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### The Curvilinear Effects of Extroversion on Subjective and Objective Sales Outcomes

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### Abstract

Recent advances in the shape of the extraversion-sales performance relationship suggests being highly introverted and highly extraverted can be detrimental to customer interactions. Using two archival data sets (Study 1:  $N = 574$ , Study 2:  $N = 168$ ), the current study explored non-linear extraversion-sales performance relationships at both the factor- and facet-level for predicting objective and subjective criteria. Findings suggest significant non-linear relationships for extraversion facets with specific criteria combinations. Sales organizations should consider facets over factors for performance prediction. Implications for hiring extraverted sales professionals are discussed.

MONTCLAIR STATE UNIVERSITY

/ THE CURVILINEAR EFFECTS OF EXTROVERSION ON SUBJECTIVE  
AND OBJECTIVE SALES OUTCOMES /

by

William T. Sevcik

A Master's Thesis Submitted to the Faculty of

Montclair State University

In Partial Fulfillment of the Requirements

For the Degree of


Master of Arts Industrial Organizational Psychology

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College/School Humanities And Social Science Thesis Committee:

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Last year, U.S. organizations employed over 15 million workers in sales occupations (U.S. Department of Labor, 2014). The hiring of incoming sales professionals is of strategic importance due to their role in contributing to sales volume, profits, and customer satisfaction (Baldauf & Cravens, 2002). Indeed, the utility of selection decisions for sales professional is higher relative to any other occupation due to the large variability in sales performance metrics. Hunter, Schmidt, and Judiesch (1990) found the greatest standard deviation in individual employee output (e.g., sales per salesperson) as a percent of mean output (called [ $SD_p$ ]) is for sales positions, with differences as high as 120% for insurance sales. Therefore, identifying the attributes that predict sales performance is a top organizational priority (Stewart 1996).

Of the many sales predictors considered, the personality trait of extroversion has seen considerable attention from applied psychologists and managers alike. Signifying an “energetic approach toward the social and material world” (John, Naumann, & Soto, 2008, p. 120), extraverts tend to have strong social skills, attach high value to rewards, appear self-confident, seek and enjoy social interactions, and experience the drive and positive affect needed to endure in the face of rejection (John et al., 2008; Vinchur, Schippmann, Switzer, & Roth, 1998). Further, the adjectives used to describe extroversion (*outgoing, energetic, talkative, dominant, active, sociable* Cost & McCrae, 1992; Digman, 1990) are theoretically linked to effective sales behaviors of initiation, communication, negotiation, and persistence, leading Costa and McCrae (1992) to describe sales professionals as quintessential extroverts. Hence, it comes as no surprise that meta-analyses repeatedly find extroversion tends to be a positive albeit small predictor of performance in jobs with high interpersonal demands (Mount, Barrick, &



Stewart, 1998).

But is more extraversion always ideal? Is there a point where too much enthusiasm, talkativeness, and social potency impede one's tendency to make pitches, build relationships, and emphasize client needs? It has been argued the extravert's socially confident, gregarious nature can backfire if manifested at extremely high levels in which case the individual appears to be brash, long-winded, and domineering (Coker, Samuel, & Widiger, 2002). Prior research suggests too much extraversion is linked to ineffective leadership (Ames & Flynn, 2007), team conflict (Barry & Stewart, 1997), and lower sales revenues (Grant, 2013). This has led to arguments for hiring ambiverts by excluding highly introverted *and* highly extroverted people from sales positions (Grant, 2013). The current thesis proposes to address this question. First, we offer rationale for why too much extroversion may impede sales performance. Second, we highlight the possibility of curvilinear effects by reviewing variability in extroversion-sales effectiveness validity coefficients and hypothesize curvilinearity is more evident in subjective performance ratings. Finally, we test the hypotheses in two concurrent validation samples using both subjective and objective sales criteria.

### **Is More of a Personality Trait Always Better?**

Recent evidence suggests individuals too high on a personality trait may “overdue” certain behaviors resulting in extreme tendencies which interfere with or fail to improve performance (e.g., excessive conscientiousness may lead to rigidity in when a job calls for some flexibility; Judge, Piccolo, & Kosalka, 2009). Pierce and Aguinis (2013) coined this a “too much of a good thing effect” and proposed the positive monotonic relationships between personality and performance has an inflexion point after which an



initially positive relationship turns negative, resulting in many undetected curvilinear effects in management research. Modeling the wrong shape of personality-performance relationship (i.e., linear or non-linear) will likely decrease the validity and utility of personality assessments and result in organizational performance decrements (Converse & Oswald, 2014; Guion, 2011).

Evolutionary psychology offers a theoretical basis for understanding performance disadvantages of extreme trait standings. Beginning with Wilson (1994), many evolutionary psychologist propose that phenotypic trait variation between individuals could be the result of genotypic polymorphisms (which is supported by behavioral genetic findings; Plomin, Hapke, & Caspi, 2002). This suggests each of the Big Five personality factors represent a continuous distribution of phenotypical behavioral strategies for negotiating a competitive social environment. According to stabilizing selection theories of evolution, the mean of any trait distribution represents an optimal level in the face of trade-offs in energy allocation with natural selection working against distributional extremes (MacDonald, 2005). Stabilizing selection is based partly on Hogan's (1996) proposal that the humans evolved to live in groups wherein competition for social status resulted in reproductive success or failure. Hogan contended the Five Factor Model provides an indication of reputation, or how well an individual is "...doing in the game of life...as it concerns reproductive success" (1996, p. 173). Those who are friendly, for instance, will succeed more often than those who are perpetually hostile or, at the other end, are too compliant and trusting. Phenotypical behavioral strategies that fall in the tails of normally distributed personality dimensions might even represent higher risk evolutionary strategies (even psychopathological, Costa & Widiger, 1994) that

may only be adaptive in specialized niches (e.g., cults).

Nettle (2006) has gone further with this reasoning and argued the tail ends of each Big Five factor carry unique tradeoffs that are contingent upon fluctuating environmental demands. This *balancing-selection* approach suggests extremes of a trait are equally favored by selection under different conditions, times, or population compositions. An implication of this idea is that traits will have evolved to exhibit a mixture of costs and benefits. This stands in contrast to the idea of universally desirable traits; rather, two levels of a particular trait along a continuum produce relatively equally fitness outcomes such that high levels on the trait increase one component of fitness while simultaneously decreasing another component of fitness. The optimal way of trading off costs and benefits is not invariant across circumstances. For example, while vigilance about dangers is a benefit of neuroticism under threatening circumstances, susceptibility to stress can become costly in safer times (Nettle, 2006). Regardless the mechanism, both models recognize that traits contain a mixture of costs and benefits which may be more or less adaptive in different contexts. This implies no single trait location is optimal and that linear models may be overly simplistic within a selection context.

In terms of extraversion, the trade-off represents a balance between seeking out too many rewards (broadly conceived) from not seeking enough (Nettle 2005). Individuals with high levels of extraversion are more likely to mate and succeed socially, but they might also be more likely to die from risky behavior or elicit negative reactions. The trade-off is that extraverts invest more strategic resources into asserting, connecting, and attaining rewards (mostly through other people), which also results in risky pursuits such as stimulant drugs, sexual activities, or exposing negative flaws about oneself (Wilt



& Revelle 2010). Low levels of extraversion, on the other hand, can minimize exposure to risks or foolhardy pursuits but would also leave one less opportunity to seek out and exploit new reward opportunities. These behaviors may interfere with an individual's abilities to relate effectively with others and function in social situations.

Consequentially, we draw on three lines of evidence linking possible downsides of high extraversion with qualitative evidence on the personal characteristics or interaction patterns associated with failed sales transactions (Barley, 2015; Friend, Curasi, Boles, & Bellenger, 2014). Specifically, extremely extraverted sales professional may be as ineffective as their introverted counterparts because they are unjustifiably certain in themselves, spend less time ascertaining client's needs, and can become forceful in their attempts to win a sale. We outline our reasoning and theory below.

**Overconfidence.** Disparate lines of research suggest extraverts often think highly of themselves, including heightened overconfidence (Schaefer, Williams, Goodie, & Campbell, 2004), unrealistic optimism (Darvill & Johnson, 1991), overtly positive self-perceptions (Paulhus & Williams, 2002), and higher self-efficacy (Judge et al., 2007). In the short-term, such biases can be adaptive (Taylor & Brown, 1988): sales professionals can convince themselves they are effective and, regardless of reality, will remain self-assured and persist in the face of setback. In the long-run, however, this overconfidence can lead a sales professional to discount negative consequences, prematurely commit to a losing course of action, become overextended in their pursuits, and, as a result of failing to attain unrealistically high expectations, become disengaged from an increasingly disappointing endeavor (Robins & Beer, 2001; Vancouver, Thompson, Tischner, & Putka, 2002). Because extraversion is associated with heightened confidence, we reason

moderated levels are needed to motivate initiation and acquisition of new customers; however, taken to the extreme, an unbridled sense of confidence can blind professionals to their own errors, limitations, and, from the client's perspective, true value of sold commodities (e.g., proposing a higher price for an inferior good). That is, in a selling environment, an overtly extraverted professional might regard rejection as ignorable rather than meaningful, see risky leads as attainable rather than costly, and will underestimate rather than adapt to competition.

**Listening.** The failure to listen to client's needs is another primary cause of salesperson failure (Friend et al., 2014; Ingram, Schwepker, & Hutson, 1992). Extraverted individuals are verbally profuse, often monopolizing conversations by stressing their own ideas rather than getting to the meaning of what others are saying. Indeed, Ashton, Lee, and Paunonen (2002) argue the core of extraversion is the "tendency to engage and enjoy social attention" (p. 246) with studies repeatedly showing extraversion to positively correlate with percentage of speaking time (Campbell & Rushton, 1978; Nass & Brave, 2004; Rutter, Morley, & Graham, 1972) and negatively correlate with listening cues, such as head nodding and speaker gaze (Campbell & Rushton, 1978; Argyle, 1969). In moderate amounts, some degree of extraversion is needed to share information and earn the interest of prospects; however, in excess, long-windedness may hinder performance because it detracts from a mutual dialogue enabling the client to express and clarify their needs. Indeed, extreme extraversion has been uniquely implicated in the exaggerated attention seeking of histrionic personality disorder (Widiger, Trull, Clarkin, Sanderson, & Costa, 1994), compulsive talkativeness (McCroskey & Richmond, 1996), and less receptivity to followers' ideas (Grant, Gino, &



Hoffman, 2011).

Extraverts are often so keen to express their own thoughts and feelings that they have been found to speak even when knowing they may come off as nonsensical. Haze, Keaten & Kelly (2014) examined association between the Big Five and communication reticence in a sample of undergraduates. Conceptually, reticence is when people avoid communication because they believe it is better to remain silent than to risk appearing foolish. Based on research linking extraversion with lowered speaking anxiety, the author's hypothesized and found extraversion is also be negatively associated with reticence. This supports the rationale that extraverts will assert their viewpoint regardless of possible tradeoffs or risk to their social status.

**Conflict.** Finally, many sales encounters are just unpleasant. Normal conversations can easily transition beyond reasonable negotiations to moments of personal tension, social blunder and, in their more egregious forms, personal disputes. Evidence suggests extraverts might engage in such offensive acts because they are motivated to "win" the sale even at the expense of others. At the individual-level, extraverts tend to prefer a dominating style (Antonioni, 1998), display a disposition toward control and confrontation in dealing with conflict (Moberg 1998, 2001), and are highly fixated on attaining potential rewards (Stewart, 1996). More relevant to sales, research on mixed-motive conflicts suggests extraverts are mainly interested in getting as much as possible from a common resource and seem indifferent to others' intentions and actions (Koole, Jager, van den Berg, Vlek, & Hofstee, 2001). Finally, in terms of ongoing social exchanges, extraversion has been found to predict both relationship (Bono, Boles, Judge, & Lauver, 2002) and team conflict (Barry & Stewart, 1997). Interestingly, Bono et



al (2002) reported that extraverts themselves did not report higher levels of relationship conflict whereas their roommates did. This partner-only effect suggests extraverts create conflict with others but do not report any themselves. Collectively, the evidence suggests extraverts are willing to push others, take what they want, and experience little if any aversive reactions to the ensuing conflict.

The above-mentioned findings are well summarized by Ames' (2009) thesis that interpersonal assertiveness (as a facet of extraversion) has a fundamentally curvilinear, inverted-U-shaped effect on interpersonal relations. In field studies, Ames and Flynn (2007) found an inverted-U-shaped relationship between assertiveness and leadership effectiveness. This suggests extroverts scoring in the mid-range would then be best suited for sales positions as they would be assertive enough to convince (instrumental) the client to make a purchase but not so assertive that it would turn a client away (poor social outcomes).

**The Empirical Evidence.** Findings on the extraversion-sales performance relationship hint at non-linearity, with studies suggesting positive, null and, for certain facets, negative effects. In light of equivocal results, we summarize the findings of 8 articles on extraversion and a variety of sales outcomes in Table 1 listing the overall correlations for the linear effects.

Starting with the positive findings, Conte and Gintof (2005) found extroversion was significantly related to supervisor ratings of customer service, sales performance, and overall performance among computer sales. Wang and Liang (2012) found extroversion has a positive association with task performance and contextual performance for life insurance salespeople. Barrick, Steward & Piotrowski (2002) found extraversion

indirectly predicted sales performance through heightened power motives. Lastly, Thorsen et al. (2004) tested two samples of pharmaceutical sales representatives, one in a job transitional stage and one in a maintenance period. He found extroversion to be positively associated with between-person differences in total sales.

*Table 1*

*Summary of Significant Effects of Past Studies Investigating Linear Effects between Extraversion and Sales Performance*

Source	Study	Sample	Predictor	Criterion	<i>r</i>
Stewart (1996)	1 of 1	Financial (N = 152)	NEO-PI-R	Renewed Sales	.10
			NEO-PI-R	New Sales	.01
Barrick, Stewart, & Piotrowski (2002)	1 of 1	Financial (N = 164)	QPQ	Subjective Sales Performance	.21
Thorsen et al. (2004)	1 of 1	Tenured Pharmaceutical Representations (N = 99)	NEO-FFI	Objective Sales Performance	.24, .23, .18, .19
	2 of 2	New Pharmaceutical Representations (N = 78)	NEO-FFI	Objective Sales Performance	.23, .17, .20, .19
Conte & Gintof (2005)	1 of 1	Retail sales associates (N = 174)	Mini Makers	Subjective Sales Performance	.20
			Mini Makers	Subjective Customer Service Performance	.27
			Mini Makers	Subjective Job Performance	.25
Warr, Bartram & Martin (2005)	1 of 3	Retail Car sales (N = 119)	CCSQ	Objective Sales Performance	.10
	2 of 3	Electric Goods Sales (N = 78)	CCSQ	Objective Sales Performance	.05
	3 of 3	Door to door book sales (N = 90)	CCSQ	Objective Sales Performance	.08
Furnham & Fudge (2008)	1 of 1	Health Club Sales (N = 66)	NEO-FFI	Objective Sales Performance	-.02
Wang & Liang (2012)	1 of 1	Life insurance sales professionals (N = 384)	NEO-FFI	Subjective Task Performance	.37*
			NEO-FFI	Subjective Contextual Performance	.11*
Sitser, Linden & Born (2013)	1 of 1	Insurance (N = 403)	BFI	Subjective Sales Performance	.08
			BFI	Objective Sales Performance	.05
			BFI	Subjective Job Performance	.09

*Note.* NEO-FFI = NEO Five-Factor Inventory; NEO-PI-R = NEO Personality Inventory-Revised; QPQ = Occupational Personality Questionnaire; CCSQ = Customer Contact Styles Questionnaire, BFI = Big Five Factor Inventory, \* = Regression coefficients



Warr and Martin (2005) found extroversion predicted objective sales performance in 3 different occupational samples. The largest effects were for car sales followed by smaller effects for jobs selling appliances and books. Sitser, Linden & Born (2013) found extroversion predicted insurance agents' overall job performance and actual output. Lastly Stewart (1996) found a reward structure moderates the effects of extroversion within sales.

These inconsistent results are also evident in meta-analyses. Barrick, Mount, and Judge (2001) conducted a second-order meta-analysis of prior reviews and reported a  $SD\rho$  (.16) twice the size of its associated corrected mean  $r$  (.07) with the 90% credibility intervals ranging -.11 to .29. This suggests being high in extraversion meaningfully contributes to sales performance in some studies but detracts from it in others. Pierce and Aguinis (2013) argue opposing patterns of findings might reflect an underlying non-linear association such that increases in the predictor can be associated with gains, no change and, in some cases, a decrease in a desired outcome. Indeed, Furnham and Fudge (2008) speculated their null findings might be explained by a curvilinear effect because, "sales people with very high Extraversion are perceived as overly 'nice' or 'false' in the eyes of the consumer" (p. 15). Similarly, Grant (2013) found an inverted-U between a short extraversion scale measuring primarily sociability and revenues in call center employees. He proposed such inconsistencies might be explained by an ambivert advantage such that introverted individuals are not sociable or assertive enough to make sales whereas highly extraverted individual tend to dominate or discount customer needs. Hence, building upon these theoretical and empirical findings we hypothesize:

*Hypothesis 1 (H1):* Extraversion and sales performance have a curvilinear relationship such that the relationship is initially positive but diminishes and eventually becomes negative as extraversion increases.

### **Multidimensionality of Performance and Personality**

Despite compelling theoretical and empirical arguments for the idea that extraversion holds a curvilinear association with sales performance, the studies investigating this association have been mixed, with some results more positive (e.g., Grant, 2013) than others (e.g., Whetzel et al., 2010). One challenge in making sense of this literature is the breadth in which personality and sales performance have been conceptualized. Theories found within the literature range from the degree to which dominance predicts getting ahead or agentic performance behaviors (Bickel et al., 2015), to broad extraversion with objective outcomes (e.g., Grant, 2013), to the degree to which a variety of interpersonal traits hold quadratic associations with general job performance (e.g., Whetzel et al., 2010).

These mixed findings are a logical result of the different ways in which personality and sales performance have been conceptualized and measured. Inconsistencies in both the bandwidth of personality and operationalization of performance might produce inconsistencies in the results of those studies. While it is difficult to know at which level of abstraction personality and performance should be conceptualized—from narrow elements to very broad, singular assessments. One means of bringing theoretical and empirical clarity to the argument is to consider multiple loci of analysis.



Salesperson effectiveness has been conceived in various ways (e.g., Anderson & Oliver 1987; Churchill et al. 1985). At one extreme, effectiveness is equated with sales outcomes (e.g., the size of the sale or number of successful closes) with little concern for the dimensions of the buyer-seller interaction which contribute to those ends. At the other extreme, sales effectiveness may be defined in terms of salesperson activities, behaviors and/or attributes which foster a successful sales encounter (e.g., approach skills, empathy) with little concern for outcomes. However, these approaches are not interchangeable.

Bommer, Johnson, Rich, Podsakoff, and MacKenzie (1995) conducted a meta-analysis of objective and subjective measures of employee performance. They hypothesized that the relationship between these two criteria would be stronger for sales than non-sales jobs given that (a) sales managers' salaries are often contingent on employees' performance; (b) salespeople are traditionally evaluated on output; and (c) objective sales measures are easy to assess. However, their hypotheses were not supported. The average  $r$  of .41 accounted for less than 17% of the variance. Bommer et al. concluded that "subjective measures should not be used as proxies for objective measures..." p. 599).

Unfortunately, the only research in this area has used objective outcomes as the sole indicator of sales effectiveness (Grant, 2013). This is problematic as curvilinear effects may not generalize across criteria type; hence, the current study incorporates both performance metrics.

In addition, it is reasoned that if curvilinear effects exist they are more likely to occur in subjective ratings of job performance. As noted by Campbell, McCloy, Oppler, and Sager (1993), performance is defined by what people actually do rather than the products of one's behavior which are only indirectly the result of one's actions. This is



because objective criteria are often contaminated by factors outside of the employee's control (e.g., territory size, geographical region, brand reputation), tend to be highly unreliable, and are usually ill-defined (Thayer, 1992). Rather, personality is likely to have its effects on objective outputs via behavioral manifestations of trait-relevant tendencies deemed valuable to the organization's goals (Tett & Burnett, 2003). This is borne out empirically, with meta-analyses suggesting personality is a better predictor of subjective than objective performance (Barrick & Mount, 1991) and leads to more generalized findings when conceptually aligned with targeted behaviors (Hogan & Holland, 2003). Finally, the logic of curvilinear effects suggests being in the upper-level of a trait-distribution leads one to "overdo" observable actions, such as being too pushy or loquacious with colleagues and clients. Because objective criteria may be deficient in these respects (Borman & Motowidlo, 1997), they may not capture the day-to-day acts that interfere with relationships but do not necessarily impede sales. Hence, we hypothesize:

*Hypothesis 2 (H2):* The curvilinear extraversion-sales performance relationship will be more pronounced when performance is operationalized as subjective rather than objective criteria.

A second potential limitation of grants findings lies in the need to explore curvilinear effects at a more granular trait-level. For instance as noted by DeYoung (2007) that although the ideal facet-level structure of personality in the five-factor model is still unknown, each of the Big Five appears divisible into two aspects, with each

including many facets. It is plausible curvilinear effects in one facet may be masked by linear or opposing effects in the other. For instance, Vasilopoulos, Cucina, and Hunter (2007) found that facets of conscientiousness and emotional stability were better predictors of performance in both linear and curvilinear relationships.

Researchers suggests extraversion can be decomposed into two conceptually and empirically distinct subdimensions labeled *agency* (or assertiveness) and *affiliation* (or enthusiasm; DeYoung, 2007; Depue & Collins, 1999). The agency sub-component has been identified with approach motivation and has strong loadings for traits such as activity, ambition, and persuasiveness (Church, 1994). Consequentially, it is directly relevant to success across achievement contexts which require energy, persistence, and influencing others (Hogan & Holland, 2003). Affiliation, on the other hand, relates to interpersonal connectedness and enjoying the presence of others; it has strong loadings for traits such as warmth, sociability, and positive affect (Church, 1994; DeYoung, 2007). Unlike agency, affiliation is only weakly related to overall and objective measures of generic and sales-specific job performance (Hogan & Holland, 2003; Vinchur, Schippmann, Switzer, & Roth, 1998). Recent studies have shown separating affiliation and agency results in complex curvilinear effects for specific managerial criteria which would otherwise be missed if represented at the factor-level (Minbashian, Bright, & Bird, 2009). As little research has been done in this area, we offer a secondary, albeit exploratory, research question:

R1: Will the curvilinear relationship between performance and personality be more pronounced at the facet levels of extroversion?



## Methods

### Data and Sample

We identified two large criterion validity samples ( $N > 200$ ) from the sales archive of Hogan Assessments Systems, an international personality distributor and consulting company. Both organizations were from the financial industry with primary services in procuring and collecting returns on individual loans. Objective performance included outcomes such as sales revenue/profits, quotas, and inventory sold. Subjective performance was measure by managerial evaluations of employees' sales performance behaviors.

### Measures

**Hogan Personality Inventory (HPI).** The questionnaire used in the current study was the Hogan Personality Inventory (HPI). The HPI is a true-false personality inventory designed to predict occupational success with seven primary scales: adjustment, ambition, sociability, likeability, prudence, intellectance, and school success. In the case of extroversion the HPI splits it into two sub-components: sociability and ambition. Hogan and Hogan (1995) conducted a series of principal components analysis to examine the HPI's fit to the FFM. The results of the PCA supported the theorized seven-factor structure. The HPI has convergent validity with parallel scales from the NEO-PI-R, ranging from .60 to .75 (Goldberg, 1992; Salgado, Moscoso, & Alonso, 2013). Due to the proprietary nature of the HPI we are not able to calculate internal consistency of the HICs and the Big Five. The reported alpha coefficients for ambition and sociability are .86 and .83. (Hogan & Hogan 1995)

**Objective Performance.** For sample 1, objective performance was measured as



average number of bookings per month and percentage of loans collected on time ( $n = 574$ ). Average booking represents the number of loans sold while loan collection reflects the proportion of owed money a client has repaid. Loans collected and average booking minimally correlated ( $r = .15$ ) thus were treated as separate outcomes. For sample 2, the organization provided a sales composite score comprising investment ratings, total scales credits, number of contacts made, and number of appointments scheduled ( $n = 160$ ). The criteria across samples reflect dispersion and collection of financial capital which is critical to success of financial institutions and, as a consequence, a relevant for judging performance.

**Sales Performance Ratings.** In sample 1, supervisors provided ratings for employees ( $n = 141$ ) on an internally developed performance rating inventory. The appraisal included six items (i.e., customer focus, work standards, positive relationships, integrity, initiating action, and communication) on a 1 (*poor*) to 5 (*excellent*) scale. A factor analysis suggested all 6 items loaded strongly onto a single sales performance factor accounting for 93.4% of the variance ( $r = .95$  to  $.97$ ). In sample 2 ( $n = 168$ ), a 21-item appraisal was used. A factor analysis revealed two factors reflecting getting ahead and getting along as performance dimensions accounting for 33.8% ( $r = .56$  to  $.81$ ) and 24.9% ( $r = .56$  to  $.79$ ) of the variance. Getting ahead represents a tendency to set high goals, persist in task completion, and take the initiative to complete new projects. The factor contains items such as “shows urgency to move forward with projects” and “is a self starter”. Getting along represents a tendency to cooperative with others and create a positive, cordial work environment. The factor contains items such as “taking responsibility for ones actions” and “listening attentively to others”.

*Table 2*  
*Principle axis factor analysis (with varimax rotation) across samples of performance items*

<b>Items</b>	<b>I</b>	<b>II</b>	<b><i>h</i><sup>2</sup></b>
<i>Sample 1</i>			
Building positive working relationships	<b>.977</b>	-	.95
Communication	<b>.973</b>	-	.94
Initiating Action	<b>.971</b>	-	.94
Integrity	<b>.965</b>	-	.93
Work Standard	<b>.964</b>	-	.93
Customer Focus	<b>.951</b>	-	.90
<i>Sample 2</i>			
Shows urgency to move projects forward	<b>.81</b>	.23	.70
Follows through quickly to close a sale	<b>.79</b>	.23	.68
Is a self-starter	<b>.75</b>	.34	.68
Persuades customers to commit to services	<b>.74</b>	.24	.69
Is persistent when things don't go as planned	<b>.74</b>	.26	.61
Overcomes customer resistance	<b>.73</b>	.21	.57
Demonstrates strong desire to achieve	<b>.70</b>	.26	.56
Produces high quality work	<b>.69</b>	.31	.58
Plans work activities effectively	<b>.67</b>	.35	.57
Effectively identifies new sales opportunities	<b>.67</b>	.32	.55
Prioritizes tasks based on importance	<b>.66</b>	.35	.57
Follows through with commitments	<b>.56</b>	.54	.61
Stays positive and upbeat about work	.23	<b>.79</b>	.70
Works easily with others; appears friendly	.13	<b>.74</b>	.57
Remains calm under pressure	.15	<b>.71</b>	.52
Takes responsibility for own action	.34	<b>.69</b>	.60
Willing to accept additional responsibilities	.40	<b>.65</b>	.58
Listens attentively to others	.29	<b>.63</b>	.48
Creates a good first impression	.40	<b>.62</b>	.54
Follows organizational rules and procedures	.35	<b>.61</b>	.49
Adapts quickly to changes in demands	.53	<b>.56</b>	.59
Eigenvalue	5.60	7.09	5.23
% Variance	93.44	33.78	24.89
Alpha ( $\alpha$ )	.98	.94	.92

## Analysis

Hierarchical polynomial regression was conducted to test non-linear hypotheses (Cohen, Cohen, West, & Aiken, 2003). Polynomial regression equations include a linear  $b_1X$  term and a curvilinear (quadratic)  $b_2X^2$  term. The curvilinear term  $b_2X^2$  measures the extent of nonlinearity in the relationship of X to Y, if and only if the linear  $b_1X$  term is included in the equation. In other words, the curvilinear effect is a partial effect with the



linear effect partialled out (see Cohen et al., 2003, for an extended discussion). Evidence of nonlinearity is demonstrated if the addition of the quadratic term is associated with a significant increment in  $R^2$  over that produced by the linear model. Leveling off of the test-criterion relationship in the form of an inverted-U shaped relationships would result in a negative coefficient for the quadratic term (consistent with hypothesis of “too much” of a good thing), whereas a positive coefficient would suggest an accelerating and possible U-shaped relationship.

All variables were standardized prior to analysis to avoid multicollinearity (Aiken & West 1991). Also, to isolate extraversion effects on sales performance, we controlled for numerous factors: first, when available, we adjusted for age, and sex to remove sales differences arising from seniority or possible gendered sales tactics and second, we dummy-coded region due to differences in local market conditions. Researchers recommend adjusting for differences in territory due to potential regional effects on economic earnings (McManus & Brown, 1995). Finally, we controlled for the linear and quadratic effects of the remaining FFM traits in the last step to determine if any significant linear or quadratic extraversion effects hold above and beyond other traits.

All variable were entered in five steps. Demographics and dummy-coded territories were entered as covariates in steps 1 and 2. The linear term of extraversion was entered in step 3 and the quadratic term entered in step 4. Finally, the linear and quadratic terms for the remaining Big Five (as measured by the HPI) will be entered in step 5. A statistically significant negative effect of the quadratic term across outcomes would imply an inverted U-shape and support H1. A significant negative quadratic effect for only the subjective performance outcome would support H2.

## Results

Descriptive results are presented in Table 1. The current samples' standard deviations closely paralleled the spread of scores in the Hogan normative dataset suggesting range restriction is not problematic (see Table 4, Tett, Pieper, Wadlington, Davies, & Anderson, 2009). Specifically, the spread of Ambition in samples 1 ( $SD = 4.3$ ) and 2 ( $SD = 3.76$ ) exceeded a large normative sample of sales jobs ( $N = 14,885$ ,  $SD = 2.65$ ) whereas Sociability had minimal restriction (Sample 1  $SD = 4.3$ , Sample 2  $SD = 4.4$ ) in comparison to the normative sample ( $SD = 4.46$ ). A cursory review of zero-order correlations mirrors the inconclusive relationship of extraversion with sales performance. Only sample 2 produced a significant bivariate association between sociability and managerial ratings of getting ahead ( $r = -.10$ ,  $p < .05$ ).

*Table 3*  
*Descriptive Personality and Performance Statistics*

	Min	-	Max	M	SD
<b>Sample 1 (<math>N = 574</math>)</b>					
Age	54		54	29.57	3.83
Extraversion	6.50		26.50	19.05	3.74
Adjustment	6		33	23.93	5.17
Ambition	5		29	22.77	4.35
Sociability	1		24	15.35	4.43
Subjective Performance	1		5	3.16	1.73
Avg Book per Month	.00		430.70	164.98	85.29
Loans Collected	.00		100.00	86.58	11.30
<b>Sample 2 (<math>N = 168</math>)</b>					
Age	19		59	36.47	8.98
Extraversion	9.50		26.00	20.01	3.54
Adjustment	9		37	27.39	5.62
Ambition	12		29	25.17	3.76
Sociability	2		24	14.85	4.79
Adjustment	1		14	8.84	2.96
Subjective Performance	1.33		5	3.72	.61
Sales Rating	1.00		4.90	3.24	.79



Hierarchical regression results are presented for objective outcomes in Table 5 and subjective performance ratings in Table 6. In step 1, gender and age were generally unrelated to objective and subjective performance. In contrast, territory in explained a significant amount of variance across both objective and subjective performance outcomes ( $\Delta R^2$  range = .06 to .16) suggesting local economic conditions impact worker effectiveness. The large territory effects justify using location as a covariate. In step 3, there were no significant linear terms for extraversion across either sample. However, at the facet level, marginally significant linear relationships emerged between ambition and the sample 2 objective sales composite ( $\Delta R^2 = .02, \beta = .14, p < .10$ ) and getting ahead performance ratings ( $\Delta R^2 = .02, \beta = .14, p < .10$ ). A weak sociability-sales relationship partially mitigates the linear effect for the extraversion factor.

Polynomial hierarchical regression results for extraversion at both the factor- and facet-level are presented in Tables 5 (for objective criteria) and 6 (for subjective criteria). Expected non-linear findings for extraversion and objective criteria are mixed, with marginally significant quadratic effects for percentage loans collected ( $\Delta R^2 = .01, \beta = .07, p < .10$ ) and sales composite ( $\Delta R^2 = .02, \beta = .15, p < .10$ ). In terms of subjective criteria, the only significant quadratic effect was for getting along ratings ( $\Delta R^2 = .03, \beta = .18, p < .05$ ). Figure 1 depicts the nature of the nonlinear relationship within the full range of extraversion scores (i.e., -3 to 2 SD). Contrary to hypothesis, the relationship fit a normal (not inverted) U. Getting along performance and sales outcomes decreases and then flattens out as extraversion increases from low to moderates levels. Further increases in extraversion result in *increasing* levels of performance, implying the best performers exists at the extremes. Overall, findings suggest inconsistent support for hypothesis 1 in

both the prevalence and form of the non-linear association between extraversion and sales performance. Moreover, with the exception of getting along, extraversion did not show more significant quadratic relationships with subjective as opposed to objective criteria. This provides no support for Hypothesis 2.

More consistent curvilinear patterns emerged at the facet-level. Findings for objective criteria were significant, with quadratic effects for ambition and criteria of average bookings ( $\Delta R^2 = .01$ ,  $\beta = .09$ ,  $p < .05$ ) as well as loans collected ( $\Delta R^2 = .01$ ,  $\beta = .11$ ,  $p < .05$ ). For subjective criteria the only significant quadratic effect was for ambition with criteria of getting along ( $\Delta R^2 = .03$ ,  $\beta = .23$ ,  $p < .05$ ).

Figure 2 depicts the nature of the nonlinear relationship within the full range of both facet scores (i.e., -3 to 2 SD). Similar to results for extraversion the relationship for both facets was contrary to hypothesis and fits a normal (not inverted) U. Performance and sales outcomes decrease and then flatten out as facets increases from low to moderate levels. Further increases in facets result in *increasing* levels of performance. The results of both facets suggest that the best performers lie at the tail ends of the distribution as opposed to in the middle, which is opposed the hypothesize form of the non-linear relationship. As with extraversion, a significant quadratic relationship was not present at a greater rate for subjective criteria than objective criteria and, therefore, provides no support for hypothesis 2. Results at the facet level suggest consistent relationships over and above the factor level in their capacity for curvilinearity. Both facets predicted distinct criterion. Specifically, sociability had a nonlinear association with objective measures of performance whereas ambition had a nonlinear association with getting along.



Table 4  
Intercorrelations Among All Sample Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. Age	-																							
2. Gender	.15**	-																						
3. Region1	-.01	.09*	-																					
4. Region2	-.05	-.09*	.11**	-																				
5. Region3	-.09*	.12**	-.06	-.06	-																			
6. Region4	-.04	-.01	-.07	-.06	-.03	-																		
7. Region5	.01	.02	.10**	.10**	.05	-.05	-																	
8. Region6	.11**	.07	.10**	.09**	.05	-.05	-.08*	-																
9. Region7	.14**	.07	.10**	.09**	.05	-.05	-.08*	-.08*	-															
10. Region8	-.01	.09*	.10**	.11**	.06	-.06	.09**	.09*	-.09*	-														
11. Region9	.03	-.04	.09**	.09*	.05	-.05	-.08*	.07*	-.07*	-.08*	-													
12. Region10	-.15**	-.03	.14**	.13**	.07*	-.08*	.12**	.11**	.11**	.13**	.11**	-												
13. Region11	.00	.12**	.13**	.13**	.07*	-.07*	.11**	.11**	.11**	.12**	.10**	.15**	-											
14. Region12	.09*	.06	.09**	.09*	.05	-.05	-.07*	.07*	-.07*	-.08*	-.07*	.11**	.10**	-										
15. Extraversion	-.04	-.03	.10**	.02	-.05	-.14**	-.04	.01	-.05	.00	.02	-.05	.06	.01	-									
16. Ambition	-.01	-.02	.12**	-.01	.09*	.18**	-.07	.03	-.01	.01	.04	.00	.03	.02	.85**	-								
17. Sociability	-.05	-.04	.05	.05	-.01	-.05	.00	.00	-.08	.00	.00	-.08	.07	.00	.85**	.45**	-							
18. Adjustment	.03	-.02	.11**	-.04	-.05	.18**	.11**	.06	.00	.04	.02	.00	.01	.07	.34**	.48**	.10**	-						
19. Likeability	.00	-.04	.09*	.09*	.01	.09*	.03	.02	.01	-.01	.00	-.07	.03	.04	.34**	.30**	.27**	.30**	-					
20. Prudence	.07	-.06	.04	-.01	-.02	.12**	-.05	-.08*	.03	.03	.08*	.01	.01	.01	.21**	.35**	.01	.54**	.30**	-				
21. Inquisitive	.00	.11**	.06	.03	-.03	-.01	.11**	.10*	-.08	.12**	-.01	-.01	.06	.02	.54**	.44**	.49**	.19**	.21**	.13**	-			
22. Learn App	.05	-.03	.03	.00	.05	-.05	-.10*	-.07	-.07	.10*	-.02	.04	.03	.01	.47**	.47**	.32**	.34**	.20**	.29**	.54**	-		
23. Overall Per	-.16	-.07	-.04	.01	.20**	.03	-.25**	.08	.12	-.02	-.02	.11	-.15*	.00	.02	-.02	-.04	.00	.09	.07	.16	-		
24. Av Booking	.07	.06	.17**	.01	-.20**	-.03	.15**	.12**	-.04	.03	-.09**	.08*	.21**	-.06	.07	.07	.05	.13**	.04	.07	.07	.08*	.11	-
25. % Collect	-.05	.02	-.02	.06	.12**	.10**	-.09*	-.11**	.14**	.07*	-.07	.10**	.33	-.04	-.04	-.06	-.01	-.08	-.04	.00	.10*	.10*	.13	.15

Learn App = Learning Approach, Overall Per = Overall Performance Composite, Av Booking = Average Booking per Month, % Collect = % Loans Collected on Time, \* $p < .05$ , two tailed, \*\* $p < .01$ , two-tailed, c = Cannot be computed because at least one variable is constant

Table 5  
Intercorrelations Among All Sample 2 Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.
1. Age	-																				
2. Gender	.20**	-																			
3. Region1	.16*	.12	-																		
4. Region2	.02	-.11	-.08	-																	
5. Region3	-.05	-.05	-.19**	.12*	-																
6. Region4	-.04	-.03	-.15**	.10*	-.23**	-															
7. Region5	-.17*	.00	-.13**	-.08	-.19**	.16**	-														
8. Region6	-.03	.09	-.03	-.02	-.05	-.04	-.03	-													
9. Region7	.03	.00	-.17**	.10*	-.25**	-.20**	-.17**	-.04	-												
10. Region8	.13	.01	-.13**	-.08	-.20**	-.16**	-.13**	-.03	-.17**	-											
11. Region9	-	-	-.04	-.02	-.06	-.05	-.04	-.01	-.05	-.04	-										
12. Extraversion	-.28**	.24**	.03	.08	-.05	-.07	.14**	-.02	-.08	.00	.06	-									
13. Ambition	-.06	.10	.00	-.01	-.01	-.06	.13**	.05	-.06	.00	.04	.77**	-								
14. Sociability	-.35**	.26**	.05	.12*	-.06	-.06	.10*	-.07	-.07	.00	.05	.87**	.36**	-							
15. Adjustment	.02	.08	-.03	-.03	-.05	.02	.07	.01	.01	.00	-.03	.24**	.39**	.05	-						
16. Likeability	-.01	-.03	.03	-.04	-.08	.06	.02	.05	-.05	.05	.02	.24**	.20**	.20**	.38**	-					
17. Prudence	.21**	-.15*	.00	-.05	.01	-.02	.00	.07	-.03	.06	.00	-.13**	.11*	-.29**	.41**	.28**	-				
18. Inquisitive	-.15*	.24**	-.01	.04	.02	.01	.06	-.06	-.08	-.01	-.01	.47**	.31**	.45**	.16**	.12**	.10**	-			
19. Learn App	-.05	.01	-.00	.02	.01	-.03	.02	-.10*	.01	.01	-.03	.24**	.27**	.14**	.22**	.14**	.33**		-		
20. Getting Ahead	.00	-.15*	.01	.02	-.17**	.10*	.19**	-.01	-.07	-.02	-.01	-.03	.06	-.10*	.04	.06	.10*	-.08	.04	-	
21. Getting Along	-.12	.03	.00	.01	-.10*	.26**	-.03	.07	-.03	-.11*	-.02	-.08	-.06	-.07	.13**	.15**	.13**	-.06	-.08	.08	-
22. Sales	.08	-.07	.10*	-.03	-.20**	.01	.15**	-.15**	-.03	.17**	-.25**	-.02	.04	-.06	.11*	.03	.07	-.01	.03	.32**	-.02

Learn App = Learning Approach, Task = Task Performance/Getting Ahead Factor, Citizenship = Organizational Citizenship/Getting Along Factor, Sales = Sales Composite Index. \* $p < .05$ , two tailed. \*\* $p < .01$ , two-tailed; c = Cannot be computed because at least one variable is constant



Table 6

Polynomial Hierarchical Regression in Predicting Objective Sales Performance across both Samples<sup>a</sup>

Variable	Objective Performance (Sample 1)								Objective Performance (Sample 2)			
	Average Bookings per Month				% Loans Collected on Time				Sales Composite Index			
	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4
a: Extraversion Factor												
<b>Demographics</b>												
Age <sup>a</sup>	.06				-.04				.05			
Gender <sup>a</sup>	.05				.03				-.12			
<b>Territory</b>												
Region 1		-.02				-.03				-.02		
Region 2		-.09†				.00				-.06		
Region 3		-.31**				.14**				-.33**		
Region 4		-.14**				.11*				-.11		
Region 5		-.27**				-.07				.00		
Region 6		-.23**				-.07				-.25*		
Region 7		-.19**				-.20**				-.03		
Region 8		-.14**				.06				-		
Region 9		-.23**				-.06				-		
Region 10		-.10*				.09†				-		
Region 11		-.17**				-.07				-		
<b>Linear</b>												
Extraversion			.03				-.02				.06	
<b>Quadratic</b>												
Extraversion <sup>2</sup>				.02				.07†				.15†
F	2.18	9.19	8.58	8.01	.51	5.05	4.70	4.60	1.65	2.27	2.08	2.20
R <sup>2</sup>	.01	.17	.17	.17	.00	.10	.11	.11	.02	.12	.12	.14
Adjusted R <sup>2</sup>	.00	.15	.15	.15	.00	.08	.08	.09	.01	.07	.06	.07
Δ F		10.39	.67	.27		5.90	.15	2.72		2.41	0.49	3.161
Δ R <sup>2</sup>		.17	.00	.00		.10	.00	.00		.10	.00	.02
N				574				574				160
b: Extraversion Facets												
<b>Demographics</b>												
Age <sup>a</sup>	.06				-.04				.05			
Gender <sup>a</sup>	.05				.03				-.12			
<b>Territory</b>												
Region 1		-.01				-.03				-.02		
Region 2		-.09†				.00				-.06		
Region 3		-.31**				.14**				-.33**		
Region 4		-.14**				.10*				-.11		
Region 5		-.27**				-.07				.00		
Region 6		-.23**				-.07				-.25*		
Region 7		-.19**				-.20**				-.03		
Region 8		-.14**				.06				-		
Region 9		-.23**				-.06				-		
Region 10		-.10*				.09†				-		
Region 11		-.17**				-.07				-		
<b>Linear</b>												
Ambition			.02				-.03				.14†	
Sociability			.02				.00				-.07	
<b>Quadratic</b>												
Ambition <sup>2</sup>				-.08				-.05				.00
Sociability <sup>2</sup>				.09*				.11**				.14
F	2.18	9.19	7.99	7.49	.55	5.02	4.36	4.36	1.65	2.27	2.15	2.03
R <sup>2</sup>	.01	.17	.17	.18	.00	.10	.10	.12	.02	.12	.13	.15
Adjusted R <sup>2</sup>	.00	.15	.15	.16	.00	.08	.08	.10	.00	.06	.07	.07
Δ F		10.39	.33	3.26		5.82	.16	4.01		2.41	1.55	1.34
Δ R <sup>2</sup>		.16	.00	.01		.10	.00	.01		.10	.02	.01
N				574				574				160

Note. <sup>a</sup> Standardized coefficients are reported<sup>a</sup>, †  $p < .10$ , two-tailed. \* $p < .05$ , two tailed. \*\* $p < .01$ , two-tailed.



Table 7

Polynomial Hierarchical Regression in Predicting Subjective Sales Performance across both Samples<sup>a</sup>

Variable	Overall Performance (Sample 1)				Dimensional Performance (Sample 2)							
					Getting Ahead				Getting Along			
	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4
a: Extraversion Factor												
<b>Demographics</b>												
Age <sup>a</sup>	-.15†				-.06				-.13†			
Gender <sup>a</sup>	-.38				-.12				.05			
<b>Territory</b>												
Region 1		.00				.06				.10		
Region 2		.00				-.03				-.01		
Region 3		.22**				-.10				-.08		
Region 4		.02				.03				.02		
Region 5		-.26**				.25**				-.11		
Region 6		.09				.04				.06		
Region 7		.12				-				-.16*		
Region 8		-.06				.10				-		
Region 9		.04				-				-		
Region 10		-.15				-				-		
Region 11		-				-				-		
<b>Linear</b>												
Extraversion			-.05				.04				-.04	
<b>Quadratic</b>												
Extraversion <sup>2</sup>				-.05				-.02				.18*
F	2.00	2.69	2.50	2.33	1.16	1.73	1.58	1.44	1.87	1.60	1.45	1.75
R <sup>2</sup>	.03	.20	.20	.20	.01	.10	.11	.11	.02	.08	.08	.11
Adjusted R <sup>2</sup>	.01	.12	.12	.18	.00	.06	.05	.04	.01	.03	.02	.04
Δ F		2.78	.41	.31		2.34	.22	.04		1.5	.24	4.51
Δ R <sup>2</sup>		.17	.00	.00		.10	.00	.00		.06	.00	.02
N				141				168				168
b: Extraversion Facets												
<b>Demographics</b>												
Age <sup>a</sup>	-.15†				-.06				-.13†			
Gender <sup>a</sup>	-.04				-.12				.05			
<b>Territory</b>												
Region 1		.00				.05				.10		
Region 2		.00				-.03				.00		
Region 3		-				-.10				-.08		
Region 4		.23**				.03				.02		
Region 5		.02				.25*				-.11		
Region 6		-.26**				.04				.06		
Region 7		.09				-				-.16*		
Region 8		.12				.10				-		
Region 9		-.06				-				-		
Region 10		.04				-				-		
Region 11		-.15				-				-		
<b>Linear</b>												
Ambition			.07				.15†				-.04	
Sociability			-.14				-.10				-.01	
<b>Quadratic</b>												
Ambition <sup>2</sup>				-.06				.04				.23*
Sociability <sup>2</sup>				.00				.00				.08
F	2.00	2.69	2.50	2.14	.01	.10	.13	.13	1.87	1.60	1.31	1.56
R <sup>2</sup>	.03	.20	.21	.21	.00	.05	.07	.06	.02	.08	.08	.11
Adjusted R <sup>2</sup>	.01	.12	.12	.11	1.36	2.34	2.03	.07	.01	.03	.02	.04
Δ F		2.77	1.05	.17		.09	.02	.00	1.87	1.50	.14	2.80
Δ R <sup>2</sup>		.17	.01	.00		.10	.13	.13	.02	.06	.00	.03
N				141				168				168

Note. Standardized coefficients are reported.<sup>a</sup>†  $p < .10$ , two-tailed. \* $p < .05$ , two-tailed. \*\* $p < .01$ , two-tailed.



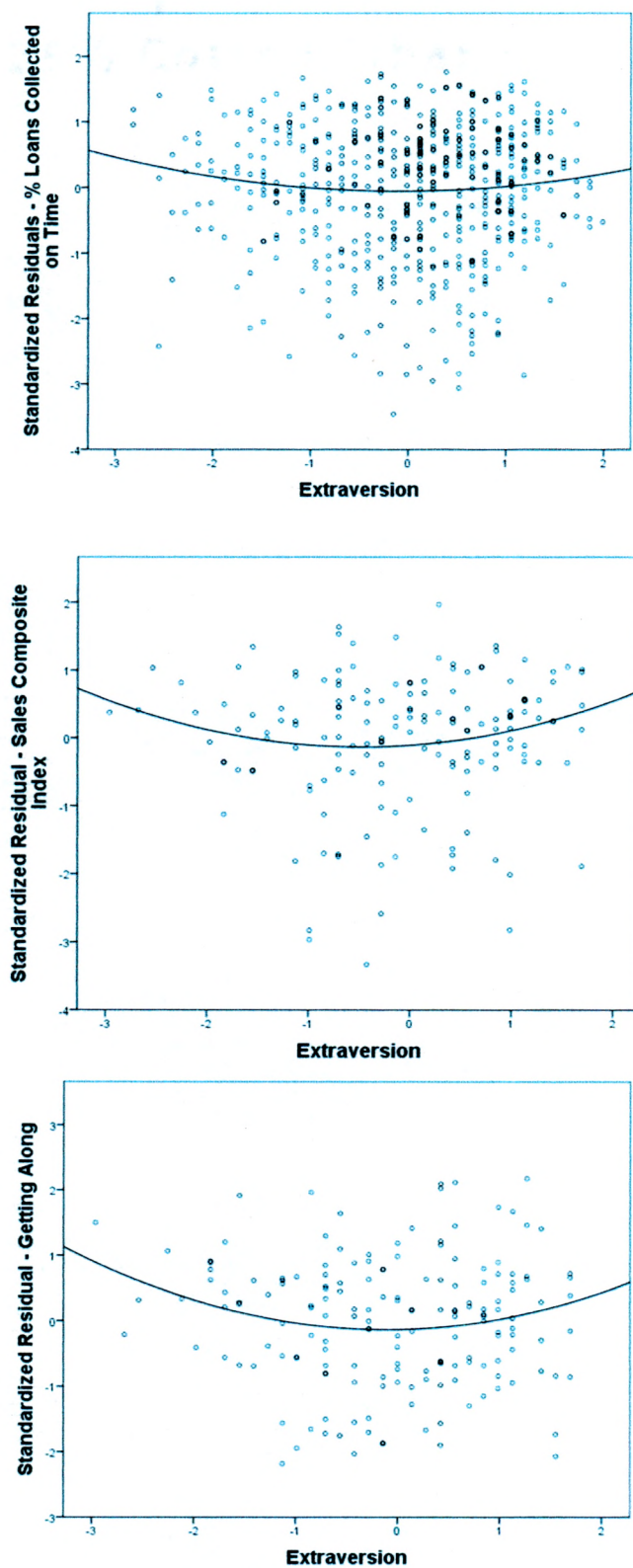


Figure 1. Quadratic relationships (partialling out demographics and region) between extraversion (standardized) and % loans collected (sample 1) and sales composite index (sample 2), and getting along (sample 2)

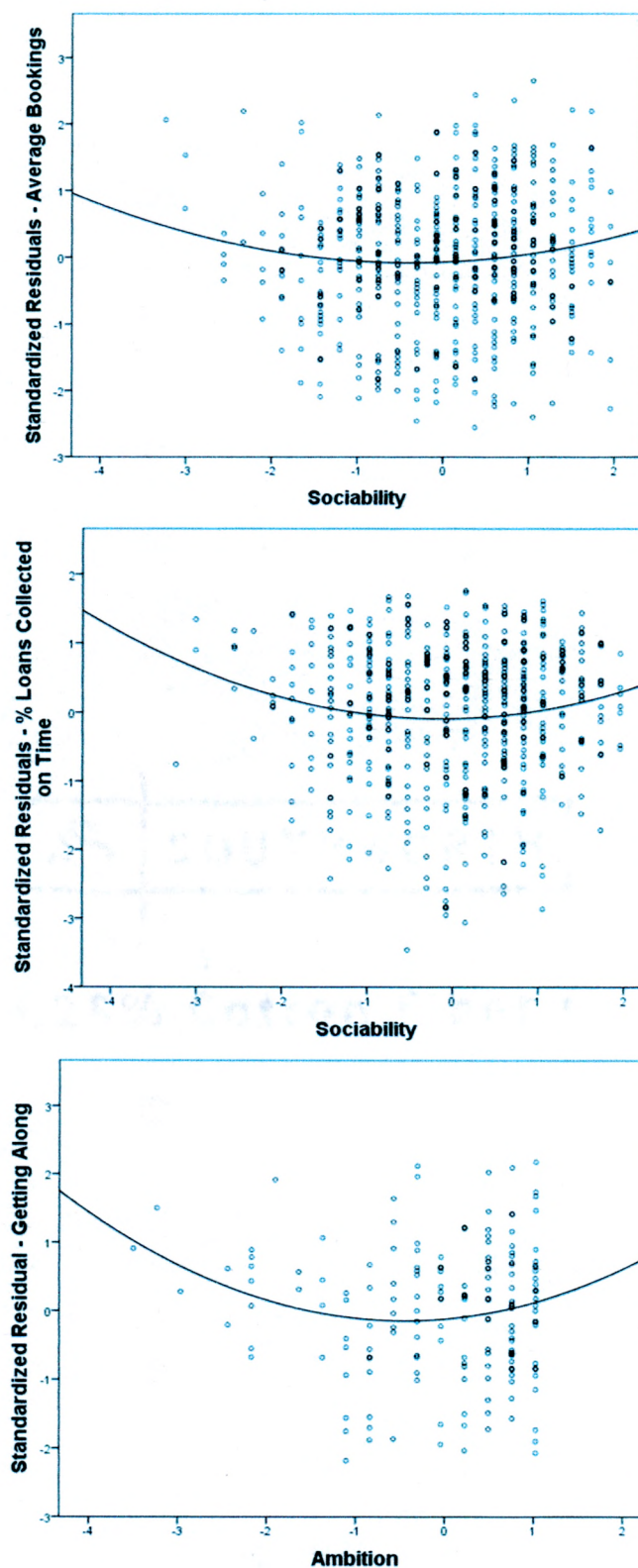


Figure 2 Quadratic relationships (partialling out demographics and region) between sociability (standardized) and average booking (sample 1), and % loans collected on time (sample 1). Quadratic relationships (partialling out demographics and region) between ambition (standardized), and getting along (sample 2).



## Discussion

This research investigated the curvilinear effects of extroversion in predicting subjective and objective sales performance. Results suggest potential curvilinear effects for extroversion, although results were inconsistent across samples. Exploratory analyses at the facet level suggest stronger and more interpretable effects. Specifically, sociability had a nonlinear relationship with objective performance whereas ambition had a significant nonlinear effect with getting along. Although the shape of the relationship is contrary to hypotheses, findings expand the current literature by highlighting alternative curvilinear personality-performance relationships. This suggests linear assumptions may not always hold and research should continue to search for non-linear relationships.

Conceptually, results suggest extreme standing on the tail ends of the extraversion continuum tends to be associated with higher sales performance. This indicates being moderately extraverted—or ambiverted—is less than ideal for sales performance (cf. Grant, 2013). A possible explanation for this behavior is that highly extraverted individuals are socially potent enough to generate and persuade a vast number of sales contacts whereas very introverted individuals tend to be strongly attentive and receptive to client needs. Moderate extraversion may be something like a default style that is neither markedly competitive nor attentive; consequentially, it fails to facilitate success because moderately extraverted employees cannot differentiate themselves from a majority of other sales professionals. However, such findings should be interpreted with caution as effects were often not significant at conventional levels.

When broken down to the facet-level, stronger non-linear effects emerged. Specifically, when ambition and sociability were assessed separately there were improvements in predictive validity. Further, nonlinear effects were criteria specific:

extreme standings on sociability benefited objective performance whereas extremes of ambition benefited getting along ratings. The significant relationship between sociability and objective criteria in sample one can be explained through the desire to actively seek relationships, develop close interpersonal bonds, and come across as rewarding to deal with. Individuals high on sociability look to increase relationships with multiple customers which affords them a larger number of opportunities to close sales. Conversely, individuals low on sociability may not actively engage the customer in conversation or develop camaraderie. Rather, they may compensate for low sociability by pitching sales in a direct and short manner. While they may neglect developing a relationship and spend little time talking to customers, this may enable greater expediency in closing sales and moving past ambivalent or disinterested customers.

The relationship of ambition getting along can be explained Individuals high on ambition who would normally push themselves or their co-workers to meet goals instead work hard at getting along to get ahead. These individuals attempt to win power, fake caring and help their co-workers to help advance their own careers. It would come as no surprise then that ambitious individuals have been shown to engage in helping behaviors when no promotional opportunities are available (Hogan, Rybicki, & Borman, 1998). This would be due to highly ambitious individuals acting dominantly, confidently; they striving toward meeting achievement oriented goals and pushing their peers and managers so those individuals work toward organizational goals.

This is in contrast to individuals with extremely low levels of ambition who would be submissive, lack confidence, and neither pushing themselves or others to meet goals. who lack the ambition to push themselves and therefore have to get along to get



ahead or maintain their position within the organization. These individuals would assume tasks given by their co-workers and would be With submissive aspects and lack of confidence high job performance would come from behaviors where the individual works for personal acceptance to collaborate and earn participation credits on projects where other members of the group are in control. This would also indicate individuals with low ambition are acting as people pleasers and are willing to take on tasks assigned by their peers.

More broadly speaking, the findings reinforce the added predictive validity of personality facets over factors (Judge et al., 2013; Paunonen et al., 1999). This is because facets may contain unique, exploitable information about relevant personality tendencies which are obscured when using broader factor-level scales. This argument appears to further extend to non-linear effects. Specifically, researches can build upon the TMGT effect (Pierce & Aguinis, 2013) by conceptually disaggregating trait factors into the unique costs and benefits associated with particular traits. For instance, current findings suggest hiring extremely ambitious people to improve the organizational climate whereas extreme sociability may be desirable for improved sales. In both cases, however, the common practice of hiring individuals with moderate-trait levels may result in little to no performance gains.

Do & Minbashian (2014) argue that dominant tendencies associated with agency(ambition) may be particularly useful in traditionally bureaucratic organizations, but less so in more modern organizations that value teamwork and cooperation which may require some degree of affiliation(sociability). Research in trait activation theory suggests when the context of employee work is a correct fit the validities of personality in



predicting job performance are often double that of a typical context (Judge & Zapata 2015). Additionally Tett and Burnett (2003) identified three organizational cultures: aggressive, outcome-oriented, and team-oriented that would be relevant to extroverted expression. Dependent where the organization fall amongst these cultures employers should implement personality tests with a double cutoff strategy to screen out individuals falling in the middle of the respective facet spectrum.

### **Limitations**

One limitation of the current finding is the possibility of negative skew for ambition in across samples (see Table 2). Specifically, sample 2 for ambition had a skew of -1.21 (SD = 3.76) when compared to ambition for sample 1 with skew of -1.15 (SD = 4.35), with many participants attaining the highest score on the scale (N = 29). According to the HPI manual the SD for ambition for men is 4.64 and 5.32 for women. Ambition predicted a curvilinear relationship in sample 2 for subjective criteria but not in sample 1 for subjective criteria however this limitation may be confounded by a potential second limitation of the composite criteria.

The use of composite scores for performance in both samples may be masking potential curvilinear relationships. It is possible the composite scores were not able to capture the specific type of job performance produced by each facet. Sociability did not predict the objective sales composite score in sample 2 nor did ambition predict the subjective composite score used in sample 1.

### **Future**

Our results at the factor level may be such that extroversion is masking curvilinear results that exist at the facet level. The masking of criterion prediction has



been previously suggested by Paunonen et al, (1999). The authors argued the masking comes from the use of broad domain factors. Additionally recent meta-analytic results from Judge et al. (2013) indicated individual facets of the Big Five produced higher criterion validity than the Big Five regardless of criterion breadth.

Additionally our inconsistent facet level findings across samples suggest the need for researchers to investigate more at the granular level of personality to determine how facets can predict performance and whether these facets hold curvilinear relationships to performance criteria. Specific research at the facet level has begun to uncover curvilinear relationship. Vasilopoulos, Cucina, & Hunter (2007) found that facets of emotional stability and conscientiousness were better at predicting training grades for law enforcement cadets when considering curvilinear relationships. As previously mentioned with assertiveness was found to have a curvilinear relationship to leadership performance (Ames & Flynn)

Lastly an area beyond the scope of this paper is the consideration of Item Response Theory for the use of testing curvilinear personality performance relationships. Recent research has begun to investigate curvilinear relationships using IRT (Carter et al., 2014) with promising results. The need for IRT comes from its ability to account for an individual's partial endorsement of items when creating a total trait score. This partial endorsement of IRT is in contrast to classical test theory where items represent extreme ends of the trait. IRT emphasizes individual items instead of the whole scale and therefore does not assume that each item is equally difficult to pass. The difficulty of each item determines how much of a trait an individual must possess to pass an item. This information is then incorporated in scaling items which allows personality test to



capture a full range of the trait being measured.

Carter and Chernyshenko et. al (2007) argue that through the use of items representing neutral aspects of the trait IRT correctly places individuals with extreme levels of a personality trait who are incorrectly indexed as moderate levels of the trait under classical test theory. Both authors further suggest the continued use of IRT would reveal personality performance relationships that have history been non-existent.

### **Conclusion**

The current findings suggest that curvilinear relationships exist between personality and job performance. Additionally the use of facets adds to validity gains in curvilinear effects for particular criteria. From a practical standpoint for selection methods, greater accuracy could be achieved from the paired use of facets and curvilinear predictive models. Future researchers are encouraged to investigate curvilinear relationships within personality at a more granular level to better understand the role personality plays with work behavior and performance.



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