JOB SATISFACTION AND JOB PERFORMANCE:

IS THE RELATIONSHIP SPURIOUS?

A Thesis

by

ALLISON LAURA COOK

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

August 2008

Major Subject: Psychology

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ABSTRACT

Job Satisfaction and Job Performance: Is the Relationship Spurious? (August 2008)

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The link between job satisfaction and job performance is one of the most studied relationships in industrial/organizational psychology. Meta-analysis (Judge, Thoresen, Bono, & Patton, 2001) has estimated the magnitude of this relationship to be ρ = .30. With many potential causal models that explain this correlation, one possibility is that the satisfaction-performance relationship is actually spurious, meaning that the correlation is due to common causes of both constructs. Drawing upon personality theory and the job characteristics model, this study presents a meta-analytic estimate of the population-level relationship between job satisfaction and job performance, controlling for commonly studied predictors of both. Common causes in this study include personality trait Conscientiousness, Extraversion, Agreeableness, and core self-evaluations, along with cognitive ability and job complexity. Structural equation modeling of the meta-analytic correlation matrix suggests a residual correlation of .16 between job satisfaction and performance—roughly half the magnitude of the zero-order correlation. Following the test of spuriousness, I then propose and find support for an integrated theoretical model in which job complexity and job satisfaction serve as mediators for the effects of personality and ability on work outcomes. Results from this

model suggest that job complexity is negatively related to satisfaction and performance, once ability and personality are controlled. Contributions of this paper include estimating the extent to which the satisfaction-performance relationship is partly spurious, which is an advancement because the attitude-behavior link has not been estimated in light of personality and job characteristics. Another contribution is the integrated theoretical model, which illuminates mediators in some of the effects of personality and ability.

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CHAPTER I

INTRODUCTION AND LITERATURE REVIEW

The relationship between job satisfaction and job performance has been studied extensively throughout the history of industrial/organizational psychology (Judge, Thoresen, Bono, & Patton, 2001). It has been referred to as the "Holy Grail" of industrial/organizational psychology (Landy, 1989). The connection between workplace attitudes and behavioral outcomes continues to be a prevalent research topic (Harrison, Newman, & Roth, 2006; Schleicher, Watt, & Greguras, 2004), and stems from classic industrial/organizational and social psychological theory (e.g., Lawler & Porter, 1967; Wicker, 1969). The purpose of the current paper is to examine a model of the satisfaction-performance relationship that is specified as partly spurious. In addition, I will suggest a theoretical model that includes the relationships among job satisfaction, job performance, and common causes of these two variables.

Job satisfaction has been defined as "feelings or affective responses to facets of the (workplace) situation" (Smith, Kendall, & Hulin, 1969, p. 6). More recently, researchers have acknowledged that job satisfaction is a phenomenon best described as having both cognitive (thoughts) and affective (feelings) character. Brief and Weiss (2002) suggested that employee reports of affect at work can be used to measure job satisfaction and that affective experiences while on the job are also a cause of job

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This thesis follows the style of the *Journal of Applied Psychology*.

satisfaction. In other words, employee job satisfaction is the affective state of employees regarding multiple facets of their jobs (Brown & Peterson, 1993); so job satisfaction comprises employee feelings regarding multiple aspects of the job. There is also a cognitive component to job satisfaction (Organ & Near, 1985). This cognitive component is made up of judgments and beliefs about the job whereas the affective component comprises feelings and emotions associated with the job.

Job satisfaction is also believed to be dispositional in nature. This dispositional viewpoint assumes that measuring personal characteristics can aid in the prediction of job satisfaction (Staw & Ross, 1985). The dispositional source of job satisfaction has been supported by studies that show stability in job satisfaction, both over time and over different situations (see Ilies & Judge, 2003). One reason for this dispositional nature of job satisfaction could come from an individual's genetic makeup. Arvey, Bouchard, Segal, and Abraham (1989) found support for a genetic component to job satisfaction in their study of monozygotic, or identical, twins reared apart. They found that even when they were not raised together, identical twins tended to have job satisfaction levels that were significantly correlated. Because identical twins have the same genetic makeup but are reared apart and as such do not have the same environmental influences, this similarity in job satisfaction ratings is argued to represent a genetic component. Another study that has supported the dispositional nature of job satisfaction found a strong and consistent relationship in attitudes over time as well as a relationship in attitudes across different situations or settings (Staw & Ross, 1985). The dispositional approach of job

satisfaction is not a mirage and individual dispositions do indeed affect job satisfaction (Staw & Cohen-Charash, 2005).

Satisfaction in the workplace is valuable to study for multiple reasons: (a) increased satisfaction is suggested to be related to increased productivity, and (b) promoting employee satisfaction has inherent humanitarian value (Smith et al., 1969). In addition, job satisfaction is also related to other positive outcomes in the workplace, such as increased organizational citizenship behaviors (Organ & Ryan, 1995), increased life satisfaction (Judge, 2000), decreased counterproductive work behaviors (Dalal, 2005),and decreased absenteeism (Hardy, Woods, & Wall, 2003). Each of these outcomes is desirable in organizations, and as such shows the value of studying and understanding job satisfaction.

Job performance, on the other hand, consists of the observable behaviors that people do in their jobs that are relevant to the goals of the organization (Campbell, McHenry, & Wise, 1990). Job performance is of interest to organizations because of the importance of high productivity in the workplace (Hunter & Hunter, 1984). Performance definitions should focus on behaviors rather than outcomes (Murphy, 1989), because a focus on outcomes could lead employees to find the easiest way to achieve the desired results, which is likely to be detrimental to the organization because other important behaviors will not be performed. Campbell, McCloy, Oppler, and Sager (1993) explain that performance is not the consequence of behaviors, but rather the behaviors themselves. In other words, performance consists of the behaviors that employees actually engage in which can be observed.

In contrast to the strictly behavioral definitions of job performance, Motowidlo, Borman, and Schmit (1997) say that rather than solely the behaviors themselves, performance is behaviors with an evaluative aspect. This definition is consistent with the dominant methods used to measure job performance, namely performance ratings from supervisors and peers (Newman, Kinney, & Farr, 2004). Although Motowidlo et al. (1997) emphasize this evaluative idea in defining the performance domain, they still maintain that job performance is behaviors and not results. One further element of performance is that the behaviors must be relevant to the goals of the organization (Campbell et al., 1993).

Classic performance measures often operationalize performance as one general factor that is thought to account for the total variance in outcomes. In their theory of performance, Campbell et al. (1993) stated that a general factor does not provide an adequate conceptual explanation of performance, and they outline eight factors that should account for all of the behaviors that are encompassed by job performance (i.e., job-specific task proficiency, non-job-specific task proficiency, written and oral communication task proficiency, demonstrating effort, maintaining personal discipline, facilitating peer and team performance, supervision/leadership, and management/administration). They therefore urge against the use of overall performance ratings and suggest that studies should look at the eight dimensions of performance separately, because the "general factor cannot possibly represent the best fit" (Campbell et al., 1993, p. 38) when measuring performance. Other researchers have stated that even though specific dimensions of performance can be conceptualized, there is utility in

using a single, general factor. Using meta-analytic procedures to look at the relationships between overall performance and its dimensions, Viswesvaran, Schmidt, and Ones (2005) found that approximately 60 percent of the variance in performance ratings comes from the general factor. Further, this general factor is not explainable by rater error (i.e., a halo effect). Thus, overwhelming empirical evidence suggests that researchers should not dismiss the idea of a general factor, and that unidimensional measures of overall performance may have an important place in theories of job performance.

In the performance literature, a distinction is made between in role and extra-role performance (Katz & Kahn, 1978). Extra-role performance is also conceptualized as organizational citizenship behaviors (Smith, Organ, & Near, 1983). Based on this research, Borman and Motowidlo (1993) suggested that performance can be divided into two parts, task and contextual performance. Task performance involves the effectiveness with which employees perform the activities that are formally part of their job and contribute to the organization's technical core. Contextual performance comprises organizational activities that are volitional, not prescribed by the job, and do not contribute directly to the technical core (cf. Organ, 1997). Contextual performance includes activities such as helping, cooperating with others, and volunteering, which are not formally part of the job but can be important for all jobs. Although this distinction does exist, the current study focuses on task, or in-role, performance.

History of the Job Satisfaction-Job Performance Relationship

The satisfaction-performance relationship has been studied for decades. The Hawthorne studies in the 1930s and the human relations movement stimulated interest in the relationship between employee attitudes and performance. Brayfield and Crockett (1955) published a narrative review of the satisfaction-performance relationship in which they concluded that the relationship was minimal or nonexistent. However, this review was limited by the small number of primary studies existent at the time that examined the satisfaction-performance relationship. Since Brayfield and Crockett's influential review, other reviews of the satisfaction-performance relationship have also been published (e.g., Herzberg, Mausner, Peterson, & Campbell; 1957; Vroom, 1964; Locke, 1970, Schwab & Cummings, 1970). These reviews have differed in their perceptions of the satisfaction-performance relationship. One of the most optimistic of these reviews is that of Herzberg et al. (1957) in which they express confidence in a relationship between job satisfaction and job performance, but suggest that previous correlations have been low because researchers were not correctly measuring satisfaction and performance. A common theme among these reviews is a necessity for theoretical work on satisfaction, performance, and their relationship (Locke, 1970; Schwab & Cummings, 1970). Specifically, Schwab and Cummings (1970) explain that a premature focus on the satisfaction-performance relationship has been problematic because of the lack of theory involved. Following these reviews, researchers began to more closely consider the satisfaction-performance relationship, both empirically investigating the relationship and also looking specifically at potential mediators and moderators of the

relationship (Judge et al., 2001). Iaffaldano and Muchinsky (1985) conducted an empirical investigation of the satisfaction-performance relationship and found the true population correlation to be .17. Thus, they concluded that satisfaction and performance are only slightly related. In the more recent meta-analysis, Judge et al. (2001) estimated a true population correlation of .30. They explain that this result is different from the one obtained by Iaffaldano and Muchinsky (1985) because the Iaffaldono and Muchinsky study examined satisfaction at the facet rather than global level. As performance was conceptualized as being at a general level, one would expect that measuring satisfaction at the facet level would result in lower correlation than measuring satisfaction at the more general global level. As such, it is reasonable to believe that the true correlation between satisfaction and performance is closer to Judge et al's (2001) correlation of .30 rather than Iaffaldono and Muchinsky's (1985) correlation of .17.

Models of the Job Satisfaction-Job Performance Relationship

Now that the job satisfaction and job performance constructs have been defined and the history of the job satisfaction-job performance relationship reviewed, I turn to discussing the possible causal models underlying the relationship between the two. When looking at the relationship between job satisfaction and job performance, Judge et al. (2001) specified and found five different models to be empirically plausible. They also discuss two additional models of the satisfaction-performance relationships, which they conclude are not plausible. One of these models is that there is actually no relationship between satisfaction and performance, and the other is that alternative conceptualizations of job satisfaction and/or performance should be used. Because these

two models are not suggested to be plausible, they will not be discussed further. Of the models that were determined to be empirically plausible, three models involve direct causal satisfaction-performance relationships: (a) satisfaction causing performance [Fishbein and Ajzen's (1975) theory of attitude-behavior relations, discussed below], (b) performance causing satisfaction (Locke, 1970; Lawler& Porter, 1967), and (c) a reciprocal causal relationship between the two (e.g., Wanous, 1974). These models have often been hard to distinguish empirically in past research, because much of the satisfaction-performance data is cross-sectional and therefore cannot unequivocally demonstrate causation (Kenny, 1979; James, Mulaik, & Brett, 1982).

Aside from the three direct causal models described above, two alternative models of the satisfaction-performance relationship suggest that other, exogenous variables may determine the relationship between satisfaction and performance (Judge et al., 2001). These include the idea that the relationship may be moderated (i.e., it depends upon one or more conditional variables), or that it may be spurious (i.e., the relationship is due to a one or more common causes of job satisfaction and job performance, not due to a substantive causal mechanism between them). Theories behind the five causal models of satisfaction and performance are reviewed below.

In considering the possibility that satisfaction causes performance, Fishbein and Ajzen (1975) state that positive or negative attitudes *toward a behavior* can lead to enactment of that behavior, by way of behavioral intentions. Loosely applying Fishbein and Ajzen's theory, organizational researchers have theorized that attitudes toward the job, specifically job satisfaction, should be related to job behaviors, most commonly

measured as performance. Although the theoretical proposition that attitudes cause behavior makes intuitive sense – and is supported by a great deal of empirical research (Sutton, 1998) – the Theory of Reasoned Action may not be applicable to the relationship between job satisfaction and performance. It is possible for employees to have a different attitude toward the job than they do toward the behaviors they perform on the job. For example, an employee may be very satisfied with her/his job overall, but dissatisfied with one specific behavior that s/he must perform. In this case, performance evaluations would be low if they were based on the one behavior that the employee did not like, even though the employee's overall attitude toward the job was positive.

The Theory of Planned Behavior (Ajzen, 1991) suggests that attitudes regarding a behavior lead to intentions to perform, and then to actual performance of the behavior. When considering the relationship between satisfaction and performance, if satisfaction with the job does not have to do with performance *behaviors*, then the attitude will not necessarily lead to these behaviors. For example, an employee with low performance might be very satisfied at work because s/he is extroverted and enjoys the opportunities that the job offers in terms of being able to interact with other people. In this situation, the employee bases her/his attitude on the social aspect of work rather than on task performance, thus satisfaction with the job would not necessarily lead to higher levels of performance.

Theoretical models suggesting that job performance causally precedes job attitudes are typically based on the expectancy-value framework (Locke & Latham, 2004). The most basic idea behind expectancy-value theories is that individuals who

have high expectances, or anticipations about an outcome, will behave differently than individuals with low expectancies (Jorgenson, Dunnette, & Pritchard, 1973). The value that individuals place on the outcomes, ranging from strongly positive to strongly negative, will also affect their behavior. One early model of this kind was introduced by Lawler and Porter (1967). They believed that high levels of performance would lead to rewards for the employees, which would in turn increase their satisfaction with the job. This model is consistent with the definition of job performance as not actually a behavior but rather an evaluation of a behavior (Motowidlo et al., 1997). If performance is defined using supervisor evaluations of job behavior, then this operationalization is especially likely to be tied to organizational rewards. Locke (1970) also supported the idea that satisfaction could be conceived of as an outcome of performance, using goal theory. In his model, performance is based on goal-directed behavior, and satisfaction comes from whether one's performance met these goals.

Of course, the phenomena of job satisfaction causing performance and of job performance causing satisfaction are not mutually exclusive. Past researchers have explicitly detailed the likelihood that job satisfaction and performance simultaneously cause each other (Judge et al., 2001; Wanous, 1974).

Although the above-described models attempt to explain the relationship between satisfaction and performance, they do not fully consider the impact of employee personality and job characteristics. In the current study, I focus on an explanatory model in which the satisfaction-performance relationship is specified as partly spurious. A spurious relationship is present when covariation between two variables is actually due

to common causes, rather than a direct relationship (see Cohen, Cohen, West, & Aiken, 2003). The inclusion of common causes will fill the gap that exists in many previously-tested theoretical models of the satisfaction-performance relationship, where personality and job characteristics were omitted.

This paper seeks to make three contributions to theory on the job satisfaction-job performance relationship. First and foremost, it will provide a large-scale empirical test of a causal model in which the satisfaction-performance relationship is specified as spurious. This test is based upon meta-analytic data compiled from multiple study effects, and representing many employed individuals. This is a valuable contribution because it will help to specify the mechanism underlying a relationship that has received much empirical support, but lacks clarity as to why the variables are related. Also, a spurious relationship between job satisfaction and job performance would suggest that the causal effects between satisfaction and performance, both unidirectional and reciprocal, may be more limited in magnitude than previously thought. Second, in order to test the model of spuriousness, 26 original meta-analyses will be performed to estimate the mean population-level correlations: (a) job satisfaction and cognitive ability; (b) self-esteem, generalized self-efficacy, and locus of control with Extraversion, Conscientiousness, Agreeableness, job complexity, and cognitive ability, (c) both self-reports and more 'objective' non-self-reports of job complexity with Conscientiousness, Agreeableness, and cognitive ability; and (d) self-perceptions of Job Complexity with Emotional Stability, Extraversion, and objective job complexity. By completing these meta-analyses, the true population level correlations will be estimated. Third and

finally, a theoretical model of the interrelationships among all of the variables in the study will be created and tested. This model specifies job satisfaction and job complexity as mediators of some of the individual difference effects in the model.

Spurious Relationships

The term "spurious correlation" was originally introduced by Karl Pearson in 1897 when describing a situation in which there appears to be a correlation between two variables, but in actuality one does not exist:

> A quantity of bones are taken from an *ossuarium*, and are put together in groups, which are asserted to be those of individual skeletons. To test this, a biologist takes the indices *femur/humerus* and *tibia/humerus*. He might reasonably conclude that this correlation marked organic relationship, and believe that the bones had really been put together substantially in their individual grouping...I term this a spurious organic correlation, or simply a spurious correlation. I understand by this phrase the amount of correlation which would still exist between the indices, were the absolute lengths on which they depend distributed at random (p. 490).

Since Pearson's first use of the term, other definitions of "spurious correlation" have arisen, which have ultimately supplanted the original definition. Spurious correlations have been referred to as a "master imposter" of a true relationship (Simon, 1985, p. 5) and as an "illusory association" between two variables (Yule, 1919, p. 51). Differing from Pearson's description of spuriousness as due to chance permutations, the contemporary usage of the term spurious correlation has been to describe correlations which can be attributed to common causes. According to Blalock (1964):

> One of the most common sorts of models tested in empirical research is one in which we postulate that the relationship between X and Y is spurious owing to one or more common causes. In view of the fact that in the exploratory stages of any science one of the most important tasks is to eliminate numerous possible explanatory variables, such tests for spuriousness are highly necessary and very appropriate in any piece of research (p. 84).

Although Pearson's (1897) original definition of spuriousness suggested that there was no true relationship between two variables, contemporary researchers have come to think of a spurious relationship as one in which the covariation between X and Y is not due to causal effects of either variable, but rather is due to the presence of a third variable (Kenny, 1975). Spurious correlations can involve more than one common cause (Blalock, 1964), although most discussions of the phenomenon use only one exogenous variable. In the current paper I index *non*-spuriousness with a residual correlation between two variables, once a set of external variables has been partialled out.

Nonspuriousness is a condition that is necessary for a causal relationship to exist (Cook & Campbell, 1979). Simon (1985) explains that when testing for a spurious correlation, one must clarify the relation between the two variables of interest by introducing a third variable. A spurious relationship is one that can be explained away by causal relationships of X and Y with a third variable (Kenny, 1979). Empirically, spuriousness is the prediction that the correlation between X and Y will be zero once Z is controlled (Blalock, 1964).

I further draw a distinction between *complete spuriousness* and *partial spuriousness*. Partial spuriousness can also occur and is a situation in which the relationship between X and Y decreases, but does not completely disappear, when controlling for Z. Looking at the connection between X and Y, Figure 1 shows a causal diagram in which the relationship is not spurious because the full correlation between X and Y remains when Z is added to the equation. Figure 2 shows a relationship that is completely spurious. That is, when a common predictor of both X and Y is added to the equation, the relationship between X and Y completely disappears. Figure 3 displays a relationship that is partly spurious, such that when covariation with Z is removed from X and Y, the relationship between X and Y lessens. This is noted by the dotted line, and thus a smaller correlation between the two variables once they have been residualized.

If there is random measurement error in the Z variable, the relationship between X and Y may not vanish completely but it may decrease. Spuriousness can potentially explain a substantial portion of the correlation between two variables. If a variable is not completely exogenous, part of the correlation between it and the variable it causes will be due to spuriousness (Kenny, 1979). Specifically, two constructs may be correlated because of common causes that they share, even if there is little or no actual causation between them.

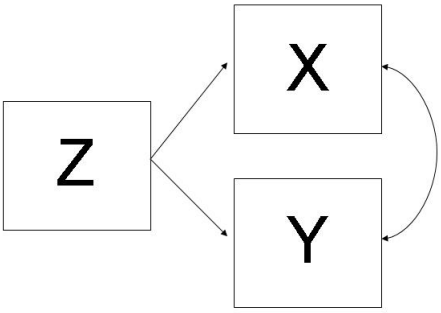

Figure 1. Non-spurious relationship

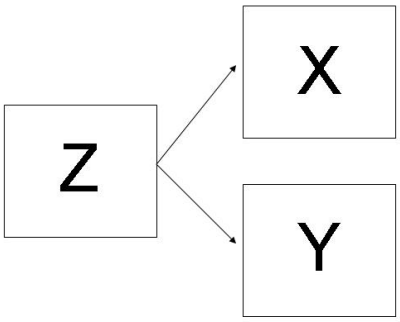

Figure 2. Fully spurious relationship

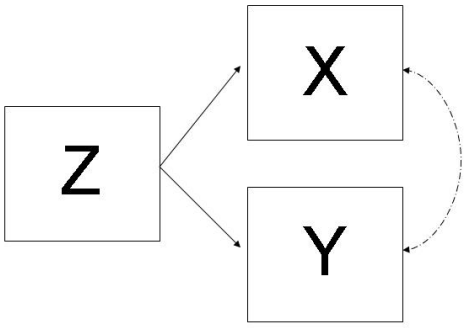

Figure 3. Partly spurious relationship

Partial Correlations

In order to remove the spurious association between two variables, variables that are believe to be antecedent to both are controlled (Linn & Werts, 1969). One method that can be used to accomplish this is to look at the partial correlation between the two variables, with the prior variables controlled. The idea of a spurious correlation can be illustrated by looking at a graph of partial correlations. The formula for a partial correlation of X with Y controlling for Z is

$$\text{Partial } r = \frac{r_{XY} - (r_{XZ})(r_{YZ})}{\sqrt{(1 - r_{XZ^2})(1 - r_{YZ^2})}}. \qquad \text{Eq. 1}$$

Using this equation, it is possible to see how different correlations between X and Z and between Y and Z affect the level of partial correlation (see Figure 4).

Holding the zero-order relationship between X and Y constant at $r = .30$, as the correlation between Z and X (and also between Z and Y) increases, the partial correlation between X and Y generally decreases (note that Equation 1 is symmetric with respect to X and Y). For example, if r_{XZ} and r_{YZ} are both .30, the partial correlation between X and Y will drop to less than $r = .25$. If both r_{XZ} and r_{YZ} are .55, the partial correlation will be zero. Thus, as determined by Equation 1, the partial correlation between X and Y will be minimized when both r_{XZ} and r_{YZ} are maximized.

Again, I define spuriousness as a residual correlation between two variables, after a set of external variables has been partialled out. By using meta-analytic methods, it is possible to identify small, true residual correlations. This information will provide a better picture of the relationship between satisfaction and performance than can be

gleaned from the simple bivariate association, by accounting for theorized common causes of the two.

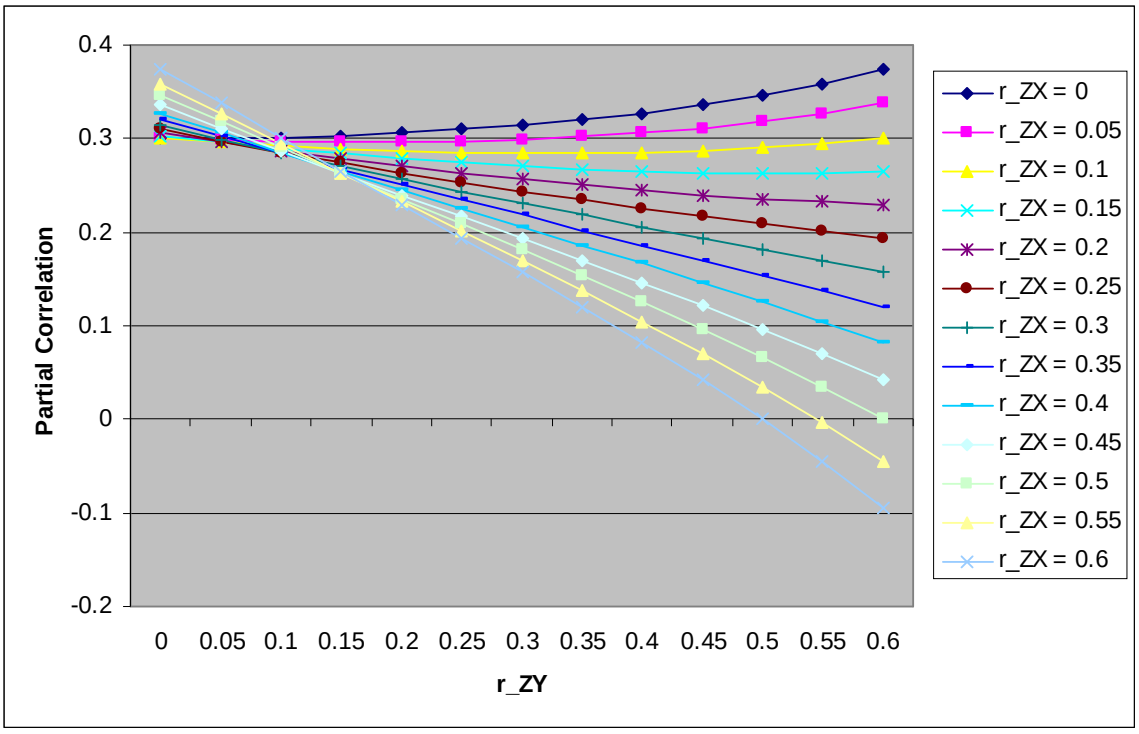

Figure 4. Graph of partial correlations

Theoretical Common Causes of Job Satisfaction and Job Performance

Several commonly-studied constructs have been proposed to cause both job satisfaction and job performance outcomes. I organize these constructs into three general categories: (a) personality constructs, (b) job and role characteristics, and (c) cognitive ability. These antecedents will be discussed below, along with the theoretical mechanisms generally thought to explain their effects on job attitudes and behavior. Before turning to these explanations, note that I am not the first to suggest that the job

satisfaction-performance relationship may be partly spurious (see Judge et al., 2001). Earlier studies made precisely such a claim, and empirically demonstrated that a statistically significant relationship between job satisfaction and performance became non-significant when controlling for a third variable (Brown and Peterson's [1993] *partial r* = .05, controlling for role ambiguity; Gardner and Pierce's [1998] *partial r* = .09, controlling for organization-based self-esteem). However, such tests of spuriousness—which are based on loss of statistical significance—are largely driven by statistical power. It is quite possible for a relationship to lose its statistical significance upon partialing out alleged common causes, even when a small true direct effect exists. Integrative studies are needed that have high statistical power to detect small, non-spurious effects (see Schmidt, 1992). Below, I review theoretical associations of several common causes with both job satisfaction and job performance.

Personality Variables

According the Gray's Reinforcement Sensitivity Theory (1970), individuals differ on their levels of arousabilty and sensitivity to reinforcements or rewards. This theory considers traits of Emotional Stability and Extraversion and how they cause people to react differently to situations. Looking first at Emotional Stability, as levels of Emotional Stability decrease, so does an individual's sensitivity to reinforcement (Gray, 1970). People low in Emotional Stability have exaggerated responses to rewards (Pickering, Corr, & Gray, 1999). Decreased job performance can be explained by this idea if an individual is low on Emotional Stability and they receive praise or a reward for

a small bit of good performance, they will amplify the praise they received and think that they are performing very well, which may cause their subsequent performance to suffer.

Looking at Emotional Stability in general, and not just from the reinforcement sensitivity perspective, it has been one of the strongest dispositional predictors of job satisfaction, $\rho = .29$ (Judge, Heller, & Mount, 2002). Low levels of Emotional Stability lead people to experience more negative life events (Magnus, Diener, Fujita, & Pavot, 1993). This negative perception can influence, and therefore lower, the perception of satisfaction in the work place. The connection between Emotional Stability and job performance has also been established (Barrick, Mount, & Judge, 2001). Individuals who are low in Emotional Stability are more likely to be irritable, depressed, or anxious, and these traits inhibit the completion of workplace tasks (Barrick & Mount, 1991). Thus, low levels of Emotional Stability will lead to decreases in both job satisfaction and job performance because of the negative moods and perceptions that typically occur in emotionally unstable individuals.

Turning back to the Reinforcement Sensitivity Theory, introverts are more sensitive to punishment and frustrative nonreward than are extroverts (Gray, 1970). Extroverts have low sensitivity to punishment cues (Pickering et al., 1999) which could help to explain why they would have higher levels of job satisfaction. If people high and low on Extraversion both receive the same feedback, the less extroverted people would be more likely to notice indications of punishment. Thus, their satisfaction would be lowered because of the perception that they were being punished. The Reinforcement Sensitivity Theory also suggests that individuals low in Extraversion are more prone to

fear than are their more extroverted counterparts (Gray, 1970). If low Extraversion employees are at their job, continuously feeling fear because of their dispositional susceptibility to fear, they will likely be less satisfied with the job. The fear could come from many different sources, including a fear of failing or of being punished or fired. The relationship between job satisfaction and extroversion can also be explained by extraverted employees' tendencies to be outgoing and form friendships at work. These social interactions can lead to higher levels of satisfaction in the workplace. Also, extraverts are more likely to perceive positive events in their lives (Magnus et al., 1993), which would lead to higher levels of job satisfaction. When looking at performance and Extraversion, Extraversion is especially important in jobs that are people- or service-oriented (Hurtz & Donovan, 2000). Also, extraverts strive to obtain status and rewards at work, thus increasing their performance (Barrick, Stewart, & Piotrowski, 2002). The idea that extraverts have higher levels of social interaction in the workplace could increase their performance as well as their satisfaction because if extraverts know more people in the workplace, they would likely have a better idea of whom to go to for advice or help. In general, extraverts will have higher levels of both job satisfaction and job performance because of their overall positive perceptions, social interactions on the job, and desire to gain status in the work place.

Conscientious individuals are seen as dependable and tend to strive to be successful. Organ and Lingl (1995) suggest that Conscientiousness and job satisfaction may be related because highly conscientious people tend to respond favorably to the rules inherent in organizations. Conscientiousness should be related to higher levels of

employee performance because most jobs require employees to be reliable and effectively complete their work tasks. Conscientiousness comprises subfacets of dependability and responsibility, and people high in these dimensions would be expected to have high levels of job performance (Barrick & Mount, 1991). Thus, Conscientiousness is related to both increased satisfaction and performance.

When looking at Agreeableness, the relationship with job satisfaction is much like that of Extraversion. Agreeable individuals tend to get along well with others and form satisfying interpersonal relationships (Goldberg, 1990). These relationships in the workplace could lead to higher levels of overall satisfaction for employees. As with Extraversion, Agreeableness would be most likely to affect performance in jobs that are people-oriented (Hurtz & Donnovan, 2000). Friendliness and the ability to cooperate with others, both of which are characteristic of agreeable people, would lead to better performance when interacting with others. Unlike Extraversion, however, Agreeableness is not connected to status seeking, but rather to communion seeking (Barrick et al., 2002).

Core self-evaluations, which is a higher-order construct including self-esteem, self-efficacy, locus of control, and Emotional Stability, has also been related to both performance and satisfaction (Judge & Bono, 2001). Self-esteem is defined as how much value people put on themselves (Baumeister, Campbell, Krueger, & Vohs, 2003). Individuals who are high in self-esteem tend to feel good about themselves, regardless of the abilities or skills that they possess (Chen, Gully, & Eden, 2004). Self-esteem is one of the strongest predictors of overall life satisfaction--people with high self-esteem are

considerably happier than people with lower levels of self-esteem (Baumeister et al., 2003). This enhanced happiness and overall satisfaction should also lead to higher levels of satisfaction on the job, as a "strong, positive relationship" between job satisfaction and overall life satisfaction (Tait, Padgett, & Baldwin, 1989, p. 504). In addition, self-esteem evokes optimism and confidence in people (Zhang & Baumeister, 2006) and individuals with high levels of self-esteem tend to maintain this optimism, even when they face failure (Dodgson & Wood, 1998). Because of this continual optimism, employees with high self-esteem are likely to have high levels of job satisfaction. When looking at self-esteem and its effect on performance, high self-esteem individuals have positive feelings about themselves and are able to perform better because of this. The self-esteem hypothesis "suggests that people who feel better about themselves perform better" (Baumeister et al., 2003. p. 14). Thus, self-esteem relates to performance through affective states (Chen et al., 2004b) and with an overall positive view of oneself, achieving high performance may be easier. Performance may also be increased for employees who have high levels of self-esteem because high self-esteem reduces anxiety and anxiety-related behaviors, which would allow for higher levels of performance (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). When looking at individuals with low self-esteem rather than those with high self-esteem, it has been found that successful performance can cause low self-esteem individuals to be insecure and uncomfortable because high levels of performance do not fit with their own evaluations of themselves (Marigold, Holmes, & Ross, 2007). For this

reason, employees with low self-esteem may have lower levels of performance than their counterparts with higher self-esteem.

Generalized self-efficacy is a relatively stable trait regarding beliefs of one's own competence (Chen et al., 2004b). Whereas self-esteem relates to an individual's sense of self worth, self-efficacy relates to perceptions of their ability accomplish tasks or meet a goal. It is how individuals judge their own abilities. Employees who rate themselves as competent and capable are likely to have higher levels of satisfaction at work because their general positive evaluations of themselves will "cascade-down" to their attitudes at work, including job satisfaction (Chen, Goddard, & Caper, 2004). Judge, Martocchio, & Thoresen (1997) suggested that generalized self-efficacy would be related to job satisfaction, due to the idea that individuals who are high in self-efficacy are more likely to believe they can achieve their goals (and to subsequently achieve them), which would lead to higher satisfaction with their jobs. Employees who are high on the trait of general self-efficacy are likely to be motivated and persistent (Chen et al., 2004b), thus performing better, especially in new situations (Eden & Zuk, 1995). However, according to Vancouver, Thompson, Tischner, and Putka (2002) at the within-persons level of analysis, self-efficacy can lead to lower levels of performance because individuals with high self-efficacy can become overconfident in their abilities and make more errors while playing a logic game (cf., Bandura & Locke, 2003). To clarify this result, another study was done which manipulated the sign of feedback that participants received (Vancouver & Tischner, 2004). When individuals received negative feedback and were allowed to reaffirm themselves by listing previous achievements or rewards,

their performance suffered because they reallocated their resources in a way that they would be able to protect their sense of self-worth. However, if participants were not allowed to reaffirm, their performance was not harmed. Thus, it is the case that high self-efficacy can be associated with high levels of performance. Self-efficacy may also be related to performance because of self-fulfilling prophecies. If employees believe they are highly capable of performing well, they will tend to do so (Eden & Zuk, 1995).

Locus of control refers to how people perceive the link between their own actions and the outcomes of their actions (Rotter, 1966). People with an internal locus of control perceive that their outcomes are under their own personal control, whereas individuals with an external locus of control believe that these outcomes are attributable to people or forces outside of themselves. Employees with an internal locus of control are more satisfied with their jobs because they are less likely to stay in a position which is dissatisfying (Spector, 1982). Because internals attribute control over events to themselves, they are more likely to seek other employment options if they are unhappy at work. Another explanation for internals having higher job satisfaction is that internals tend to repress or forget failures or unpleasant experiences they have (Rotter, 1975). If an employee represses unpleasant things that happen at work, satisfaction will be higher. Also, having a more internal locus of control has been associated with more positive well being off the job, and this could also be true when the individual is at work (Spector, Cooper, Sanchez, O'Driscoll, Sparks, Bernin, et al., 2002). Employees who have an external locus of control are less likely to perceive a relationship between their own inputs and efforts at work and outcomes that they experience (Raja, Johns, &

Ntalianis, 2004). Thus, externals can be expected to have lower performance on the job than internals because internals will put in more effort to bring about better performance. Also, individuals with an internal locus of control can be expected to have higher levels of job performance than externals because they believe that effort will lead to good performance and rewards, thus they exert more effort on the job (Spector, 1982).

Job Characteristics

In classifying job characteristics, Hackman and Lawler (1971) identified four core components: variety, autonomy, task identity, and feedback. They found that these four dimensions showed a strong positive correlation with job satisfaction. It was suggested that for maximum employee motivation on the job, all four components should be maximized. Hackman and Oldham's (1975) Job Characteristics Model identified five core dimensions of job complexity. Job complexity is composed of feedback, autonomy, task identity, task significance, and skill variety. Complex or rich jobs are expected to increase both job satisfaction and job performance for employees (Hackman & Oldham, 1976). Recently it has been suggested that Hackman and Oldham's model of job characteristics is too narrow, which could cause problems because some characteristics of the job are omitted (Morgeson & Humphrey, 2006). It was stated that a more comprehensive work design measure is needed, which led to the creation of the Work Design Questionnaire (WDQ), a measure that assesses 21 characteristics of work including task characteristics (autonomy, task variety, task significance, task identity, and feedback from the job), knowledge characteristics (job complexity, information processing, problem solving, skill variety, and specialization),

social characteristics (interdependence, interaction outside the organization, and feedback from others), and contextual characteristics (ergonomics, physical demands, work conditions, and equipment use).

In a meta-analytic review of Hackman and Oldham's original job characteristics model, Fried and Ferris (1987) found empirical relationships between job complexity and both job satisfaction and job performance. Increased satisfaction can be expected as a result of increased job complexity because when the job characteristics that make up job complexity are increased, employees feel a sense of meaningfulness and responsibility regarding their jobs (also see Judge, Bono, & Locke, 2000). These feelings in turn lead to increased levels of job satisfaction. Employee performance can also be increased with higher levels of job complexity because these job characteristics were specifically identified to show that productivity would increase if jobs were designed in a way that would make them more meaningful and challenging to the employees (Hackman & Lawler, 1971). If employees are in complex jobs, they will feel that their job is worthwhile and not a waste of time, thus increasing job performance. However, the individual difference of growth need strength can affect this relationship with job performance (Hackman & Oldham, 1975). This is a malleable difference that influences how employees will respond to jobs that have high job complexity such that employees with high growth need strength will respond more favorably to high complexity jobs. With regards to the relationships of job complexity with satisfaction and performance, Humphrey, Nahrgang, and Morgeson (2007) found that "34% of the variance in performance and more than 55% of the variance in satisfaction" was a

function of job characteristics (p. 1346). They also found that the job characteristics-outcomes relationships are mediated by critical psychological states proposed by Hackman and Oldham (1976).

C*ognitive Ability*

Cognitive ability is one of the best predictors of job performance, accounting for over 25% of the variance in performance (Hunter & Hunter, 1984; Schmidt & Hunter, 1998). It predicts performance better than all other measures of ability, traits, or dispositions that have been tested (Schmidt & Hunter, 2004). Cognitive ability is a good predictor of job performance because people with higher levels of cognitive ability acquire a greater amount of knowledge and are thus able to better perform a variety of behaviors on the job (Schmidt, Hunter, & Outerbridge, 1986).

When studying how individuals differ in their levels of cognitive ability, it has been found that knowledge is not only based on individual ability, but also somewhat on processes, individual personality, and interests (Ackerman's 1996 PPIK model). The PPIK model suggests that knowledge is based on both ability and non-ability traits. One of the non-ability traits that has been studied is an individual's level of investment. An individual's investment in a particular job or activity can partly determine the knowledge that they attain (Chamorro-Premuzic, Furnham, & Ackerman, 2006). If an individual is satisfied with her/his job, it seems that s/he would most likely also be more invested in it than someone with lower levels of satisfaction.

According to the gravitational hypothesis, employees will gravitate toward jobs that have ability requirements that match their cognitive abilities (Wilk, Desmarais, &

Sackett, 1995). In other words, both individuals who, in terms of cognitive ability, are under- and over-qualified for their jobs will likely seek other employment opportunities that are a better match for their abilities. Because of this phenomenon, people with high cognitive ability will be in better jobs, such as jobs that have higher ability requirements thus higher pay or jobs that are higher on dimensions that are related to increased satisfaction, such as the job characteristics defined by Hackman and Oldham (1975). These types of jobs are likely to be more satisfying. In other words, cognitively ability should be positively correlated to job satisfaction, due to the tendency for high-ability individuals to occupy jobs with more desirable characteristics.

In summary of the above sections, a proposed model of the common antecedents of job satisfaction and job performance is depicted in Figure 5. In the proposed model, the parameter of greatest interest for the current study is the residual correlation between job satisfaction and job performance, controlling for the above-described factors.

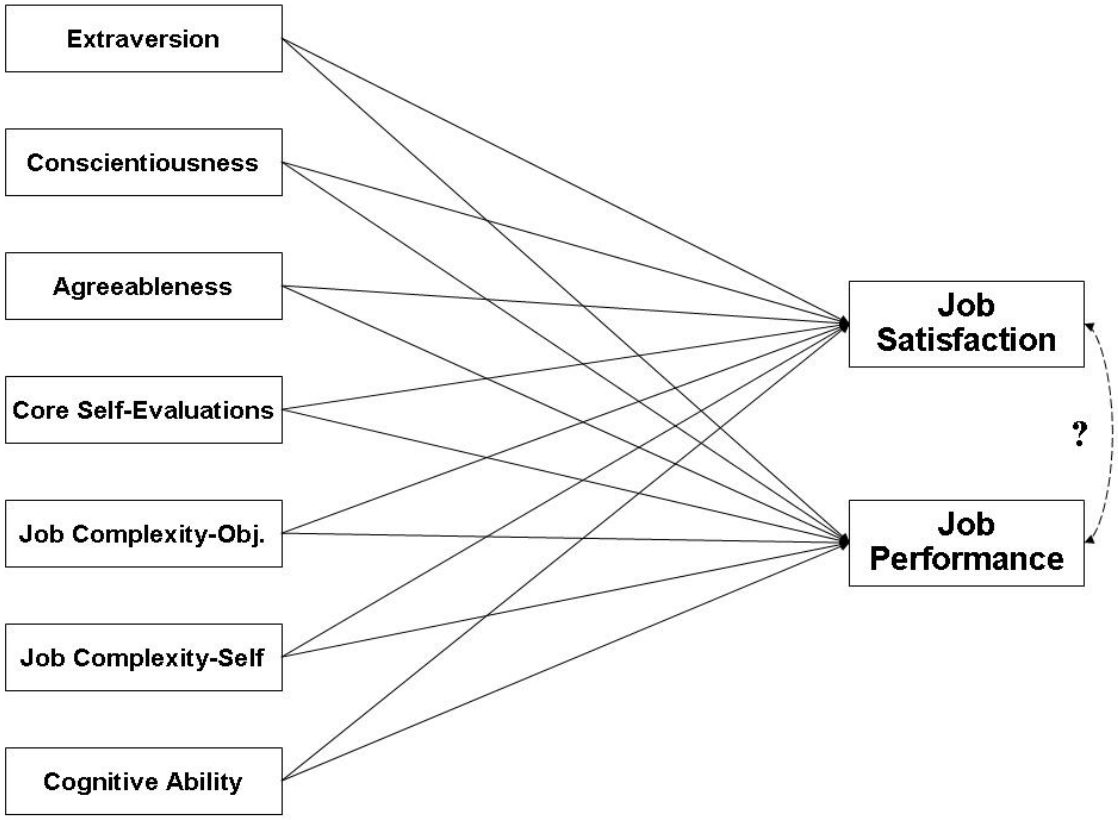

Figure 5. Proposed theoretical model to test for spuriousness

An Integrated Theoretical Model

Figure 5 is not, however, the only plausible model of the relationships between individual differences, job characteristics, job satisfaction, and job performance. By nature, the model to test the spuriousness of the satisfaction-performance relationship (Figure 5) is saturated (there are no degrees of freedom as every possible path is included in the model), so by design the model has perfect fit. A more sophisticated way to model the interrelationships amongst the study variables would be to constrain several

paths to zero, based upon theory. Thus, it is necessary to use theoretical reasoning to determine which paths should not be included in the integrated theoretical model.

By design, job complexity should be related to both job satisfaction and job performance. In their Job Characteristics Model, Hackman and Oldham (1975) specify that two of the outcomes associated with high levels of job complexity are high satisfaction with the work and high quality work performance.

An important conceptual distinction to be made when discussing job complexity involves the differences between self-reported perceptions of one's job and non-self-reported job complexity. Hackman and Oldham (1975) stated that the Job Diagnostic Survey, used to measure job complexity, "provides measures of objective job characteristics" (p. 159). However most of the research that is conducted regarding job characteristics uses incumbent self-ratings of the characteristics (Spector & Jex, 1991) and research shows that individuals' emotions or affective states can influence their judgments (Brief & Weiss, 2002). As such, emotions could influence individual ratings of their own job characteristics. Along these same lines, Schwab and Cummings (1976) argued that using self-report measures of job characteristics can confound an individual's preferences with the characteristics of the job. Spector and Jex (1991) found that incumbent ratings of job complexity were not highly correlated with job complexity ratings based on the job description or job complexity as recorded in the *Dictionary of Occupational Titles* (United States Department of Labor, 1991). They suggest that researchers be cautious when using self-reports of job characteristics as predictors of actual job outcomes.

This difference between self-report and non-self-report (i.e., 'objective') ratings of job complexity could occur for a couple of different reasons. First, the history and purpose of these two types of measures are very different (Gerhart, 1988). Self-report measures of job complexity were developed from job design theory in order to see the effects of enriched jobs on employee attitudes and behaviors. On the other hand, objective measures of job complexity were developed to provide job information in order to match individual characteristics and abilities to the job. So although objective and self-report measures of job complexity are meant to measure the same construct, their different developments and purposes could be a reason for differences between them. Whereas self-reports of job complexity are perceptual in nature, objective job complexity is structural in nature.

Another explanation for a difference between objective and self-report measures of job complexity is that with self-report measures individuals' affective states are involved in the ratings whereas objective job complexity comes from either a published source such as the *Dictionary of Occupational Titles* or from someone other than the incumbent rating the job complexity. Affective experiences in the workplace can lead to both attitudinal and behavioral outcomes (Weiss & Cropanzano, 1996). Job complexity is an aspect of the work environment that can influence the affective experiences for individuals at work (Saavedra & Kwun, 2000). Specifically, individuals respond affectively to jobs based on their perceptions of the job characteristics. So job complexity can have an influence on satisfaction and performance through affective reactions.

The idea that perceived job characteristics are related to affective responses can explain why one would expect perceived job complexity, or self-reports of job complexity to be related to Extraversion. Extraverts are especially susceptible to positive affect (Rusting & Larsen, 1997). Because of this propensity to affective experiences and the fact that perceived job characteristics influence affective experiences, affect is the mechanism for the relationship between self-perceived job characteristics and Extraversion.

Because of the difference between self-reports and objective measures of job complexity, one can expect that they would relate differently to outcomes such as satisfaction and performance. Hackman and Oldham (1975) suggested that job characteristics should be positively related to both satisfaction and performance, but examining the difference between self-ratings and objective measures is likely to show differences in the relationships. Self-report measures of job complexity correlate higher with work outcomes than do objective measures (Spector & Jex, 1991). This could be partially due to contamination from common method variance (Glick, Jenkins, & Gupta, 1986). If employees respond to job satisfaction measures and job characteristics measures, they are likely to be more strongly related than if the job complexity measures come from a different source. It can also be expected that there would be differences between the self-report job complexity-performance relationship and the objective job complexity-performance relationship because self-report measures of job complexity are influenced by individuals' affect whereas objective measures are not (Schwab & Cummings, 1976), and as such they could actually be measuring different constructs and

cause differential relationships with performance. Objective and self-measures of job complexity could related differently to job satisfaction because affect, mood, or personal biases can influence the self-ratings of job complexity (Schwab & Cummings, 1976; Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). This can increase the relationship between self-report and job complexity because if a person is performing poorly, that could affect and lower their job complexity ratings, thus increasing the relationship between the two. Objective job complexity ratings are not affected by how an individual feels about the job, and as such would be related to performance differently than self-ratings of job complexity.

Job characteristics are also specified as a mediator of the effects of cognitive ability on satisfaction. As mentioned above, the relationship between cognitive ability and satisfaction is explained by the gravitational hypothesis, in which employees gravitate toward jobs that have ability requirements that match their cognitive abilities (Wilk et al., 1995). Using this same explanation, it can be expected that individuals will gravitate toward jobs in which the job complexity matches their abilities. For example, high ability individuals will be drawn to jobs with high levels of job complexity, such as autonomy, skill variety, or task identity. Because job complexity is positively related to job satisfaction, the high ability individuals will have higher job satisfaction. Thus, job complexity is the mechanism for the relationship between cognitive ability and job satisfaction.

Another theoretically-derived modification to the saturated spuriousness model shown in Figure 5 is that the paths between the personality traits and cognitive ability

can be removed. Theoretically, one reason that one would not expect personality and cognitive ability to be related is that personality measures typical performance and cognitive ability measures maximal performance (Ackerman & Heggestad, 1997). Personality is measured as typical performance because it tells us what a person is likely to do whereas cognitive ability is measured as maximal performance because then it is a purer measures that is wholly determined by one's capabilities (Fiske & Butler, 1963). One personality trait has been consistently related to cognitive ability. Openness to experience, which is similar to other personality constructs including intellectence and the intelligence factor, is related to cognitive ability because of the knowledge component of this trait (Ackerman & Heggestad, 1997). This knowledge component is apparent when looking at the factors that comprise openness, such as wisdom, knowledge, and originality (Goldberg, 1990). In research, few self-report measures of the Big Five personality traits are correlated with cognitive ability (Ackerman & Heggestad, 1997). These correlations are usually nonsignificant or of a small size. Specifically, Ackerman and Heggestad (1997) found that only openness to experience had at least a medium sized correlation with cognitive ability. In a recent meta-analysis, none of the Big Five traits included in this study had a correlation of above .09 with cognitive ability (Judge, Jackson, Shaw, Scott, & Rich, 2007).

Another theoretical modification to Figure 5 is that the personality variables of Extraversion, Agreeableness, and core self-evaluations should be specified to take their effects on job performance by way of job satisfaction and job characteristics. As mentioned in an earlier section, Extraversion predicts job performance because

extraverts strive to obtain status and rewards at work (Barrick et al., 2002) and because of their high level of social interaction which allows them to know exactly whom they can go to for advice or help to improve their performance. It can be hypothesized that both of these explanations are related to job satisfaction, and as such job satisfaction is the mechanism for the Extraversion-performance relationship. It might be that extraverts strive to obtain status and reward not because they want to perform well, but because they are more satisfied at work when they are being rewarded and recognized. Also, if performance is related to Extraversion because of the social relationships that are formed, it may actually be the case that those relationships are formed in order to increase individual satisfaction rather than performance as relationships, as extraverted people are talkative and sociable (Goldberg, 1992) which could them satisfied because of interpersonal relationships. So, because social relationships could be formed to increase satisfaction but they can also increase performance, satisfaction mediates the relationship between Extraversion and performance.

As with Extraversion, Agreeableness predicts job performance in people-oriented jobs because it is characterized by friendliness and an ability to cooperate with others. would be most likely to affect performance in jobs that are people-oriented (Hurtz & Donnovan, 2000). So again, satisfaction can mediate this relationship because the social interactions that help job performance actually arise to increase satisfaction first.

Just as satisfaction could mediate the relationship between personality variables and performance, job complexity could play this same mediating role. Specifically, the Extraversion-performance relationship should be mediated by job complexity. Sheldon,

Elliot, Kim, and Kasser (2001) found that people are motivated to achieve certain motives in their lives. One of the motives is to achieve enhanced personal control or autonomy, and another is to have challenging work that can demonstrate one's competence. One of the dimensions of job complexity is autonomy, and other dimensions, such as skill variety, are aimed at creating a more challenging job. The main point here is that extraverts' striving for autonomy and a challenging job may ultimately motivate them to perform at higher levels. As mentioned earlier, extroverts tend to strive for success, rewards, and status at work (Barrick et al., 2002). Barrick, Mitchell, and Stewart (2003) suggest that Extraversion is related to performance because of the tendency of extraverts to strive for status and that they have sensitivity to rewards at work. This idea of status striving means that Extraversion is related to performance in part due to a mechanism whereby extraverts seek jobs that are more autonomous and challenging.

In contrast to Extraversion, one would not expect Agreeableness to be related to job characteristics because rather than being related to status striving, trait Agreeableness is related to performance through communion striving (Barrick et al., 2003). Job complexity comprises facets of the job itself, not the social situations that one will encounter on the job (cf. Humphrey et al. 2007; Sims et al., 1976). As such, job complexity is unrelated to Agreeableness.

Like the Extraversion-performance relationship, the core-self evaluations-performance relationship should also be mediated by job complexity. Positive core self evaluations lead individuals to seek out more complex jobs because they feel that they

can handle the job and they see a potential for greater intrinsic rewards (Judge et al., 2000). So feelings of competence, self-worth, and personal control over their life lead individuals to complex jobs because they feel that they will be successful in any challenges that the job brings. So, rather than core self-evaluations having a direct effect on job performance, the effect may actually be due to the fact that positive self-evaluations lead individuals to jobs in which they can perform well.

Harrison, Newman, and Roth (2006) suggest that employee attitudes are related to behavioral engagement in work roles. So employees with high levels of job satisfaction are more likely to be engaged in their work, which will lead to higher levels of performance. As such, it can be expected that because Extraversion, Agreeableness, and core self-evaluations are related to satisfaction, they are also related to higher levels of behavioral engagement. Remember that Extraversion is related to job satisfaction because according to Gray's Reinforcement Sensitivity Theory (1970) Extraverts are less sensitive to punishment and they have a tendency to view life events in a positive light (Magnus et al., 1993). Agreeableness is related to job satisfaction because agreeable individuals are likely to form satisfying interpersonal relationship at work (Goldberg, 1990), and core self-evaluations are related to job satisfaction because high self-esteem individuals choose jobs that are consistent with their interests and thus lead to higher satisfaction (Korman, 1970), individuals with an internal locus of control will be more satisfied because they will not stay in a job that is dissatisfying (Spector, 1982), individuals with high Emotional Stability are predisposed to experience positive events (McCrae & Costa, 1991), and finally individuals with high generalized self-efficacy are

likely to be satisfied on the job because they are more likely to obtain valued outcomes and thus be satisfied on the job (Judge & Bono, 2001).

Considering these theoretical arguments, some paths have been removed from the model used to test the spuriousness of the satisfaction-performance relationship. Specifically, because cognitive ability is uncorrelated with personality factors, four paths were removed from the model (Extraversion and cognitive ability, Agreeableness and cognitive ability, core self-evaluations with cognitive ability, and Conscientiousness with cognitive ability). Also, because cognitive ability is related to satisfaction via job characteristics, the direct relationship between cognitive ability and satisfaction was removed. Next, because Agreeableness is unrelated to job characteristics, the paths between Agreeableness and both of the job complexity variables can be constrained to zero. Finally, because Extraversion, Agreeableness, and core self-evaluations are related to performance only through job satisfaction and job complexity, the three direct paths between these variables and job performance can be removed. The new integrated theoretical model of the antecedents of job satisfaction and job performance appears in Figure 6. By removing several paths from Figure 5 to create Figure 6, ten degrees of freedom were created, which are now used to assess how well the theoretical model in Figure 6 fits with the actual data.

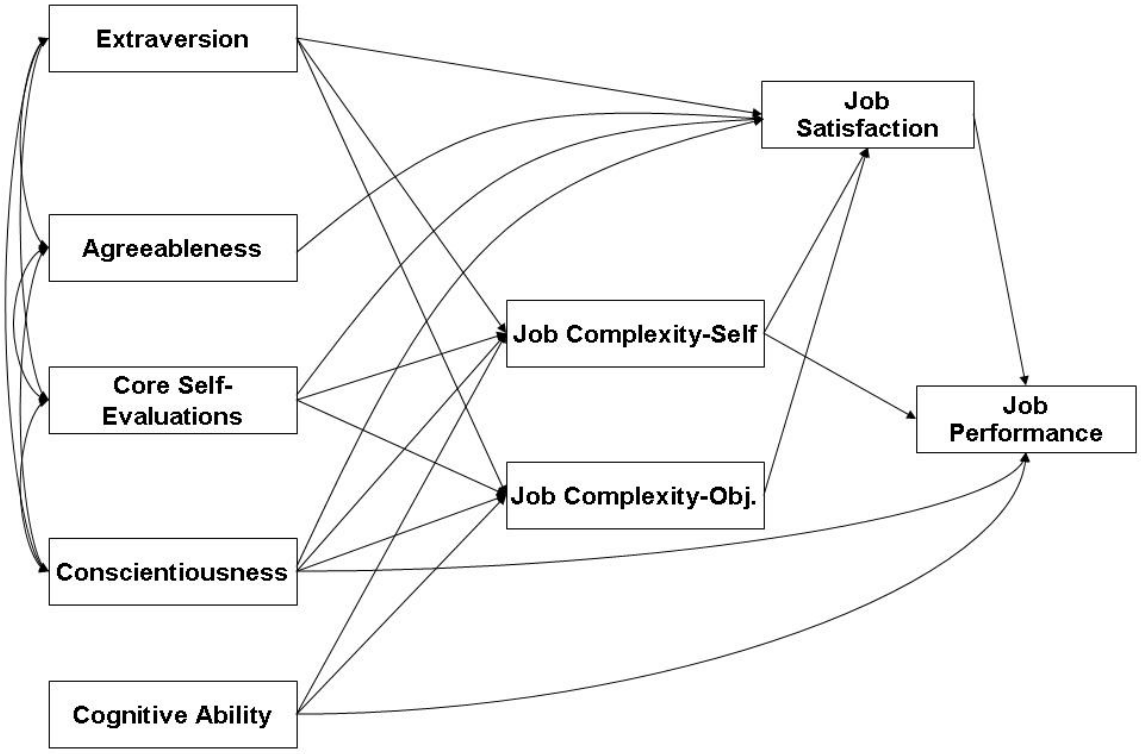

Figure 6. Integrated theoretical model of the relationships among personality, job characteristics, cognitive ability, job satisfaction, and job performance

CHAPTER II

METHOD

Literature Search

In order to locate studies regarding the relationships among job satisfaction, job performance, Emotional Stability, Extraversion, Conscientiousness, Agreeableness, generalized self-efficacy, self-esteem, locus of control, job complexity, and Cognitive Ability, searches were conducted in online databases for studies containing any combination of the variable names. For relationships that have been the subject of published meta-analyses, correlations from these published meta-analytic studies were used.

First, a search of the PsycINFO database was conducted to identify journal articles as well as unpublished doctoral dissertations. Efforts were made to ensure that all potential studies were found by including many alternative labels for each variable. Searches for studies about personality traits used the keywords *Big Five, Neuroticism, Emotional Stability, emotional adjustment, Extroversion, Extraversion, Surgency, Conscientiousness, Dependability, and Agreeableness,*. In looking for studies regarding core self-evaluations, searches included the terms *core self-evaluations, self-efficacy, self-esteem,* and *locus of control.* Searches for job complexity included the terms *job complexity, job characteristics, job autonomy, task autonomy, skill variety, task variety, task significance, task identity and task feedback*. Because several primary studies only include a few of the dimensions of job complexity (but not an overall complexity

measure), unit-weighted composite correlations were created for the job complexity estimates.

I also identified studies using the Social Sciences Citation Index, searching for common measures of the various constructs. For instance, to locate job characteristics studies, I searched through abstracts of all studies that cited Hackman and Oldham's (1975) Job Diagnostic Survey; Sims, Szilagyi, & Keller's (1976) Job Characteristics Index; and Idaszak & Drasgow's (1987) JDS Revision. SSCI searches for personality traits included Saucier's (2002) Mini-Modular Markers, Costa and McCrae's (1985) NEO measure, the IPIP (Goldberg, Johnson, Eber, Hogan, Ashton, Cloninger, & Gough, 2006), Eysenck, Eysenck, and Barrett's revised EPQ (1985), Goldberg's (1992) Big Five Measure, and Rotter's (1966) Internal-External scale.

Rules for Inclusion in the Meta-Analyses

For the relevant studies that were identified in the literature search, rules for inclusion in the meta-analyses were set. These rules were consistent with previous meta-analyses in the industrial/organizational Psychology literature (e.g. Judge & Bono, 2001, Hurtz & Donovan, 2000). First, only studies with working adult participants were included in analyses. Studies that used children or special populations, such as psychiatric patients or other clinical samples, were excluded from the analyses. Second, studies examining generalized self-efficacy were included in the analyses, whereas studies examining self-efficacy regarding any specific activity or dimension were excluded. In this same manner, studies of locus of control that are very specific (i.e. heath locus of control) were excluded. Third, studies were only included in the analyses

if they directly measured the constructs of interest. For example, studies investigating Emotional Stability or Neuroticism were included in the analyses, but studies about negative affectivity were not included.

All of the studies that met these criteria were then examined to determine if they contained the information necessary to be included in the meta-analyses. Studies had to report a correlation or some other type of statistic that could be transformed into a correlation. Studies also had to report a sample size.

Meta-Analytic Procedures

In all, 27 original meta-analyses needed to be conducted in order to determine the correlations for all of the relevant relationships. Whereas several of these meta-analyses were necessarily small-scale, all final meta-analytic estimates are based upon at least $N >$ 300 respondents. Previously published meta-analytic results as well as the original meta-analyses that were conducted are presented in Table 1. Cells containing an "x" indicate where new meta-analyses were necessary.

There were two cells in the meta-analytic correlation matrix for which no primary studies are available. These correlations are between non-self ratings of job complexity and both Conscientiousness and Agreeableness. Zimmerman (2006) also noted that no studies could be found regarding these two relationships. Because of the lack of information regarding these two relationships, I imputed the values from the self-report measures of job complexity with Conscientiousness and Agreeableness into the cells for non-self report measures of job complexity. Although this is not an ideal situation, this imputation allows for analysis of the model with job complexity-

Table 1
Meta-Analytic Sources, Estimates, and Meta-Analyses Conducted

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Job satisfaction											
2. Job performance	.30a										
3. Emotional Stability	.29b	.15c									
4. Extraversion	.25b	.09c	.19d								
5. Conscientiousness	.26b	.24c	.26d	.00d							
6. Agreeableness	.17b	.12c	.25d	.17d	.27d						
7. Generalized Self-Efficacy	.45e	.23e	.59e	x	x	x					
8. Self-Esteem	.26e	.26e	.66e	x	x	x	.85e				
9. Locus of Control	.32e	.22e	.51e	x	x	x	.63e	.59e			
10. Job Complexity – Objective	.20f	.08f	-.10f	.17f	x	x	x	x	x		
11. Job Complexity – Self perceptions	.55g	.17g	x	x	x	x	x	x	x	x	
11. Cognitive Ability	x	.53h	.15i	.08i	.02i	.01i	.20j	x	x	x	x

Note. a – Judge et al., 2001; b – Judge et al., 2002; c – Hurtz & Donovan, 2000; d – Ilies & Judge, 2003; e – Judge & Bono, 2001, f – Zimmerman, 2006; g – Humphrey, Nahrgang, & Morgeson, 2007; h – Hunter & Hunter, 1984; i – Ackerman & Heggestad, 1997; j – Judge, Jackson, Shaw, Scott, & Rich, 2007

personality correlations that one could assume will be approximations close to the actual values.

After compiling correlations from all of the studies collected for meta-analyses, I employed Hunter and Schmidt's (2004) meta-analytic procedure, correcting for sampling error and unreliability attenuation. To correct the observed measures for unreliability, reports of internal consistency reliability were used. Although a large portion of the studies reported internal consistency reliability estimates, some studies omitted this information. If authors did not report reliabilities, then an average reliability for studies of the relevant construct were imputed.

For the data analysis, a composite correlation was created to combine the four variables that make up Core-Self Evaluations. In order to combine Emotional Stability, self-esteem, self-efficacy, and locus of control, Nunnally's (1978) linear combination formula was used. This equation is

$$r_{\text{y,composite}} = \frac{\overline{R_{XY}}}{\sqrt{(\overline{R_X})}}. \qquad \text{Eq. 2}$$

where $\overline{R_{XY}}$ is the average correlation between each X variable and the criterion variable Y, and $\overline{R_X}$ is the average element of the correlation matrix amongst the Xs, including the 1's in the diagonal.

Structural equations modeling (SEM) was used to calculate the residual correlation between job satisfaction and job performance. The meta-analytic correlation matrix among all variables was entered into LISREL 8.80 (Jöreskog & Sörbom, 2006). The model is depicted in Figure 5. With this method, the residual correlation between

job satisfaction and job performance while controlling for all of the other predictor variables can be estimated as a correlation among disturbance terms (i.e., Ψ matrix). The theoretical model was estimated as a single-indicator model, with factor loadings fixed to unity for job satisfaction, job performance, Extraversion, Conscientiousness, Agreeableness, core self-evaluations, objective and self ratings of job complexity, and cognitive ability.

SEM was also used to test the integrated theoretical model (Figure 6), in which job satisfaction and job complexity are mediators of some of the personality-performance relationships. James, Mulaik, and Brett (2006) suggest testing full mediation models using SEM techniques. This is in contrast to using Baron and Kenny's (1986) mediation testing methods, which they say should be used for testing partial mediation. The same meta-analytic correlation matrix that was used to test the spuriousness of the satisfaction-performance relationship was entered into LISREL 8.80, for the purpose of testing the integrated theoretical model.

CHAPTER III

RESULTS

The overall correlation matrix between the study variables is presented in Table 2. These values are the estimated population correlations, meaning that they are the attenuation-corrected correlations. The meta-analytic correlation matrix in which Emotional Stability, self-efficacy, self-esteem, and locus of control are combined into one core self-evaluations variable is presented in Table 3.

The first question posed in this study was whether or not the job satisfaction-job performance relationship is spurious. Using structural equation modeling, the theoretical model presented in Figure 5 was tested. This model includes the links from the common causes, specifically Extraversion, Conscientiousness, Agreeableness, core self-evaluations, job complexity, and cognitive ability, to job satisfaction and job performance. The results of this model are provided in Figure 7. As stated previously, this model is saturated and therefore has perfect fit, by design. Because of this perfect fit, fit indices are not reported.

Table 2
Overall Meta-Analytic Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11
1. Job satisfaction											
2. Job performance	.30a 312/54471										
3. Emotional Stability	.29b 92/24527	.15c 37/5671									
4. Extraversion	.25b 75/20184	.09c 39/6453	.19d 710/440440								
5. Conscientiousness	.26b 79/21719	.24c 45/8083	.26d 587/490296	.00d 632/683001							
6. Agreeableness	.17b 38/11856	.12c 40/6447	.25d 561/415679	.17d 243/135529	.27d 344/162975						
7. Generalized Self-Efficacy	.45e 12/12903	.23e 10/1122	.59e 14/1888	.24 7/2067	.17 14/3483	.09 6/1099					
8. Self-Esteem	.26e 56/20819	.26e 40/5145	.66e 18/2297	.42 25/8502	.46 19/4357	.22 13/3439	.85e 14/1894				
9. Locus of Control	.32e 80/18491	.22e 35/4310	.51e 16/2175	.19 23/5142	.64 11/5127	.20 5/1037	.63e 14/1888	.59e 16/2175			
10. Job Complexity (no self-reports)	.20f 15/11578	.08f 4/842	.10f 4/928	.17f 2/470	.20* 6/1008	.03* 6/1008	.08 3/954	.26 1/348	.19 1/348		
11. Job Complexity (self perceptions)	.55g 125/60790	.17g 14/1897	.13 7/1831	.20 4/749	.20 6/1008	.03 6/1008	.49 1/348	.32 3/680	-.08 2/2506	.30 2/568	
12. Cognitive Ability	.05 3/6159	.53h 425/32124	.09i 61/21404	.02i 61/21602	-.04i 56/15429	.00i 38/11190	.20i 26/4578	-.09 4/1836	.09 8/4326	.40 6/51344	.28 3/9038

Note. Entries in the table are corrected correlations. Below each correlation appears the number of studies (*k)* and then the total same size for the combined studies (*N*).

a – Judge et al., 2001; b – Judge et al., 2002; c – Hurtz & Donovan, 2000; d – Ilies & Judge, 2003; e – Judge & Bono, 2001, f – Zimmerman, 2006; g – Humphrey, Nahrgang, & Morgeson, 2007; h – Hunter & Hunter, 1984; i – Ackerman & Heggestad, 1997; j – Judge, Jackson, Shaw, Scott, & Rich, 2007

* Correlations imputed from self-perceptions of job complexity.

Table 3

Meta-Analytic Correlation Matrix with Core Self-Evaluations

	1	2	3	4	5	6	7	8
1. Job satisfaction								
2. Job performance	.30 312/54471							
3. Extraversion	.25 75/20184	.09 39/6453						
4. Conscientiousness	.26 79/21719	.24 45/8083	.00 632/683001					
5. Agreeableness	.17 38/11856	.12 40/6447	.17 243/135529	.27 344/162975				
6. Core Self-Evaluations	.39 32/18150	.25 22/2677	.30 17/4808	.45 18/5536	.22 8/1348			
7. Job Complexity (no self-reports)	.20 15/11578	.08 4/842	.17 2/470	.20* 6/1008	.03* 6/1008	.14 2/508		
8. Job Complexity (self perceptions)	.55 125/60790	.17 14/1897	.20 4/749	.20 6/1008	.03 6/1008	.25 2/756	.30 2/568	
9. Cognitive Ability	.05 3/6159	.53 425/32124	.02 61/21602	-.04 56/15429	.00 38/11190	.08 7/3497	.40 6/51344	.28 3/9038

Note. Harmonic mean = 2010. Entries in the table are corrected correlations. Below each correlation appears the number of studies (*k)* and then the total sample size for the combined studies (*N*).

*Correlations imputed from self-perceptions of job complexity.

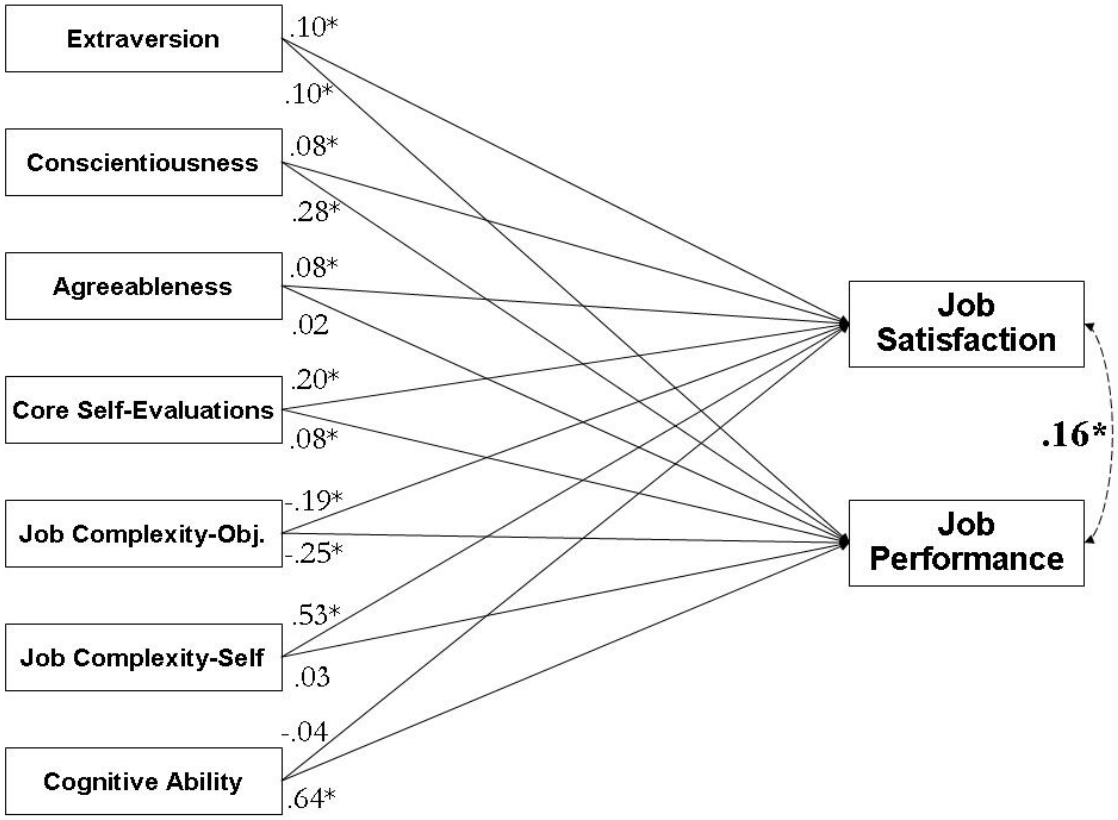

Figure 7. Meta-analytic model results relating personality, job characteristics, and cognitive ability to job satisfaction and job performance. $*p < .05$

To summarize the results in Figure 7, the residual correlation between job satisfaction and job performance is .16, after controlling for the theoretically-relevant personality traits, cognitive ability, and job characteristics. It is also possible to look at the residual satisfaction-performance relationship, controlling for only subsets of the common causes. These results can be seen in Table 4, where I first controlled for personality traits only, then controlled for personality and cognitive ability, and finally controlled for all of the common causes together. When controlling for the personality variables of Extraversion, Conscientiousness, Agreeableness, and core self-evaluations,

the residual correlation between satisfaction and performance reduces to .18. When cognitive ability is added to the model, it reduces to .17, and when finally adding job complexity to the model the satisfaction-performance relationship reduces to .16. That is, when controlling for the full set of common causes, the relationship between job satisfaction and job performance is reduced to approximately half of the raw correlation ($\psi = .16$). So, the job satisfaction-job performance relationship is indeed partly spurious, as controlling for common causes reduces the relationship magnitude from .30 to .16.

Table 4
Results of Controlling for Variables in the Satisfaction-Performance Relationship

Controlling for:	ψ
Personality (E, C, A, & CSE)	.18
Personality & Cognitive Ability	.17
Personality, Cognitive Ability, & Job Complexity	.16

The second section of this paper addresses the theoretical model presented in Figure 6, which specifies the relationships between the personality variables, job characteristics, cognitive ability, job satisfaction, and job performance. The theoretical model was tested by entering the meta-analytic correlation matrix into Lisrel 8.80. The resulting model with path estimates is presented in Figure 8. Paths marked with an asterisk are significant at the .05 level. As can be seen in the figure, all of the hypothesized paths are statistically significant, although several were in the opposite

direction from the hypothesized model (i.e., all paths were positive in the hypothesized model, but several paths are negative in the empirically estimated model).

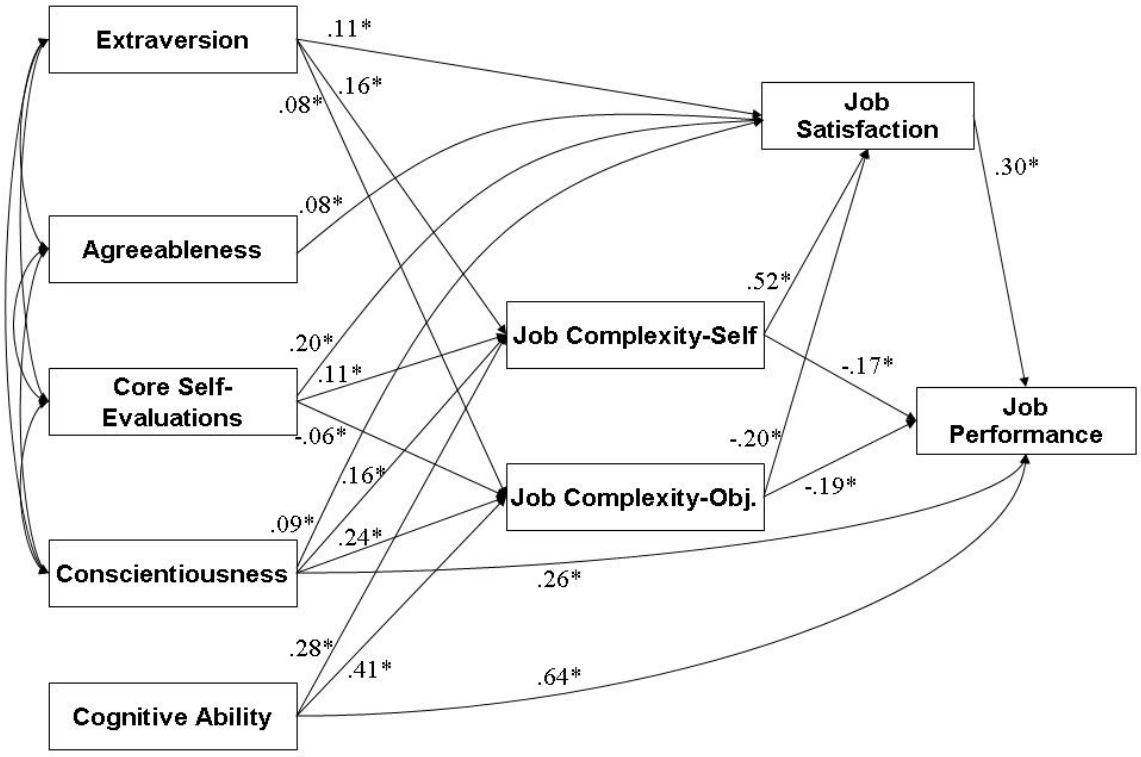

Figure 8. Structural equations model results of the integrated theoretical model.
*$p < .05$

The fit indices for this model are presented in Table 5. This table shows that the hypothesized model has good fit (Hu & Bentler, 1998). To test whether job satisfaction and job complexity are indeed mediators of the relationships between personality variables and job performance, I estimated the direct paths individually, and found that none of them improved the practical fit (the largest improvement was when adding the

direct path from Extraversion to job performance; ΔCFI(1) =.004). Also, the lack of a direct path from cognitive ability to job satisfaction (ΔCFI(1) =.000) confirmed the status of job complexity as a mediator. I chose to conduct model comparisons by looking at changes in the comparative fit index (CFI), because unlike changes in Ch-square, changes in CFI are not a direct function of sample size.

Table 5
Fit Indices for Structural Model

χ^2	df	RMSEA	CFI	NNFI	SRMR
42.24	10	.04	.99	.97	.02

CHAPTER IV

DISCUSSION AND CONCLUSIONS

The job-satisfaction-job performance relationship has been the object of much research in the area of industrial/organizational psychology. Although multiple models of the relationship have been suggested, to date research has not determined the appropriate causal model to explain this relationship (Judge et al., 2001). The results of the current study suggest that the relationship between satisfaction and performance is partly spurious; meaning that part of the relationship is actually due to common causes of satisfaction and performance rather than a substantive causal relationship between the two. Specifically, approximately one half of the satisfaction-performance relationship is spurious. This finding is important because it helps to theoretically clarify a commonly studied relationship, by incorporating individual differences.

The second part of this study focused on an integrated theoretical model containing all of the same variables as the test of spuriousness. Some specific characteristics of this model are that job satisfaction mediates the relationships of Extraversion, Agreeableness, and core self-evaluations with job performance. Another mediator in the model is job complexity, which mediated the relationship between cognitive ability and job satisfaction, as well as some of the personality variables and job performance. Also specified in this integrated model, cognitive ability is not related to the personality variables. Finally, objective and self-ratings of job complexity are separate constructs and related differentially to the outcome variables. In specifying this

model, job satisfaction leads to performance, rather than performance leading to satisfaction because it has been found that job attitudes are more likely to influence performance than for performance to influence attitudes (Riketta, 2008). In addition, job complexity is specified to come before job satisfaction as it has been found that causally, job satisfaction follows job perceptions and they are related reciprocally (James & Tetrick, 1986).

Along with these findings, there were some interesting and unexpected findings. First of all, objective job complexity was negatively related to job satisfaction and job performance when controlling for individual differences including personality and cognitive ability. In addition, self-ratings of job complexity were negatively related to job performance. These findings were unexpected, because according to the Job Characteristics Model (Hackman & Oldham, 1975) job complexity should lead to improvements in both job satisfaction and job performance. It is interesting and counterintuitive that job complexity relates *negatively* to satisfaction and performance when controlling for personality and cognitive ability.

The fact that meta-analytic correlations of objective and self-reports of job complexity with both performance and satisfaction are positive, but then become negative in the overall model, suggests that statistical suppression might be occurring. Suppressed variables can be identified by having direct and indirect effects with opposite signs (Tzelgov & Henik, 1991). Negative suppression is defined as occurring when variables have a positive correlation with the criterion, but a negative β weight in a multiple regression equation (Darlington, 1968). Suppressor effects are not simply a

statistical artifact, but rather are obtained because they remove some irrelevant conceptual variance in the predictor (Conger, 1974).

To better understand the suppression effect with job characteristics, consider the following example. Take two employees who have the same levels of cognitive ability and the same personality profiles. The employee with the more complex job will be *less* satisfied and *worse* performing (which is contrary to job characteristics theory; Hackman & Oldham, 1976), according to the model advanced in the current study. So, in comprehensively modeling the relationships amongst personality, cognitive ability, job complexity, job satisfaction, and job performance, the function of individual difference variables (personality and mental ability) may be to remove some of the unwanted variance from job complexity. It may be easiest to understand this by considering exactly what job complexity means when personality and cognitive ability are held constant. With these held constant, high job complexity means that the job is harder for employees, as they have more skills to perform (skill variety), are involved in a task from beginning to end, rather than just being responsible for one part (task identity), the task is meaningful and seems important (task significance), and employees are more responsible for their own actions (autonomy). When holding personality and cognitive ability constant, the fact that the job is harder leads to lower satisfaction and worse performance. The idea that lower performance occurs with a harder job is easier to understand because it follows that the more difficult the work, the poorer most people will perform (this is akin to saying that the more difficult a test item is, the more people will answer that item incorrectly). Lower satisfaction could occur because with a harder

job, employees have to work harder, which could mean more time or energy spent on the job, taking away from satisfaction. So it appears from the integrated theoretical model (Figure 6) that high job complexity only leads to high satisfaction and performance because of the personality and ability of individuals in the job, not because of the actual complexity of the job.

If this is indeed the case, much of the ostensible empirical support for the relationships proposed in the JCM could just be attributable to individual difference effects. The JCM does allow for individual differences with the inclusion of the growth need strength variable (Hackman & Oldham, 1975), but this is not included in most of the studies that look at job complexity. When considering the relationship between job complexity and job satisfaction, the model shows there is a fairly strong positive relationship between self-reports of job characteristics and job satisfaction, but a negative relationship between objective measures of job characteristics and job satisfaction. As discussed earlier, self-report measures can be influenced, or contaminated, by individual affect that is unrelated to the actual job characteristics (Schwab & Cummings, 1976). Because the positive relationship between job complexity and job satisfaction is only supported for self-report measures of job complexity, it is reasonable to believe that the frequently observed positive job complexity-job satisfaction correlation is actually due to individual differences rather than the actual characteristics of the job. Hackman and Oldham (1975) designed the JDS to measure objective job characteristics, but it appears that this is not the case, and

the use of non-objective measures has a notable impact on outcomes related to job complexity.

One reason that self-reports of job complexity may not relate as expected to satisfaction and performance is that it might not be an actual representation of what the characteristics of the job actually are. An individual's mood can affect perceptions of the characteristics of the job (Thoresen et al., 2003), or the perceptions of the job complexity dimensions can be biased by some type informational cues in the situation (O'Reilly & Caldwell, 1979). Also, perceptual biases can come into play when these ratings are made, and as such, ratings of job complexity may not be a fair mental average of the actual job characteristics. Situations in the work place that occurred the most recently can have an exaggerated impact on ratings; in other words, a recency effect can affect ratings of job complexity. Also, people tend to remember or focus on negative things, so negative aspects of the workplace could have a larger impact on ratings than positive or neutral situations.

In considering the model in Figure 6, some theoretical contributions of this model can be illuminated. First, job satisfaction mediates the effects of Extraversion, Agreeableness, and core self-evaluations on job performance. These personality variables are not directly related to performance, but instead the relationships can be explained through the effects of these personality variables on job satisfaction. Another mediator that becomes apparent in this model is job complexity, both objective and self-ratings, in the relationship between cognitive ability and job satisfaction. In other words, the reason that cognitive ability is related to job satisfaction is job complexity. Indeed, as

shown in Figure 6 cognitive ability pretty strongly positively predicts both objective and subjective job complexity, but these two mediators then predict job satisfaction in opposite directions. The combined effect is an overall weak relationship between cognitive ability and job satisfaction. If looking simply at the small bivariate ability-satisfaction correlation, the substantive job complexity mechanisms would not have been appreciated.

Another unexpected finding was that core self-evaluations was negatively related to objective job complexity when controlling for other personality traits and cognitive ability (contrary to the hypothesized, positive relationship). Although it has been suggested that core self-evaluations are related to objective job complexity because of high self-evaluators' propensity to seek out complex jobs, exert more effort, and persist in the face of failure (Judge et al., 2000), when controlling for cognitive ability and other personality traits, the relationship is negative. One explanation could be that there is a difference in the way people perceive job complexity and how it actually is. In other words, maybe people have incorrect perceptions regarding the complexity of jobs, which leads to the negative relationship. It might be that individuals with high core self evaluations perceive their jobs to be more complex but in actuality, they are not.

This finding is especially interesting in that objective job complexity and self-reports of job complexity relate differentially to core self-evaluations; objective is negatively related and self-reports are positively related. The differential relationships between the objective and self-ratings of job complexity shine light on the fact that they likely do not measure the same constructs and researchers should not confuse the two.

Objective job complexity does not take into account the job characteristics as employees experience or perceive them, whereas the self-reports of job complexity is solely based on how employees experience job characteristics.

Implications for Practice

Regarding the finding that the job satisfaction-job performance is partly spurious, one important implication for practice is that satisfaction and performance are not as strongly causally related as some people consider them to be. Changes in an employee's performance likely depend not only on changes in job satisfaction, but also on who is hired. Job performance is about 50 percent who you hire (50% attributable to individual differences) and 50 percent not due to individual differences. So whom an organization hires is important.

Another important implication for practice regards job characteristics and the redesign of jobs to increase performance and satisfaction, in light of personality and ability. Results of the current study imply that the work redesign movement may have been a bit backwards. If an organization does an intervention to increase job complexity, it might be that satisfaction increases but performance does not increase as much. Or it could be the case the after a job complexity-increasing intervention both satisfaction and performance decrease. This can be seen in various experiments that have examined the effects of job redesign to increase job complexity on satisfaction and performance. Luthans, Kemmerer, Paul, and Taylor (1987) found that increased job complexity led to higher performance but not a statistically significant increase in satisfaction. On the other hand, Hackman, Pearce, and Wolfe (1978) found that

increased job complexity led to increased satisfaction, but not increased performance. Griffeth (1985) also found an increase in satisfaction following a job complexity increasing intervention. However, none of these studies included controls for individual personality. It is necessary to understand that making a job more complex will not necessarily improve satisfaction and performance as suggested in the Job Characteristics Model, so long as the personalities and abilities of employees remain stable. The reasons for the positive job complexity-performance relationship may actually be the individuals who are in the jobs, not the jobs themselves.

Limitations and Contributions

One limitation of this study is that some of the individual meta-analyses were quite small. For example, some of the job complexity correlations had fewer than three primary correlations. Also, primary studies did not exist for two of the cells in the correlation matrix, and imputation from another cell was used. Conducting more primary studies would help to improve this limitation and increase confidence in the results.

Another limitation of this study is that because it uses a non-experimental design, it is not possible to show causal relationships. However, personality and ability are theoretically antecedent to job satisfaction and job performance, therefore we can reasonably assume that they come before, and influence, satisfaction and performance. One more limitation of this study is that there could be moderators that limit the generalizablity of the meta-analysis. The conclusions drawn from this study are at the

mean population level, and if there are moderators that were not tested, the results may not generalize to the actual population.

This study also makes contributions to the satisfaction-performance, personality, cognitive ability, and job complexity literature. First, this study included conducting 24 original meta-analyses. These estimates provide a clearer picture of the relationships amongst all of the variables in the study.

Another contribution of the current study is that it shows that the causal effects, both unidirectional and reciprocal, between job satisfaction and job performance may be more limited in magnitude than previously thought as these relationships are approximately half spurious. Also, the integrated theoretical model provided new information regarding the relationships between the included variables. Specifically, the integrated model shows that satisfaction fully mediates the relationship between some personality variables (e.g., Extraversion and core self-evaluations) and job performance. Job complexity is also a mediator, acting as such in the relationship between cognitive ability and job satisfaction.

Conclusion

The purpose of this study was twofold. First, it was to examine the relationship between job satisfaction and job performance to estimate the decrement in magnitude of the relationship after accounting for individual differences. This was accomplished, and results showed that the satisfaction-performance relationship is partly spurious. The second purpose of the investigation was to examine a theoretical model containing the variables that were a part of the investigation of spuriousness. Specifically, the goal was

to determine if an integrated theoretical model fit with the data. Results showed that the model fit well, and is therefore one currently appropriate representation of the relationships among the variables.

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APPENDIX

ARTICLES INCLUDED IN THE META-ANALYSES

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