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Validity of Customer Service Measures in Personnel Selection: A Review of Criterion and Construct Evidence

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The criterion-related and construct validity of customer service orientation measures were examined using quantitative review methods and large samples of primary data. The criterion-related validity analysis was based on 41 coefficients with a total sample size of 6,945. The mean validity was .50 for an aggregated supervisory rating of job performance. The construct validity evidence indicated that customer service measures were positively and strongly related to personality dimensions of agreeableness, emotional stability, and conscientiousness. Customer service orientation was moderately related to sales drive and social interests but was uncorrelated with cognitive measures.

As the United States continues to shift its economic base from the production of goods to the provision of services, an increasing percentage of entry-level jobs requires interaction with customers on a daily basis. Gone are the days of closed-system theory in which customers dealt primarily with one highly trained salesperson or company liaison. Customers of modern service-based organizations may often interact with dozens of employees, each providing a different service.

Even goods-producing organizations must reevaluate the importance of service orientation. More industries are using telemarketing as a method of targeting

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potential customers. As products become more complex and difficult to use, customers are relying on the manufacturer to provide the necessary training. The concept of technical support—providing users with instant one-on-one phone help with an expert—has become the norm in such high-technology industries as computer software. Consequently, the concept of good customer service has gained widespread acceptance as an integral performance component of many modern businesses.

The topic first came into the national spotlight with the release of Peters and Waterman's (1982) popular bestseller *In Search of Excellence: Lessons From America's Best-Run Companies.* Peters and Waterman argued that successful companies not only emphasize customer service but are obsessed by it. Using case studies of successful organizations, Peters and Waterman provided many examples of how employees go above and beyond the call of duty. Although they had very little hard evidence to support their claims, the book heightened awareness of the importance of customer service.

This study examines the use of noncognitive selection tests in identifying job applicants with service orientation. Specifically, what personality characteristics are associated with good customer service performance? Is service orientation independent from other constructs such as cognitive ability and sales ability/sales drive? Finally, is there any evidence that other variables, such as occupation category or criterion type, moderate the relationship between service orientation scores and job performance?

WHAT IS SERVICE ORIENTATION?

In the past 10 years, industrial psychology has seen a resurgence in the use of personality measures for personnel selection. Previously, researchers claimed that personality variables did not add any incremental predictive validity beyond that of other selection tests (i.e., Guion & Gottier, 1965). Much of the criticism of personality variables comes from Mischel's (1968) influential book, in which he stated that a review of the personality literature provided no evidence that individual differences in behavior were consistent over time. He also found that validity coefficients for personality measures rarely exceeded .30. Mischel concluded that situational variables must account for much of the remaining variance in social conduct.

Recent developments in the field of psychology have, however, provided evidence that personality variables may be more stable than Mischel (1968) originally believed. The first development was the application of meta-analytic computation to cumulate correlation coefficients across studies. Recent meta-analytic cumulation of personality measures has found validities generalizable across situations (Barrick & Mount, 1991).

The second development was the emergence of the Big-Five factor model as a taxonomy for organizing personality constructs (Costa & McCrae, 1992; Digman, 1990; John, 1990). Many personality theorists have argued that one reason research has failed to show consistent relations between personality variables and job performance is the lack of any well-accepted taxonomy for the classification of personality measures (Cortina, Doherty, Schmitt, Kaufmann, & Smith, 1992; Hough, Brage, Houston, McGue, & Kamp, 1985). Although some disagreement exists over the exact factor makeup and appropriate names for these factors, they are commonly labeled: (a) extraversion, (b) agreeableness, (c) conscientiousness, (d) neuroticism, and (e) openness to new experience (John, 1990). *Extraversion* measures the extent to which a person is talkative, assertive, sensation-seeking, and active. *Agreeableness* includes such personality variables as trusting, cooperative, and good naturedness. *Conscientiousness* covers a wide variety of variables, including orderliness, achievement striving, and dutifulness. *Neuroticism* measures a person's emotional stability, including anxiousness, hostility, and vulnerability. *Openness to new experience*, also known as culture, assesses a person's imagination and intellect. In a meta-analysis, Barrick and Mount (1991) found that some of the Big-Five predicted performance in a number of occupational settings. For example, openness to new experience was a good predictor for training performance. Conscientiousness predicted job performance, regardless of occupational category.

Research on the altruistic personality (Carlo, Eisenberg, Troyer, Switzer, & Speer, 1991) and prosocial behavior in organizations (Brief & Motowidlo, 1986; Organ, 1988) indicates that stable, cross-situational dispositions may lead to service-oriented behavior (Sanchez, Fraser, Fernandez, & De La Torre, 1993). If service orientation is a pattern of stable personality characteristics, measurement of this attribute could identify individuals who are predisposed to engage in positive service-oriented behavior (Bowen, Siehl, & Schneider, 1989). Further, training programs geared to improve customer service are likely to be more successful for employees who are predisposed to service orientation when hired (Sanchez et al., 1993).

Service orientation inventories rely on a multitrait approach to measure customer service skills. In other words, service orientation inventories measure a syndrome or a pattern of personality traits that is associated with good performance in customer service jobs. For example, the Service Orientation Index, developed by Hogan and Hogan (1986), is composed of items from three homogenous item clusters that appear on the Adjustment, Likeability, and Prudence scales of the Hogan Personality Inventory (HPI). The internal consistency of the scale (0.69) reflects the fact that the HPI Service Orientation Index is composed of items taken from three independent personality scales.

What pattern of characteristics best predict service orientation? Most test developers rely on job analysis to identify important personality traits. Several authors (Fogli & Whitney, 1991; Hogan & Hogan, 1992; Paajanen, 1991; Saxe & Weitz,

1982) have operationalized service orientation via job analysis. For example, the authors of the ServiceFirst Inventory (Fogli & Whitney, 1991) identified four factors that underlie the service construct: active customer relations, polite customer relations, helpful customer relations, and personalized customer relations. Hogan and Hogan (1986) used three factors: *virtuous*, *empathic*, and *sensitive*. Although the factor names differ among service orientation inventories, several themes are common among all measures: friendliness, reliability, responsiveness, and courteousness.

CONSTRUCTS RELATED TO CUSTOMER SERVICE

Sales Drive

On the surface, it would seem logical that customer service representatives and salespeople would share similar skills: friendliness, good social skills, and responsiveness to customers. Hogan, Hogan, and Gregory (1992) developed a sales potential index (SPI) for use in personnel selection. Job analysis revealed that handling customers' requests and complaints was one of the most crucial and time-consuming activities of a salesperson. In fact, some test publishers have created selection batteries for customer service positions that are nearly identical to those for sales positions.

There is evidence, however, that personality characteristics associated with good sales performance may not be identical to those associated with good customer service performance. For example, most studies of personality and sales performance find that the traits of extraversion and aggressiveness are good predictors (Deb, 1983; Oda, 1983). Stewart and Carson (1995) found, however, a negative relation between extraversion and performance in customer service occupations. One may speculate that employees with high sociability or extraversion may give insufficient attention to completing customer interactions in a prompt manner. Although this may please the customer, it may be detrimental to the organization because of increased labor costs.

Service providers and salespeople may differ with regard to social desirability. Hogan (1991) argued that social desirability (the propensity to portray oneself in a positive light) should be a good predictor of customer service skills, because service representatives are often required to act courteously and friendly even when they are upset or in a bad mood. The SPI from the HPI, however, includes the homogeneous item cluster *No Impression Management,* which is defined as "lack of concern about social feedback." Crosby (1990) found a negative relation between social desirability and real estate sales success. She argued that those high in social desirability are sensitive to social situations and have high need for approval from others. Salespeople are constantly faced with rejection, and the ability to handle such rejection without blaming oneself is an important personality trait. In a preliminary analysis of the relation between service orientation and sales orientation, correlations between the PDI Customer Service Inventory and the Personnel Decisions, Inc. (PDI) Enterprise Scale (an experimental scale that measures characteristics associated with good sales performance, such as high energy and dominance) are reported.

Cognitive Ability

Past research indicates that service orientation inventories (and personality tests, in general) have low correlations with cognitive ability (Ones & Viswesvaran, 1996). In an extensive meta-analysis of job predictors and performance, Hunter and Hunter (1984) found that cognitive ability tests had the highest predictive validity across occupations. They also found, however, that the relation between cognitive ability and sales performance was the lowest among all criteria.

The use of service orientation inventories has two potential advantages for selection: (a) the use of these measures should result in little or no adverse impact against minority applicants, and (b) these measures should account for variance above and beyond that of cognitive ability. Rosse, Miller, and Barnes (1991) administered a service-oriented personality measure and cognitive/perceptual ability tests in a concurrent validation study of medical clerical positions. Their results indicate that service orientation measures can explain job performance variance beyond that accounted for by cognitive ability tests.

Vocational Interest

If service orientation is a syndrome of stable personality characteristics, the pattern should emerge in other manifestations of personality, such as vocational interest. The Self-Directed Search is a self-administered vocational counseling tool developed by Holland (1985) that operationalizes his RIASEC model of vocational interest. The RIASEC model states that vocational interests can be described in terms of six primary interest areas: realistic, investigative, artistic, social, enterprising, and conventional. Based on Holland's descriptions of the different personality types, we hypothesize that measures of customer service will be correlated with the social personality type (described as cooperative, helpful, and friendly) and will be uncorrelated with the realistic personality type (described as asocial, inflexible, and hardheaded).

PRESENT RESEARCH

Our research seeks to answer two primary questions. First, do service orientation inventories predict job performance? This question can be addressed by an exami-

nation of criterion-related validity coefficients. Second, what constructs do customer service measures assess? This question can be addressed by examining the extent to which the customer service measures correlate with tests assessing known constructs.

To address our second research question, we explore the construct validity of the customer service measures by examining their correlations with other tests. Ones and Viswesvaran (1996) found that customer service measures correlate with the Big-Five measures of agreeableness, emotional stability, and conscientiousness. Consistent with their results, customer service measures, we argue, will have moderate levels of validity with agreeableness, emotional stability, and conscientiousness.

METHOD

Meta-Analysis as a Method of Determining Validity

The Hunter and Schmidt (1990) psychometric meta-analysis method used in this study is based on the hypothesis that much of the variation in results across studies may be due to statistical and methodological artifacts rather than to substantive differences in underlying population relationships. Some of these artifacts also reduce the correlations below their true (e.g., population) values. The method determines the variance attributable to sampling error and to differences between studies in reliability and range restriction, subtracts that amount from the total amount of variation, and yields estimates of the true variation across studies of the true average correlation (Hunter & Schmidt, 1990). Artifact distribution meta-analysis, using the interactive method, was employed (Hunter & Schmidt, 1990, chap. 4). The mean observed correlation (r) was used in the sampling error variance formula (Hunter & Schmidt, 1990, pp. 208–210; Schmidt et al., 1993). The computer program utilized is described by McDaniel (1986). Additional detail on the program is presented in Appendix B of McDaniel, Schmidt, and Hunter (1988).

Literature Search

The literature search used both manual and automated searches. The manual search included a review of recent conference programs and published literature. In addition, major testing vendors and human resource consulting firms were contacted for information on such measures. All authors of validity studies for customer service measures were contacted. The automated search consisted of computerized search of *PsycLit, ABI/Inform,* and *Dissertation Abstracts.* A study by Saxe and Weitz (1982) was identified as the seminal criterion-related validity study of a customer service orientation measure. A *Social Science Citation Index* search was conducted to identify studies that cited the Saxe and Weitz article.

We know that we did not obtain all existing data. There are consulting firms that develop and validate customer service measures that did not respond affirmatively to requests for validity data on their measures. We believe, however, that we have all the published data and most of the unpublished data addressing the criterion-related and construct validity of customer service measures.

Decision Rules

To define the scope of this study, certain decision rules were used for selecting relevant studies for this meta-analysis (Rothstein & McDaniel, 1989). Coding rules were established to code not more than one coefficient for a given sample. For example, studies reported in the technical manual for the PDI Customer Service Inventory (McLellan & Paajanen, 1994) reported validity coefficients for four separate rating criteria: (a) ratings on behavioral scales, (b) ratings on trait scales, (c) a single-item overall job performance rating, and (d) a single-item question concerning whether the individual would be rehired. The coded validity was an average of the first three criteria. This averaging of the coefficients within a sample tends to result in an overestimation of variance attributable to sampling error. For this data set, however, the coefficients are very similar across the three criteria, and our averaging does not appreciably reduce the variance of the observed coefficients over that found in any distribution of their individual criteria. Schoenfeldt, Varca, and Mendoza (n.d.) reported validity coefficients on the same sample for both global job performance criteria and customer service criteria. Both coefficients were included in the analysis.

Data from samples used to select items or that used other methods to capitalize on sampling error were not included in the analysis. Thus, in the Gregory, Kam, and Kwan (1993) study, only data from the four hold-out samples were used in estimating the validity of the instrument. Validity data from 12 samples were available for the PDI Customer Service Inventory (McLellan & Paajanen, 1994). From the four samples used in the development and refinement of the inventory, only validities from the hold-out samples were used. In Schoenfeldt et al. (n.d.), only validity data from the cross-validation samples were employed. A few coefficients reported in CORE Corporation (n.d.) were excluded because the validity data were, in part, based on development samples where the items constituting the test were based on item validities in the same samples. Decisions concerning the inclusion and exclusion of CORE Corporation data were based both on their written documentation (CORE Corporation, n.d.; Fogli & Whitney, 1991) and personal communication with their staff (personal communication, August, 1993). Coefficients from the "case study" scales reported in Hom, Kam, and Gregory (1993) were not included because information from their cross-validation samples was used in item selection. Personal communication with Hogan Assess-

ment Systems, Inc. (J. Hogan, personal communication, August 18, 1993) aided decisions concerning the exclusion and inclusion of data on the Service Orientation Index (Hogan & Hogan, 1992; Hogan, Hogan, & Busch, 1984).

Two studies (Sanchez et al.,1993; Sanchez, Fraser, Fernandez, De La Torre, & Korbin, n.d.) were excluded because a meaningful validity coefficient was neither reported nor could be derived. The authors reported validity data on seven factorially-derived scales for multiple supervisory ratings scales. No validity data were reported for a single cross-validated inventory scale score, nor were validity data reported on the multiple predictor scales for a single criterion. Although a mean validity coefficient could be calculated based on the multiple scale correlations with the multiple rating criteria, some of the seven factorially derived scales had substantial validities with most rating criteria, and others had near zero correlations with the rating criteria scales. This validity variance across predictor scales limits the meaningfulness of using the mean of the reported validities. Although some of the scales were combined using multiple regression to produce useful levels of validity, only selected multiple-regression composites were reported, and none were cross-validated.

Although it would be useful to compare the validity of service orientation measures for rating and nonrating criteria, few nonrating criteria were found, and those that were found were judged too diverse to combine into a meaningful nonrating category. Therefore, the analyzed validity data were limited to validities for supervisory rating criteria. This decision rule led us to drop several validity coefficients reported by Hogan and Hogan (1992, 1995) that employed the following criteria: commendations and disciplinary actions, sales, times counseled for aberrant behavior, times late for work, and grievances filed. This decision rule also resulted in validity data for several criteria reported in Schoenfeldt et al. (n.d.) to be excluded: time absent, days absent, and days tardy.

Data from a study by Saxe and Weitz (1982) were not coded because the researchers divided their sample into four cells and calculated validity coefficients for each cell separately. Each cell represented a restricted range of data for one of the two subscales of the instrument. Insufficient data were found for transforming that data into a validity coefficient for the full sample. A search for the required data in technical report and dissertation versions of this article was not fruitful. Data from a similar measure, however, were included in the analysis (Spiro & Weitz, 1990). Data from a related measure (Dunlap, Dotson, & Chambers, 1988) used with real-estate brokers were not included because the criterion was reports by house buyers of their realtor's behavior. We excluded these data because it was not clear that these criterion measures constituted a measure of job performance.

We limited our review to paper-and-pencil measures because we could not find sufficient data to analyze measures using other media. Thus, we did not include the validity for a video-based measure and two audio-based measures reported by CORE Corporation (n.d.).

Range Restriction and Criterion Reliability Data

Scant information was available on the range restriction and criterion reliability for the reported coefficients. Therefore, the job-performance criterion reliability and range-restriction distributions used by Pearlman (1979) were used in this study (average criterion reliabilities of .60). We assert that the use of a criterion-reliability distribution with a mean value of 0.60 is conservative (i.e., underestimates the true validity of the predictors), as Rothstein (1990) found that across 9,975 employees and across all time periods of supervisory exposure to employees, the mean interrater agreement (reliability for one rater) was 0.48. No corrections were made to either the mean or to the variance due to predictor reliabilities.

Although the actual degree of range restriction for service orientation inventories is unknown, it is reasonable to assume that there is some range restriction. It is unlikely that employers hired all applicants or selected applicants randomly. We, therefore, estimated the population distribution with and without range-restriction corrections.

To permit analyses of the construct validity of the customer service measures, we searched for correlations between customer service inventories. We located such correlations for three of the most commonly used measures. These measures were the Service Orientation Index (Hogan & Hogan, 1992), the PDI Customer Service Inventory (McLellan & Paajanen, 1994), and the Customer Relations Scale of the Personnel Selection Inventory (London House, 1994). The construct validity data covers Big-Five personality dimensions, sales drive, vocational interests, and cognitive ability.

For the construct validity data, we provide (sample-size-weighted) mean correlations between the customer service measures and the construct validity measures. The correlations are categorized by construct: Big-Five traits, cognitive ability, sales drive, and vocational interest. Cognitive ability measures include the Wonderlic and the AFQSC. Sales drive was measured with the PDI Enterprise Scale, and vocational interests were measured with the Self-Directed Search.

Some of the construct validity correlations were between the Service Orientation Index and the HPI. Although the Service Orientation Index is a subset of items from the HPI, there is some overlap of items between the Service Orientation Index and some HPI Big-Five Scales. This might cause an overestimation of the construct validity correlations. To address this issue, we also report the mean construct validity coefficients excluding the correlations between the Service Orientation Index and the HPI Big-Five scales.

RESULTS

Criterion-Related Validity

Table 1 presents the meta-analysis results summarizing the criterion-related validity of the customer service measures. The first two table columns present the total

sample size (N = 6,945) and the number of validity coefficients (41) analyzed. The next four columns present information on the observed distribution. The uncorrected mean was 0.24, with 66% of the variance in the observed distribution attributable to sampling error.

The next four columns in Table 1 present an estimate of the population distribution without range-restriction corrections. The estimated population mean (ρ) was .31, with 77% of the variance due to correction for artifacts. These population estimates describe a distribution in which the mean population validity is corrected for unreliability in the criterion. The variance of the population distributions is corrected for sampling error and differences among the studies in criterion reliability. Corrections to the population distribution do not include corrections for predictor unreliability or range restriction. The bottom 10th percentile value is interpreted to mean that 90% of all uses of these measures will likely yield validities of this magnitude or larger. The estimate of the population distribution without range-restriction corrections was added at the request of a reviewer. To the extent that range restriction exists in these samples, the results yield mean validity estimates that are lower bound (downwardly biased) estimates of the true population validity and a variance that overestimates the population variance.

The final four columns in Table 1 present an estimate of the population distribution with range restriction corrections. The estimated population mean (ρ) was .50, with 100% of the variance due to correction for artifacts. These population estimates describe a distribution in which the mean population validity is corrected for unreliability in the criterion and for range restriction. The variance of the population validity distribution is corrected for sampling error and differences among the studies in criterion reliability and range restriction. Corrections to the population distribution do not include corrections for predictor unreliability. Whereas criterion-related validity coefficients are almost always affected by range restriction, we argue that this final set of population validity estimates is the most accurate. Therefore, we primarily focus our discussion on the results that include range-restriction corrections.

As stated earlier, sampling error accounted for 66% of the observed variance. Sampling error plus differences across studies in criterion unreliability accounted for 77% of the observed variance. Sampling error plus differences across studies in criterion reliability and range restriction accounted for 100% of the observed variance. Although we argue that the population estimate without range-restriction corrections overestimates the population variance, the 77% of variance accounted for meets the 75% rule offered by Hunter and Schmidt (1990). They argue that if 75% or more of the variance is due to statistical artifacts, one concludes that the remaining variance is likely due to artifacts not corrected. Thus, based on the 75% rule and the data available to date, we tentatively conclude that the validity of customer service measures is not substantially influenced by any moderators.

TABLE 1
Meta-Analysis Results for the Validity of Customer Service Orientation Measures

		Observed Distribution				*Population Distribution Without Range Restriction Corrections*				*Population Distribution With Range Restriction Corrections*			
# of r	*Total N*	*Mean Observed r*	σ_{obs}	σ_{se}	*% of Variance Due to Sampling Error*	ρ	σ_ρ	*% of Variance Due to Corrected for Artifacts*	*Bottom 10th Percentile*	ρ	σ_ρ	*% of Variance Due to Corrected for Artifacts*	*Bottom 10th Percentile*
41	6,945	0.24	0.09	0.07	66%	.31	.05	77%	.24	.50	.00	100%	.50

TABLE 2
Construct Validity Evidence: Correlates of Service Orientation Measures

Construct	*Service Orientation Measure*	*r*	*N*	*Construct Measure*	*Scale Name*	*Source of Data*
Agreeableness	Service Orientation Scale (Hogan & Hogan, 1992)	.62	13,432	Hogan Personality Inventory	Likeability	Personal communication, J. Hogan
	Service Orientation Scale (Hogan & Hogan, 1992)	.34	99	Adjective Checklist	Agreeability	Personal communication, J. Hogan
	Service Orientation Scale (Hogan & Hogan, 1992)	.57	105	Personal Characteristics Inventory	Agreeableness	Ones & Viswesvaran (1996)
	Service Orientation Scale (Hogan & Hogan, 1992)	.51	147	Goldberg Five Factor Markers	Agreeableness	Ones & Viswesvaran (1996)
	Service Orientation Scale (Hogan & Hogan, 1992)	.63	469	Hogan Personality Inventory	Likeability	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.47	157	Personal Characteristics Inventory	Agreeableness	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.40	153	Goldberg Five Factor Markers	Agreeableness	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.36	224	Hogan Personality Inventory	Likeability	Ones & Viswesvaran (1996)
	Mean correlation	.61	14,786			
	Mean correlation without Service Orientation Scale paired with Hogan Personality Inventory	.43	885			

(*Continued*)

TABLE 2
(Continued)

Emotional Stability	Service Orientation Scale (Hogan & Hogan, 1992)	.66	13,452	Hogan Personality Inventory	Adjustment	Personal communication, J. Hogan
	Service Orientation Scale (Hogan & Hogan, 1992)	.56	100	Adjective Checklist	Emotionality	Personal communication, J. Hogan
	PDI Customer Service Inventory (McLellan & Paajanen, 1994)	.34	672	Occupational Personality Questionnaire	Emotional Control	Personal communication, R. McLellan
	Service Orientation Scale (Hogan & Hogan, 1992)	.49	105	Personal Characteristics Inventory	Emotional Stability	Ones & Viswesvaran (1996)
	Service Orientation Scale (Hogan & Hogan, 1992)	.40	147	Goldberg Five Factor Markers	Emotional Stability	Ones & Viswesvaran (1996)
	Service Orientation Scale (Hogan & Hogan, 1992)	.61	469	Hogan Personality Inventory	Adjustment	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.42	157	Personal Characteristics Inventory	Emotional Stability	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.21	153	Goldberg Five Factor Markers	Emotional Stability	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.38	224	Hogan Personality Inventory	Adjustment	Ones & Viswesvaran (1996)
	Mean correlation	.63	15,479			
	Mean correlation without Service Orientation Scale paired with Hogan Personality Inventory	.37	1,558			

(*Continued*)

TABLE 2
(Continued)

Construct	*Service Orientation Measure*	*r*	*N*	*Construct Measure*	*Scale Name*	*Source of Data*
Extraversion	Service Orientation Scale (Hogan & Hogan, 1992)	−.10	13,449	Hogan Personality Inventory	Sociability	Personal communication, J. Hogan
	Service Orientation Scale (Hogan & Hogan, 1992)	.22	13,438	Hogan Personality Inventory	Ambition	Personal communication, J. Hogan
	PDI Customer Service Inventory (McLellan & Paajanen, 1994),	.27	672	Occupational Personality Questionnaire	Outgoing	Personal communication, R. McLellan
	Service Orientation Scale (Hogan & Hogan, 1992)	.06	105	Personal Characteristics Inventory	Extraversion	Ones & Viswesvaran (1996)
	Service Orientation Scale (Hogan & Hogan, 1992)	.26	135	Goldberg Five Factor Markers	Surgency	Ones & Viswesvaran (1996)
	Service Orientation Scale (Hogan & Hogan, 1992)	.17	469	Hogan Personality Inventory	Ambition and Sociability	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.11	143	Personal Characteristics Inventory	Extraversion	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.24	167	Goldberg Five Factor Markers	Surgency	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.20	224	Hogan Personality Inventory	Ambition and Sociability	Ones & Viswesvaran (1996)
	Mean correlation	.07	28,502			
	Mean correlation without Service Orientation Scale paired with Hogan Personality Inventory	.22	1,446			

(Continued)

TABLE 2
(Continued)

Conscientiousness	Service Orientation Scale (Hogan & Hogan, 1992)	.58	13,439	Hogan Personality Inventory	Prudence	Personal communication, J. Hogan
	PDI Customer Service Inventory (McLellan & Paajanen, 1994)	.40	80,000+	PDI Employment Inventory	Performance Scale	Personal communication, R. McLellan
	PDI Customer Service Inventory (McLellan & Paajanen, 1994)	.40	151	Sales Personality Questionnaire	Conscientious	Personal communication, R. McLellan
	PDI Customer Service Inventory (McLellan & Paajanen, 1994)	.15	215	Stanton Survey	Honesty Test	Personal communication, R. McLellan
	Service Orientation Scale (Hogan & Hogan, 1992)	.07	98	Personal Characteristics Inventory	Conscientiousness	Ones & Viswesvaran (1996)
	Service Orientation Scale (Hogan & Hogan, 1992)	.16	135	Goldberg Five Factor Markers	Conscientiousness	Ones & Viswesvaran (1996)
	Service Orientation Scale (Hogan & Hogan, 1992)	.40	471	Hogan Personality Inventory	Prudence	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.38	157	Personal Characteristics Inventory	Conscientiousness	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.39	167	Goldberg Five Factor Markers	Conscientiousness	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.34	224	Hogan Personality Inventory	Prudence	Ones & Viswesvaran (1996)
	Mean correlation	.42	95,057			
	Mean correlation without Service Orientation Scale paired with Hogan Personality Inventory	.40	81,147			

(Continued)

TABLE 2
(Continued)

Construct	*Service Orientation Measure*	*r*	*N*	*Construct Measure*	*Scale Name*	*Source of Data*
Openness	Service Orientation Scale (Hogan & Hogan, 1992)	.05	13,438	Hogan Personality Inventory	Intellectance	Personal communication, J. Hogan
	Service Orientation Scale (Hogan & Hogan, 1992)	.10	13,446	Hogan Personality Inventory	School Achievement	Personal communication, J. Hogan
	Service Orientation Scale (Hogan & Hogan, 1992)	.08	94	Adjective Checklist	Intellectance	Personal communication, J. Hogan
	Service Orientation Scale (Hogan & Hogan, 1992)	.08	105	Personal Characteristics Inventory	Openness to Experience	Ones & Viswesvaran (1996)
	Service Orientation Scale (Hogan & Hogan, 1992)	.13	147	Goldberg Five Factor Markers	Intellect	Ones & Viswesvaran (1996)
	Service Orientation Scale (Hogan & Hogan, 1992)	.14	471	Hogan Personality Inventory	Intellect	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.07	157	Personal Characteristics Inventory	Openness to Experience	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.17	153	Goldberg Five Factor Markers	Intellect	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	.19	224	Hogan Personality Inventory	Intellect	Ones & Viswesvaran (1996)
	Mean correlation	.07	28,235			
	Mean correlation without Service Orientation Scale paired with Hogan Personality Inventory	.13	880			

(*Continued*)

TABLE 2
(Continued)

Cognitive Ability	Service Orientation Scale (Hogan & Hogan, 1992)	−.24	204	ASVAB	AFQSC	Personal communication, J. Hogan
	PDI Customer Service Inventory (McLellan & Paajanen, 1994)	.06	151	Sales Personality Questionnaire	Numerical Critical Reasoning	Personal communication, R. McLellan
	PDI Customer Service Inventory (McLellan & Paajanen, 1994)	.08	178	Cashier Test Battery	Arithmetic for Money Handling	Personal communication, R. McLellan
	Service Orientation Scale (Hogan & Hogan, 1992)	−.11	108	Wonderlic Personnel Test	Wonderlic Personnel Test	Ones & Viswesvaran (1996)
	Customer Relations Scale (London House, 1994)	−.05	112	Wonderlic Personnel Test	Wonderlic Personnel Test	Ones & Viswesvaran (1996)
	Mean correlation	−.06	753			
Sales Orientation	PDI Customer Service Inventory (McLellan & Paajanen, 1994)	.28	411	PDI Enterprise Scale	Sales Drive and Motivation	Personal communication, R. McLellan
	PDI Customer Service Inventory (McLellan & Paajanen, 1994)	.39	190	PDI Enterprise Scale	Sales Drive and Motivation	Personal communication, R. McLellan
	PDI Customer Service Inventory (McLellan & Paajanen, 1994)	.31	1,500	PDI Enterprise Scale	Sales Drive and Motivation	Personal communication, R. McLellan
	Mean correlation	.31	2,101			

(*Continued*)

TABLE 2
(Continued)

Construct	*Service Orientation Measure*	*r*	*N*	*Construct Measure*	*Scale Name*	*Source of Data*
Realistic Interests	Service Orientation Scale (Hogan & Hogan, 1992)	.08	237	Self-Directed Search	Realistic	Personal communication, J. Hogan
Investigative Interests	Service Orientation Scale (Hogan & Hogan, 1992)	.02	237	Self-Directed Search	Investigative	Personal communication, J. Hogan
Artistic Interests	Service Orientation Scale (Hogan & Hogan, 1992)	.04	237	Self-Directed Search	Artistic	Personal communication, J. Hogan
Social Interests	Service Orientation Scale (Hogan & Hogan, 1992)	.28	237	Self-Directed Search	Social	Personal communication, J. Hogan
Enterprising Interests	Service Orientation Scale (Hogan & Hogan, 1992)	.08	237	Self-Directed Search	Enterprising	Personal communication, J. Hogan
Conventional Interests	Service Orientation Scale (Hogan & Hogan, 1992)	.05	237	Self-Directed Search	Conventional	Personal communication, J. Hogan

Construct Validity: Correlates With Other Measures

Correlations between service orientation inventories and measures of personality, cognitive, and vocational interest constructs are presented in Table 2. Column 1 identifies the construct correlated with the customer service measure, and column 2 lists the customer service measure for which the data were available. The third and fourth columns show the observed correlations between the measure of the construct and the service orientation inventory and the sample size on which the correlation was based. The fourth and fifth columns provide the name of the measure (e.g., HPI) used to assess the construct and the scale name (e.g., likeability). The last column provides the source of the data.

As hypothesized, customer service is highly correlated with Big-Five measures of agreeableness (.43), emotional stability (.37), and conscientiousness (.42). Customer service measures appear to be largely independent of openness to experience (.07) and cognitive ability (–.06). Customer service measures show moderate correlation with measure of sales drive (.31). Finally, customer service measures show moderate correlation with social vocational interests (.28) and little to no correlation with the other vocational-interests types.

The magnitude of the mean correlations varies, depending on whether the correlation between the Service Orientation Index and the HPI is included in the calculation of the mean. Regardless of which mean correlation is interpreted, however, customer service measures have substantial correlations with the Big-Five measures of agreeableness, emotional stability, and conscientiousness. The two mean coefficients differ with respect to extraversion. The more inclusive mean suggests little correlation between the two constructs (.07). When the Service Orientation Index and the HPI are excluded, however, the mean correlation between extraversion and customer service is .22.

DISCUSSION

The validity of customer service orientation measures is of useful magnitude (.50). This research also offers preliminary evidence for the construct validity of customer service measures. The Big-Five taxonomy of personality (Digman, 1990) offers a useful model to summarize the personality correlates of customer service measures. It appears that customer service measures are strongly related to three of the Big-Five dimensions: agreeableness, emotional stability, and conscientiousness. Those with high service orientation are friendly, stable, and dependable. Customer service measures appear to be largely independent of openness to experience and cognitive ability. Thus, when optimally weighted with a cognitive ability measure, useful levels of incremental ability can be anticipated. Customer service measures show moderate correlation with measure of sales disposition (.31). Finally, based

on some small-sample results, customer service orientation is somewhat related to vocational interest. Customer service measures were moderately related to Holland's (1985) social vocational type and largely unrelated to the other interest types in the RIASEC taxonomy.

Limitations of This Study/Areas of Future Research

Criteria for customer service performance. One potential limitation is that this study relied exclusively on supervisor ratings as the criteria of service orientation. Although we acknowledge the importance of the customers' opinions in the rating of service, we could locate no studies that used customer-perception data as criteria. There has been scant research comparing customers' ratings of service with that of supervisors' (Miklos, Sawyer, & Doverspike, 1994; Schneider, Hanges, Goldstein, & Braverman, 1994). Some researchers view customer perceptions as a flawed criterion and shy away from their use in validation studies. The argument is that customers' perceptions of service encounters can be influenced by factors beyond the control of the service provider. Furthermore, customers may be unduly influenced by the outcome of the service encounter, similar to the halo effect. If the service encounter is perceived as successful (i.e., food was delivered in a timely fashion, a complaint was resolved), customers are more likely to rate the service provider positively, individual performance not withstanding. Conversely, if customers perceive the encounter as unsuccessful, they are more apt to rate the encounter as poor, regardless of the courteousness, friendliness, or helpfulness of the service provider. For example, Goodwin and Ross (1992) used a procedural justice framework to examine customers' perceptions of service "failures." They found that an apology from the service provider and the opportunity for the customer to present information and express feelings (referred to as "voice") enhanced perceptions of fairness and satisfaction with the encounter, but only when customers were offered a discount or gift after the service failure. When no tangible offering was made, apology and voice had lesser effect and, in some instances, were associated with lower perceptions of fairness and satisfaction.

Researchers argue that customers' perceptions of service quality may be partly or wholly influenced by customers' expectations of good service (Parasuraman, Berry, & Zeithaml, 1991; Reynierse & Harker, 1992). For example, customers expect lower quality service at the Department of Motor Vehicles than they do when shopping for an engagement ring. Klose and Finkle (1995) refer to this as a *service provider gap*—the difference between what customers expect and what service employees think customers expect—and a *service quality gap*—the difference between customer expectations and the perceived quality of the service that they actually receive.

Can customers accurately rate the performance of a service representative without incorporating other aspects of the service encounter (i.e., inflexible rules, understaffing, outcome) that are beyond the control of the employee? Recent research indicates that customers may have this ability. Mohr and Bitner (1995) found that customers frequently formed opinions about the effort level of service employees. The amount of employee effort influenced customers' satisfaction with the service transaction and that satisfaction remained constant regardless of the perceived success of the service outcome.

One potential customer-based criterion that has not been adequately explored is that of tipping behavior. Rind and Bordia (1995) examined the effects of server's "thank you" and personalization on restaurant tipping behavior. They found that the inclusion of the written words "thank you" on the back of a restaurant check increased tip percentage. Harris (1995) noted, however, that customers' tipping behavior is affected by factors beyond the control of the server, such as quality of the food, cost, and the location in which the customer was seated. Bodvarsson and Gibson (1994) identified a number of these influences, including economic conditions, quantity of service, and patronage frequency.

Although we argue that our criterion-related validity estimates strongly support the use of customer service measures, we believe that the validity estimates could be refined. Reanalysis of the data with empirically derived range-restriction data would be a useful addition to this literature. Likewise, validity estimates for a variety of criteria would also be useful. We encourage additional research concerning customer perceptions and their use as validation criteria. We argue, however, that their value as criterion for the performance of individual employees is not necessarily superior to that of supervisor's evaluations.

Evidence for moderators. Our preliminary analyses with 41 coefficients could neither provide evidence nor discount the presence of moderators. We argue that evidence for moderators may exist if one examines a wider range of occupations or a wider range of criteria. For example, customer service measures may be less valid for those jobs with little or no customer interaction (retail clerk vs. bulldozer operator). In addition, job-performance measures that emphasize customer service performance may yield larger correlations with service orientation measures than those that do not explicitly assess customer service behavior.

Two recent studies support the existence of moderators. In a review of the criterion and construct validity of the PDI Customer Service Inventory, McLellan and Hansen (1997) found preliminary evidence that customer service inventories are better at predicting customer service performance than overall job performance, especially when the job is comprised of relatively few customer service behaviors. Frei (1997) found a correlation of .11 between the PDI Customer Service Inventory and supervisors' ratings of job performance. When the sample was limited to respondents who worked with customers on a daily basis, however, the correlation rose to .24.

Conversely, there is no hard evidence that the relation between service orientation and job performance is moderated by occupation type. Because most service inventories consist of items that primarily tap the constructs of conscientiousness and agreeableness (both are good predictors of performance across occupational categories), one could assume that these inventories could predict performance across a wide range of occupations. More research is needed before any conclusions concerning the evidence of moderators can be drawn.

Service orientation and climate. Although the results support the hypothesis that customer service inventories are good predictors of job performance, service encounters do not take place in a vacuum. The organization must provide the proper culture and resources for the service encounter to be successful. Kelley (1992) found that organizational socialization and socialization outcomes (employee perception of climate, level of motivation, organizational commitment) played a significant role in employees' customer orientation. Schneider (1980) referred to this culture as the *service climate* and identified several components that fostered service orientation, including (a) adequate staffing, (b) adequate equipment, (c) flexible rules and policy, and (d) compensation systems that reward service orientation behavior. He argued that a poor service climate will result in stress for employees, especially those who have high service orientation.

Chung (1994) examined the relation between service orientation and service climate. She hypothesized that discrepancy between employees' views of customer needs/expectations and employees' views of the reward system in relation to customer needs/expectation would result in role conflict. This in turn lowers job satisfaction and affects absenteeism, turnover, and organizational citizenship behaviors. She found moderate support for her causal model.

Fulford and Enz (1995) examined the effects of perceived empowerment on the attitudes of employees in service-based organizations. Perceived empowerment had an effect on satisfaction, loyalty, performance, service delivery, and concern for others. When employees found a fit between their values and the organization's goals, they were more loyal, service oriented, concerned for others, and were high performers. Kelley (1993) reported similar results.

These findings indicate that selecting employees with good service orientation does not alone guarantee customer satisfaction. Employees must also be provided with adequate equipment, staff, policies, and a compensation system that rewards good customer service skills. Future research on service orientation inventories should examine the effects of service climate of the relation between service orientation and performance.

Service orientation, sales orientation, and extraversion. We conclude, based on our limited data, that the service orientation and sales orientation constructs are moderately correlated. This is not surprising because many of the skills required of service providers are the same as those of salespeople—friendliness, responsiveness, and dependability. Furthermore, we found conflicting results in the relation between extraversion and service orientation. We computed two mean coefficients, one of which included the Service Orientation Index/HPI correlations and one that did not. The more inclusive mean suggests little correlation between the two constructs (.07). When the Service Orientation Index and the HPI are excluded, however, the mean correlation between extraversion and customer service is .22.

Hogan and Hogan (1995) provided some insight into this apparent discrepancy. First, unlike other customer service scales, the Service Orientation Index does not include items that tap the constructs of sociability or extraversion. The HPI manual gives specific examples of different profiles, including what they call the *Social Profile* of a woman who has been a successful travel agent and family counselor. Ironically, of the seven scales of the HPI, this woman scored second-lowest on the Sociability subscale. Hogan and Hogan (1995) assert that "the below-average score on Sociability means that she will be willing to listen to others rather than requiring them to listen to her" (p. 49). One may speculate that employees with high sociability or extraversion may give insufficient attention to completing customer interactions in a prompt manner. Although this may please the customer, it may be detrimental to the organization because of increased labor costs. More research is needed regarding the relation between service orientation, sales orientation, and extraversion.

Source of data. A common criticism of validity data concerning commercially published measures concerns the fact that most of the validity studies are conducted by the test publishers. Specifically, this is an assertion that the test publishers have fraudulently analyzed and reported their data. We argue that such assertions should not be entertained without evidence. Further, an inspection of the studies contributing data to this analysis shows that the studies are drawn from a wide array of authors, including many studies conducted by researchers with no test publisher affiliation.

CONCLUSION

Sufficient research evidence has been accumulated on customer service measures to permit one to draw conclusions about their validity. The measures appear to be useful predictors of job performance. The construct validity evidence indicates that those high in customer service orientation are friendly, stable, and dependable individuals who have sales drive and social interests. Customer service orientation

is unrelated to cognitive ability. Although these conclusions may be limited by caveats and additional validity research is warranted, the cumulative evidence indicates that measures of customer service orientation can be effective components of an organization's customer service strategy.

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