60. I’d be tempted to use counterfeit money, if I were sure I could get away with it.

**Scoring of HEXACO–60 Scales** (see Table 1 for Facet-Level Scales):

- **Honesty–Humility**: 6, 12R, 18, 24R, 30R, 36, 42R, 48R, 54, 60R
- **Emotionality**: 5, 11, 17, 23, 29, 35R, 41R, 47, 53R, 59R
- **Extraversion**: 4, 10R, 16, 22, 28R, 34, 40, 46R, 52R, 58
- **Agreeableness (versus Anger)**: 3, 9R, 15R, 21R, 27, 33, 39, 45, 51, 57R
- **Conscientiousness**: 2, 8, 14R, 20R, 26R, 32R, 38, 44R, 50, 56R
- **Openness to Experience**: 1R, 7, 13, 19R, 25, 31R, 37, 43, 49R, 55R

(R indicates reverse-scored item.)

<table>
<thead>
<tr>
<th>HEXACO–60</th>
<th>Scales Items From Each HEXACO–PI–R Facet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honesty-Humility (6 reversed)</td>
<td>Sincerity (6, 30, 54), Fairness (12, 36, 60), Greed-Avoidance (18, 42), Modesty (24, 48)</td>
</tr>
<tr>
<td>Emotionality (4 reversed)</td>
<td>Fearfulness (5, 29, 53), Anxiety (11, 35), Dependence (17, 41), Sentimentality (23, 47, 59)</td>
</tr>
<tr>
<td>Extraversion (4 reversed)</td>
<td>Social Self-Esteem (4, 28, 52), Social Boldness (10, 34, 58), Sociability (16, 40), Liveliness (22, 46)</td>
</tr>
<tr>
<td>Agreeableness versus Anger (4 reversed)</td>
<td>Forgiveness (3, 27), Gentleness (9, 33, 51), Flexibility (15, 39, 57), Patience (21, 45)</td>
</tr>
<tr>
<td>Conscientiousness (6 reversed)</td>
<td>Organization (2, 26), Diligence (8, 32), Perfectionism (14, 38, 50), Prudence (20, 44, 56)</td>
</tr>
<tr>
<td>Openness to Experience (5 reversed)</td>
<td>Aesthetic appreciation (1, 25), Inquisitiveness (7, 31), Creativity (13, 37, 49), Unconventionality (19, 43, 55)</td>
</tr>
</tbody>
</table>
APPENDIX H

Institutional Review Board Approval
Institutional Review Board Approval

IRB #: IRB-FY2020-343
Title: Retirement Planning Motivation from a Reinforcement Sensitivity Theory (RST) Perspective
Creation Date: 5-20-2020
End Date:
Status: Approved
Principal Investigator: Kenneth Shultz
Review Board: Main IRB Designated Reviewers for Department of Psychology
Sponsor:
REFERENCES


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the Reinforcement Sensitivity Theory (RST) to Work, in (ed.) Recent Developments in Neuroscience Research on Human Motivation (Advances in Motivation and Achievement, Volume 19) Emerald Group Publishing Limited, pp.65 – 92


Killins, R. N. (2017). The financial literacy of Generation Y and the influence that personality traits have on financial knowledge: Evidence from Canada. *Financial Services Review (Greenwich, Conn.), 26*(2), 143-165.


https://doi.org/10.1016/j.neubiorev.2004.03.005


