Performance
Retention
Customer Service
Sales

Research Manual

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PDI EMPLOYMENT INVENTORY

INTRODUCTION

PURPOSE AND FEATURES OF THE PDI EMPLOYMENT INVENTORY

The PDI Employment Inventory (EI) is designed to identify applicants who will become productive hourly employees and who will stay on the job voluntarily at least three months. It measures personality characteristics that underlie the continuum of productive, unproductive, and counterproductive job behaviors. Among others, these characteristics include dependability, responsibility, and conscientiousness--dimensions of hourly job performance that affect success in many jobs.

Numerous validation studies have shown that the EI successfully identifies productive, dependable workers in a variety of jobs and work settings. Personnel Decisions, Inc. (PDI) and researchers at various universities have conducted over 140 validity studies involving more than a third of a million people in a wide range of companies located throughout North America. Industries involved have run the gamut: retail, transportation, quick service restaurants, grocery, health care, manufacturing, gas stations, and airlines. Consistently, the studies have confirmed that job applicants who get higher EI scores are more likely to be reliable, conscientious, stable employees.

The decision whether or not to use the EI as a pre-employment test for a particular job is best made with a thorough job analysis. Its use as a selection tool is most appropriate in positions that require a high level of dependable and productive behavior, together with lower levels of other skills and abilities. Most often, these are jobs which can be learned quickly, in which simply being reliable contributes in large part to job success. The more important that productive behaviors are to the job, the greater the weight the employer should give to the applicant's EI in the selection process.

Easy to administer and score, the EI requires no psychological or test-related degree or other professional qualifications of the test administrator. Anyone from a hiring office can be trained to administer and score the EI appropriately. Unlike the more general personality inventories with numerous scale scores which each require interpretation, the EI produces only two scores--Performance and Tenure (Retention).

This manual is the main source of information for EI administrator training. It contains detailed instructions on what to say to applicants and how to answer typical questions, ensure the security of the test materials, and score the Inventory using a disk-based PC.

Various Forms

The EI is available in several different forms. Among these, the most basic is an English language paper-and-pencil version containing 97 items. The other language and bilingual versions include American Spanish/English, British English, French-Canadian/English, Mexican Spanish, and Vietnamese/English. In the bilingual versions, the items in both languages are adjacent to each other so an applicant can more clearly understand the item content.

Also, the EI is available in combination with the PDI Customer Service Inventory (CSI), with a total of 145 items. Here, the questions from the two instruments are ordered randomly. This form reports three scores: the Customer Service score from the CSI and the Performance and Tenure scores from the EI.

EMPLOYMENT INVENTORY BACKGROUND

PERSONALITY TEST APPROACH

Theories underlying many employment tests assume that human personality is manifested by a consistent pattern of behavior. An employee with more of the characteristics of stability, responsibility, and dependability tends to behave more productively on the job. The EI measures these personality characteristics, thus enabling some prediction of applicants' stable, responsible, and dependable job behavior.

Generally, personality test questions do not inquire about specific behaviors. Tests for alcoholism, for example, ask not only how much alcohol a person drinks but also about thoughts and consequences associated with drinking. Since most alcoholics at some time are depressed, tests ask about feeling depressed or hopeless. They also ask about missing work, having blackouts, and experiencing deteriorating relationships.

The EI works similarly. In asking questions that reflect a person's dependability, stability, impulse control, and conscientiousness, the EI items correlate with job behaviors important for productive performance. Some fairly confident conclusions can be drawn about applicants' probable behaviors on the job from their responses to EI questions about their personalities and backgrounds.

Predicting Behavior

Other conclusions based on EI scores can be made about the potential seriousness of these behaviors. The higher an applicant's score, the more likely that person's behavior on the job will be productive. Alternatively, people with lower scores are more likely to exhibit counterproductive behaviors (Figure 1). Exaggerating an injury (more likely among lower scorers), for example, is worse than taking long breaks; changing vacation plans to help out at work (more likely among higher scorers) is a contribution over and above simply sticking to the task at hand.

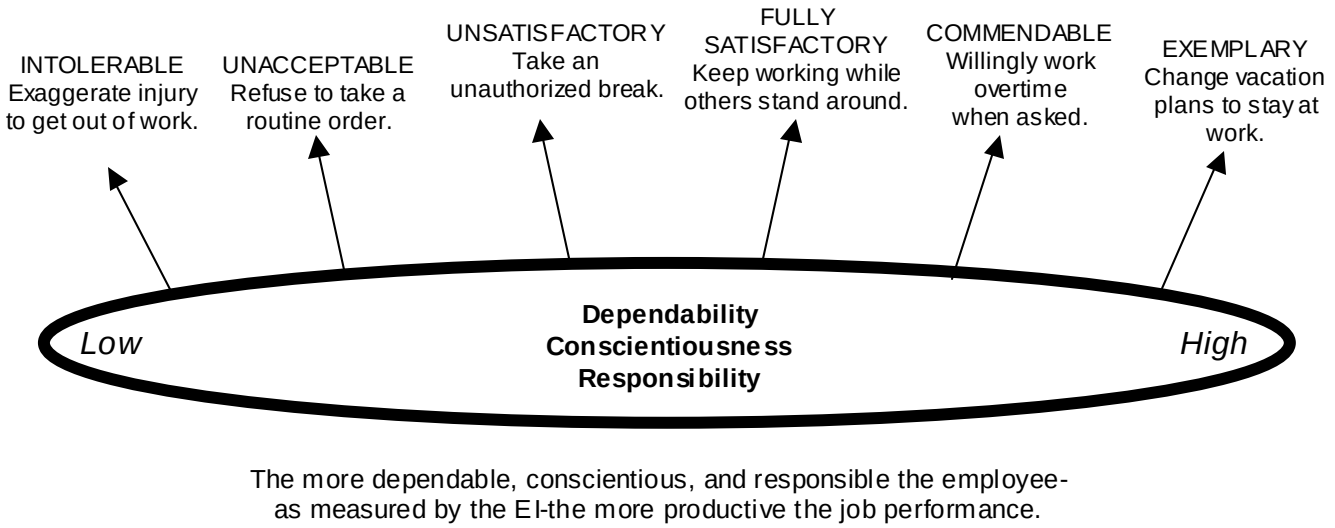


Figure 1 – Personailty Characteristics that Underlie Productive Behavior

Although the EI can do a good job of predicting the degree of productive and counterproductive behavior an individual will show at work, it cannot predict specific behaviors. People can choose to be counterproductive--or productive--in many different ways. The Inventory can't predict, for example, that a particular job candidate will steal merchandise; it can predict only that the person will tend to be counterproductive in some way, perhaps by taking long breaks, perhaps by doing sloppy work, perhaps by stealing merchandise.

Some Issues of Counterproductivity

Counterproductive behavior in employees is a pervasive and expensive problem. Both "property deviance" (primarily employee theft) and "production deviance" (losses in time, quality, or production) cost business unnecessary billions of dollars annually (Clark and Hollinger, 1983; Tersine and Russell, 1981). The causes of counterproductive behavior have not been well explained in the literature. According to Tersine and Russell, employees "steal for a number of reasons, but the essential preconditions are need, justification, and opportunity." Need can be defined as either real monetary or psychological need; justification often goes along the lines of "the company owes me this."

Terris (cited in Willis, 1986) explains that many newly created jobs in today's economy do not require high skill levels but do require integrity. Thus, in many work settings, all three preconditions are met: Workers are young and inexperienced, have access to expensive merchandise and cash, and are paid low wages. The use of progressive management practices and the screening of employees for honesty with methods such as the polygraph and written honesty tests have been only partially successful in controlling counterproductive behavior. Studies of both polygraphs and honesty tests have found many technical and practical problems related to their accuracy (Saxe, Dougherty and Cross, 1985; Lykken, 1981, 1983; Sackett and Decker, 1979; and Sackett and Harris, 1984).

SITUATION ANALYSIS

During the initial development of the EI, PDI conducted several dozen interviews to gain an understanding of the problem of counterproductive behavior in stores. Those interviewed included national discount chain personnel coordinators, loss

prevention managers, department supervisors, and store, district, and regional managers, as well as corporate executives. General information was collected about the incidence of theft, termination situations, loss prevention methods, and beliefs about the extent of employee problem behavior. Also reviewed were relevant job materials--job descriptions, handbooks for new employees, training guides for supervisors, stock shortage newsletters, various legal forms, and case files documenting serious episodes of counterproductive behavior that resulted in firings.

Analysis shows that these discount merchandisers, and probably retail in general, face a dilemma of several contradictory needs:

- most jobs are temporary and part-time, yet the organization benefits most from long-term employees;
- employees need to be flexible in scheduling work hours, yet inflexible in following store rules;
- employees need to conform strictly to store policies, yet ideally show initiative and independence in their work;
- most jobs are unskilled and offer low wages, but employees are expected to work hard;
- the company expects that employees will not steal merchandise, but the store environment does little to limit the obvious temptations for theft; and
- supervisors are not trained in cooperative leadership, but employees are expected to work in teams.

Basically, employees who are young, uncommitted to the organization, lose little by working poorly, and employed at a low level (and therefore more likely to feel dissatisfied with their jobs) are not only the typical employees, but also the ones most likely to perform counterproductively.

This situation analysis produced many examples of specific productive and counterproductive behaviors that became performance criteria for the EI research. Unsatisfactory behaviors included unexcused absences, theft, overcharging or shortchanging customers, damaging store property, insubordination, and working under the influence of drugs or alcohol. Positive behaviors included returning from breaks within the allotted time, finishing a task before leaving at the end of a shift, following store policies, and continuing to work despite joking co-workers.

Also, at the beginning of its EI research, PDI conducted a comprehensive review of the literature in the fields of clinical and industrial psychology, security, and selection for public safety and other critical or hazardous occupations (examples are: Block, 1971; Comrey and Backer, 1970; Dunnette, Peterson, Houston, Rosse, Bosshardt, and Lammlein, 1980; Dunnette, Bownas, and Bosshardt, 1981; Edwards, Diers, and Walker, 1962; Gilbert and Lombardi, 1967; Glasser, 1965; Hogan, Mankin, Conway, and Fox, 1970; Knapp, 1963; Miller, 1976; Monahan, 1981; Porter and Steers, 1973; Robin, 1974; Rosenbaum, 1976; Security Report, 1983; Tjosvold, 1984; and White, 1985).

MEASURING PRODUCTIVITY

Historically, the many attempts to use general personality inventories to predict job performance have met with mixed results. The consensus among recent reviewers (Hogan, Carpenter, Briggs, and Hansson, 1985; Hollenbeck and Whitener, 1988; Day and Silverman, 1989) seems to be that broad-based personality inventories (i.e., “omnibus" inventories) have often been asked to do a job for which they were not designed. Specific constructs assumed to underlie performance in a given job often were not linked explicitly to corresponding behavioral manifestations. The measures of personality that were used in many early studies were designed originally for descriptions of more general models of personality, rather than for prediction of specific job behaviors.

Overall, in much of the personality test research, the links made between underlying characteristics and specific behaviors have been too general to produce reliable results. As Hogan (1991) points out, the "big five" personality factors which have the current endorsement of many psychologists typically break down into more narrow components. It is plausible to expect these narrower components to be more useful for predicting specific job behaviors. Guion (1991) also states that there is a

need to focus the measurement of personality more narrowly on the behavioral domain for which the instrument will be used. With this in mind, PDI began developing the EI by defining specific dimensions of personality which underlie productive and unproductive hourly performance.

THE EI PREDICTOR CONSTRUCTS

A set of 25 predictor constructs, organized into ten categories, was developed by using information from both the store/ employee analysis and the literature review. Most of the research focused on the extreme end of the productivity/ counterproductivity continuum; existing theories primarily addressed the causes of employee theft. PDI was interested in both positive and negative behaviors, and sought to balance them. These theoretical predictor constructs, therefore, were used for item development to ensure that a broad domain of productivity and counterproductivity was sampled:

Undependability

Irresponsibility

Counterproductive employees fail to make the connection between their actions and the consequences of them. Employees who are less self-centered and more mature are likely to be more dependable.

Carelessness

Careless employees cause production or property deviance through their lack of concern. Their sloppy work creates errors and additional work for others.

Lack of Commitment

Poor employees fail to take their jobs seriously and have no commitment to their employer. They don't care about getting terminated. They feel underemployed and may do poor work or steal to make up for their low pay.

Impulsiveness

Employees low in self-control are prone to spur-of-the-moment behaviors, such as capricious vandalism. Less impulsive employees are more likely to put away misplaced merchandise or take more care in their work.

Compulsiveness

Employees may steal or break rules out of habit. They are reinforced by getting away with small violations, which increase in frequency until the situation is out of control. They cite an external locus of control, e.g., "The devil made me do it."

Socialization

Delinquency

Some employees plan theft and assume not only that others steal, but also expect, tolerate, and even appreciate others' theft. They engage in petty crime (illegal fireworks, destructive Halloween pranks, minor traffic offenses) and eventually steal at their workplace, too.

Fringe Involvement

Employees who hang around with dishonest people eventually become involved with dishonest activity themselves. The shared experiences of violations bind their "friendship."

Undeveloped Values

Employees who steal have no guilt or remorse about it. They have not established in themselves the basic value of honesty or a character trait of integrity. They fail to earn trust in many work situations.

Attitudes

Rationalization

Employees may believe that "taking something" is not stealing because there is some justification for it. If their employer is wasting something, they might as well make use of it. They twist the meaning of values: "The Lord helps those who help themselves."

Unknown Definition of Theft

Some employees don't fully understand company policies, and violate them unintentionally. They do not realize that they are not supposed to take or consume some small item.

Unclear Ownership

Employees may feel free to take items of ambiguous ownership. More dependable employees may try to return things that seem to be lost.

Informal Norms

Employees accept informal norms of the workplace that define deviance as acceptable. They believe that "everyone is doing it" and are surprised when employees are punished for what they perceive as small violations. Employees who are more conscientious approach the job with their own set of norms.

Problems with Authority Relationships

Nonconformance

Some employees do not accept the rules and regulations of the company or societal norms and traditions. Being overly independent, they make their own rules. Responsible employees, though, tend to follow the rules.

Hostility

Employees may feel hostility toward authority. They dislike being told what to do and will do the opposite just to be rebellious. They have trouble with parents, teachers, bosses, and other authority figures. They show hot-temperedness, damage property, and act out of spite toward other people and company property.

Anomie

Employees who feel alone and alienated from everyone are genuinely unhappy and have difficulty in many aspects of their lives. They suspect that others are against them so they feel defensive, and act out against the employer.

Excitement Seeking

Thrill Seeking

Some employees break the rules for the fun of it, just to experience the excitement of taking the risk or simply trying something new. They laugh off the seriousness, or steal as a prank or joke. Dependable employees are more cautious and tend to follow rules.

Boldness

Those who cause trouble may have no fear about getting caught, but are brash or bold in their violation of rules. They show a machismo kind of pride about their deviant accomplishments.

Work Motivation

Work Motivation

Highly motivated employees will work harder and be more productive; employees with low motivation levels have fewer accomplishments and would rather not work hard for any gains or achievements in life.

Social Influence

Peer Pressure

Employees may engage in counterproductive behavior because they have high approval and affiliative needs. They acquiesce to overt or subtle encouragement to join the activity, giving up some self-control to peer sanction.

Direct Cooperation

Some employees are naturally helpful or team-oriented, and may work with a specific buddy when acting irresponsibly. They socialize more with co-workers outside of work.

Unstable Upbringing

Unstable Upbringing

Employees who grew up in unstable homes with poor parental role models and who felt distant from their families engage in deviant job behavior. They had trouble all through childhood and school, and now they direct their hell-raising behavior against their employers.

Drug/Alcohol Use

Drug/Alcohol Use

The general maladjustment accompanying the use of illicit drugs or of alcohol abuse is associated with counterproductive job behavior such as theft or violation of policy. Drug users even may steal in some cases because their judgment is impaired or because they want money for drugs.

Unmet Needs

Self-esteem

All people have basic needs to (a) love and be loved, and (b) to think of themselves--and be thought of by others--as worthwhile. Poor employees have a poor self-image and act out to meet that expectation, thus thwarting their ability to be thought of (by themselves and others) as worthwhile. Productive employees tend to feel good about themselves.

Job Dissatisfaction

Employees who are unhappy about their hours, pay, supervision, or company policies are less productive. They feel the company owes them more than their compensation, so--through either commission or omission--they get even with it.

Job Stress

Employees who experience job stress are absent excessively, take unauthorized breaks, and then proceed to other irregular acts. They feel desperate and relieve the pressure by behaving counterproductively rather than by trying to solve the problem.

FROM CONSTRUCTS TO EI SCALES AND ITEMS

PDI examined 78 existing test scales which seemed related to at least one of the 25 constructs in order to understand how other researchers measured these characteristics. In the published literature, there are many more theories and tests of counterproductive behavior than of productive behavior. From this broad range of employee behavior theories and attributions, PDI worked to rationally develop but empirically validate the EI.

Since the purpose of the EI was to predict a whole range of dependability related job behaviors, approximately 400 test items were written, each item reflecting a particular theoretical construct from the set of 25. However, it was not possible to write test items for all 25 constructs; some seemed too abstract to measure in a test. Thus a team of industrial psychologists pared down the items to 223 questions which reflected a more parsimonious set of 13 constructs Alienation, Attitudes, Compulsiveness, Drug Use, Excitement, Family Warmth, Hostility, Impulsiveness, Irresponsibility, Nonconformance, Socialization, Unmet Needs, and Work Motivation.

The major scale on the EI, the Performance scale, is intended to measure personality characteristics related to employee dependability, which basically underlies the full range of productive and counterproductive behavior. This certainly includes overt theft but also covers less serious forms of both property and production deviance, while it also addresses the positive, productive side of employee performance.

Job tenure was considered as a single construct for the writing of items to predict how long a candidate would voluntarily stay on a job. These questions focused on the probability of leaving employment prematurely, impulsively, and with little sense of commitment to the job.

Items for two internal scales also were written. The Infrequency scale was to act as a screen for careless responding or for difficulty with language. An unusual set of responses produces an invalid test. Items for the Frankness scale, based on "unlikely virtues," were intended to measure the forthrightness of the test taker. These items measure socially desirable responding by applicants who try to portray themselves in an overly positive light.

ITEM SELECTION

To be included in the final EI, items had to meet multiple validity requirements:

- They had to predict employee job outcomes.
- They had to make sense rationally.
- They had to show test-retest reliability and validity for at least one of the three independent indicators of dependability with a college student sample.

These requirements served as a double check on item effectiveness and, along with the large sample size in the original validation, enabled greater confidence in the study results.

To be included on the final Performance scale, the items had to show different response rates between the two most polarized groups of employees of a large national retail chain: those fired for gross misconduct and those employed at least three months with no disciplinary incidents. The response rate differences of the 52 selected items ranged up to 26%; the mean difference was 10.7%.

Items were chosen for the Tenure scale based on their differential response rates for two groups of employees: those who quit voluntarily within three months but would be rehired and those employed at least three months with no disciplinary incidents. The response rate differences of the 46 selected items ranged up to 14%; the mean difference was 5.1%.

For the Frankness scale, 12 items were chosen on the basis of the difference in the response rates of employed students and of job applicants. The average item response rate difference was 15.9%. The students as a whole scored one whole standard deviation higher on the scale than did job applicants, suggesting that someone taking the EI for research purposes is more likely to express candor, admitting common faults, than does an applicant answering the same questions when a job may depend on the results. A subgroup of the students, instructed to answer as honestly as they could, scored even higher on Frankness, with an average response rate difference of 21.4% (above the job applicants).

The seven items written for the Infrequency scale had an average response rate of 4.0%.

VALIDITY RESULTS

The original validity evidence for the EI was established in three studies:

- a large-scale criterion-related predictive validity study at a national chain of discount stores with the 223-item experimental EI;
- a laboratory study with a sample of university students with the experimental EI; and
- a large-scale predictive cross-validation study using the final item set and keying based on the first two studies.

Job applicants from 81 stores and four regional distribution centers participated in the predictive criterion-related study at the chain of national discount stores. Over a seven-month period, these stores and distribution centers administered the EI to job applicants. EI scores were not used in making the selection decisions, but were returned to PDI without being scored at the interview site.

Of the 4,652 applicants who were tested in four regions, 2,988 (64%) were hired. At least three months later, the employment status of the new employees was checked to record their tenure and termination status. After dropping test takers whose Els were incomplete (1% of the sample) or whose Social Security numbers did not match their personnel records (10%), the final sample size for the study was 2,661 employees.

This large sample size was needed because of the short time frame before documenting the job outcome and because terminations for cause are relatively rare events.

Employee outcomes were classified by termination codes. Satisfactory performers included employees who either stayed on the job for at least three months and would be rehired if they quit, or who would be rehired even though they quit before three months. Marginal performers were those who had been laid off or fired but might be rehired, or those who had quit (who were not fired) but who would not be rehired. Problem performers were those laid off or fired who would not be rehired, and those fired for minor to serious offenses or for gross misconduct.

As a group, satisfactory performers scored higher than problem performers, as shown by a rank ordering of employee groups by employment outcome (Table 1). Analyses of employees' EI Performance scores produced meaningful and highly significant correlations (Table 2). Results showed:

- Large differences in the passing rates and in the mean scores of satisfactory vs. marginal vs. problem performers. Performance scores averaged about 57, 54, and 51, respectively, with about one-third of a standard deviation separating each level.
- A very large mean difference (57.6 vs. 49.1--almost a full standard deviation) separating the two most extreme groups, the employees still on the job after three months and those fired for gross misconduct.
- Validity coefficients ranging from .25 to .33 for almost all major contrasts, and appropriately lower coefficients for contrasts of employee groups representing ambiguous outcomes.

Criterion Group	Percent Passing
Satisfactory Performers	68%
Marginal Performers	53%
Problem Performers	37%
Gross Misconduct Terminations	29%

Table 1 - Performance Scale Passing Rates

Means and Standard Deviations by Group*	Performance Scale n	Mean	SD
Satisfactory Performers Code			
Still employed after 3 months	622	57.6	8.1
Voluntary termination after 3 months--would rehire	82	56.5	11.1
Voluntary termination within 3 months--would rehire	575	56.2	8.0
Marginal Performers Code			
Reduction in force, may rehire/ probationary--would rehire	136	54.9	6.9
Voluntary termination within and after 3 months--would not rehire	590	53.5	8.3
Problem Performers Code			
Reduction in force--would not rehire	39	51.6	8.0
Probationary--would not rehire	105	51.7	7.8
Serious and minor offenses	41	50.4	7.3
Gross offenses	62	49.1	7.5
TOTAL SAMPLE	4,292	54.5	9.0

Performance Predictor Correlations with Rank-Ordered Criteria*	
9-level criterion, ranked as above:	r = .26
8-level criterion, combining voluntary terminations within and after 3 months--would rehire:	r = .26
7-level criterion, omitting voluntary terminations within 3 months-would rehire, and voluntary terminations within and after 3 months--would not rehire:	r = .33
6-level criterion, omitting marginal performers:	r = .34

*Overall group differences of from ANOVA) and all correlations are significant at $p < .001$.

Table 2 - EI Performance Scale Means, Standard Deviations, and Validities for Predicting Rank-Order Combinations Of Criterion Groups

Items also were analyzed for their ability to predict tenure--how long employees would remain on the job voluntarily if they proved to be satisfactory employees. Thus, the analysis excluded employees who had been terminated involuntarily and those who were still employed at the time of the analysis but who had less than three months on the job. For the validity analysis, these three employee criterion groups were classified:

- Long-term employees: Still employed three to seven months after hire;
- Intermediate-term employees: Quit after three months, but before seven months, on the job; and
- Short-term employees: Quit within three months of hire.

Analysis of Tenure scores (Table 3) showed:

- a solid difference in average scores (about one-half standard deviation) between Long-term and Short-term employees;
- smaller differences (about one-quarter standard deviation) between Intermediate-term employees and each of the two extreme groups; and
- validities in the .20 to .25 range both for predicting employee rank ordering (Long vs. Intermediate vs. Short) and for all dichotomous contrasts of the Long-term and Short-term employees.

Means and Standard Deviations by Group*	Tenure Scale n	Mean	SD
Long-term			
Still employed 3-7 months after hire	654	23.9	4.0
Intermediate			
Voluntary termination after 3 months--would rehire	90	22.8	5.1
Voluntary termination after 3 months--would not rehire	38	22.7	3.8
	128	22.8	4.7
Short-term			
Termination within 3 months--would rehire	605	21.9	3.8
Termination within 3 months--would not rehire	583	21.7	4.2
	1,188	21.8	4.0
TOTAL SAMPLE	4,609	22.4	4.2

Validities for Predicting Tenure Criteria**	
Long-term vs. All Intermediate-term vs. Short-term	r=.23
Long-term vs. Intermediate Would Rehire vs. Intermediate Would Not Rehire	r=.23
Long-term vs. Short-term Would Rehire vs. Short-term Would Not Rehire	r=.26
Long-term vs. (intermediate Would Rehire & Short Would Rehire)	r=.24
(Long-term, Immediate Would Rehire & Immediate Would Not Rehire) vs. (Short-term Would Rehire & Short-term Would Not Rehire)	r=.22
Long-term vs. (intermediate Would Rehire & Intermediate Would Not Rehire)	r=.10
(Intermediate Would Rehire & Intermediate Would Not Rehire) vs. (Short-term Would Rehire & Short-term Would Not Rehire)	r=.07

* Differences between the five groups are significant at p<.001.

** All correlations are significant at p<.01; those above .20 are significant at p<.001.

Table 3 - EI Tenure Scale: Standard Deviations, and Validities

While the EIs were being administered to job applicants in the national retail chain, a sample of 109 University of Minnesota undergraduates also took the test to check Inventory items for:

- test-retest reliability over a period of four weeks;
- susceptibility to faking; and
- correlations with three independent indicators of performance trustworthiness: The Personnel Reaction Blank (a test of "conscientiousness-dependability"), a 20-item questionnaire called the Legal Activities Background form (patterned after the confession sections of honesty tests), and an unobtrusive behavioral measure of trustworthiness (whether students who agreed to retake the EI--receiving in advance $3 for doing so--actually did).

Of the students who agreed to retake the EI, 80% showed up as they had said they would. The mean Performance score of those who complied was four points higher than for those who defaulted. Test-retest reliability for the students was calculated to be approximately .80 for the Performance scale and .70 for the Tenure scale.

DESCRIPTION AND USE OF THE EI

In its final form, the EI contains 97 items in three sections: 69 true-false opinion and attitude statements, 14 self-descriptive adjective triads, and 14 multiple-choice background questions.

The true-false items and adjective triads are intended to solicit opinions, attitudes, and self-perceptions relevant to responsibility, reliability, stability, impulse control, and test-taking frankness. The multiple-choice EI questions ask for various experience and background information, as well as for situational judgments thought to predict overall performance in hourly jobs. Most of the EI is written at the sixth grade reading level, however a few of the adjectives are a bit more difficult.

USE OF THE EI IN EMPLOYEE SELECTION

The EI works best in selecting employees for those jobs in which the dimensions of dependability, reliability, responsibility, conscientiousness, and trustworthiness are important, and in which other skills and abilities play a smaller role. Since the EI has been validated and proved effective over a broad range of jobs in a wide range of work settings, it should be useful even in those jobs not specifically in the research base.

For jobs in which other requirements--such as technical ability or knowledge--are also important to success, EI scores should be used in conjunction with other information gathered during the selection process. EI scores, then, should be considered according to the importance of productivity/counterproductivity to overall success on the job.

In addition to designating the jobs for which the Inventory will be used, organizations must make several decisions about how the EI will fit into their selection process to ensure appropriate and consistent application.

First, organizations must establish when in the selection sequence the applicant will complete the EI. Typically, this occurs at one of three times: when the candidate completes the application form, before the interview, or after the interview. Some of the considerations in this decision are discussed later in this section.

Next, organizations need to decide how to use the scores (norms are provided in this manual). They typically apply one of two strategies:

- With a top-down strategy, applicants with the highest scores are interviewed first. Often this strategy is used by companies that have a number of applicants for one position.
- With a cutoff score strategy, applicants who score below a recommended minimum will not be considered for hire. In this strategy, managers may end up hiring candidates who score below the cutoffs if they feel strongly--based on interviews,

application, and references--that the person is qualified for the position. Managers should discuss possible exceptions to established procedures with a member of the company human resources function.

Finally, organizations need to decide who is authorized to score the EI, from whom to obtain additional tests, and where completed EIs should be stored. As a pre-employment test, the EI should be stored separately from personnel files, in locked "hired" and "not hired" files. In organizations with a number of locations, EIs can be stored in a central location.

One Part of the Selection Process

The best way to use the EI is as one part of the organization's overall hiring system; applicants should not be hired or rejected solely on their EI scores. Rather, the test is a source of additional information that should be ordered together with other factors that organizations need to evaluate when hiring. The interview, application form, reference checks, and perhaps supplementary tests should evaluate any other special skills, abilities, or personal characteristics that are not measured by the EI but are needed for the job.

Because administering the EI usually is less expensive than the time spent conducting a personnel interview, it is cost effective for many organizations to have applicants complete the application form and the EI together as the first step of the selection process.

Applicants who appear to be the most qualified can proceed with an interview, and the most promising of those candidates can then have their prior work records checked as a final hurdle before being hired. This multiple-stage process can be particularly economical in mass hirings and in situations where there are many applicants and only a few jobs.

Use of the EI is most appropriate in the selection of employees for positions in which dependability and productivity support most of what is required for their successful job performance. For example, while EI scores for managers will fall in the same range as other Inventory takers (some will score high, and some will score low), the EI alone will not predict which applicants will make the best managers. This is because successful managerial performance requires a complex set of skills and abilities, including technical, leadership, and administrative skills.

Even with its Infrequency scale, the EI should not be used as a measure of reading ability, and EI scores should be used only in pre-employment situations for hiring decisions. For current employees, the quality of job performance, rather than the EI score, should be used for all decisions concerning rehiring, promotion, or termination.

Although the EI is often lumped together with honesty (or integrity) tests in the marketplace, it is a very different kind of pre-employment test. The instrument is designed to "select in" applicants on the basis of their reliability and productivity, applicants who, as employees, will achieve positive outcomes for the employer. At the same time, applicants who are more likely to engage in counterproductive activities (theft, rule violations, poor work habits) are "selected out."

NORMATIVE DATA

SCORE INTERPRETATION

Interpretation of EI scores is actually quite straightforward: the higher a person's score, the greater the probability that the person will consistently exhibit a pattern of reliable, productive behavior. High scorers will be more apt to exhibit behaviors from the positive end of this spectrum, such as following rules, continuing to work while co-workers talk, cleaning up the work

area before leaving, etc. Conversely, low scorers can be expected to more often exhibit behaviors from the negative end of the continuum, such as disobeying orders, being tardy, making a mess and leaving it, etc.

As a screening tool, the EI makes estimates of the relative chances of success of an individual applicant compared to other applicants. The instrument is not designed to make *point predictions* about specific behaviors for any given individual.

EI results are based on an applicant's overall pattern of responses, not on individual questions. Resist the temptation to focus on any answers to specific questions. Also, the EI cannot predict with 100% accuracy; sometimes a test taker will get a low score, yet be a satisfactory employee. Consistent use of the Inventory, however, will reduce the frequency of hiring unsuccessful employees. Hiring decisions, in any case, are best made on the basis of all of the information available on job candidates.

An "invalid" Inventory is the result of language difficulties, random responding, or leaving more than 15% of items blank or with more than one answer. Approximately 1% to 2% of all applicants produce an invalid Inventory.

Score Interpretation Guidelines for the EI Performance and Tenure scales (found at the end of this manual) indicate the score ranges obtained by job applicants in the United States, although average scores for any particular labor market may vary slightly from these national norms. The color coding on the Score Interpretation Guidelines is like a stop light: EI scores falling in the green zone indicate "go" or hire; scores in the yellow zone mean “caution" or look carefully at all factors in making a hiring decision; and scores in the red zone suggest "stop" or do not hire.

CUTOFF SCORES

In order for an organization to use selection tests systematically, it needs defined procedures for making decisions based on test scores. In the case of the EI, such procedures typically involve defining a minimum acceptable score, or "cutoff score." For many hiring situations, concrete policies that define a cutoff score are helpful because they simplify the process and thus make it more acceptable to those involved. Established policies, however, need not eliminate management input. The balance of organizational guidelines with hiring managers' discretion should be discussed with a qualified consultant.

One logical outcome of using cutoff scores is that over time, different cutoff scores result in different passing rates. This effect has practical relevance when the organization evaluates how to incorporate the EI into a larger selection process. Passing rates are fairly predictable once enough normative data (usually about 100 applicant scores for a given job) have accumulated through actual use, given that other factors affecting the composition of the applicant population remain reasonably stable.

Starting with estimates of the number of people who will be tested and the number needed for the next step in the hiring sequence, a desired passing rate can be determined. For example, if on average there are three viable applicants for each open position, and the organization wants to interview only two applicants per opening, the EI cutoff score could be selected such that two-thirds of those tested will pass. The EI score that corresponds with the 33rd percentile can be identified in the norm table (Table 4). Using this score as a cutoff then would allow about two-thirds of the applicants to pass on to the next step. To be conservative in the early stage of implementation, the cutoff score should be set a couple of points lower than that identified by this method. As test scores accumulate, the cutoff score can be adjusted to yield the desired passing rate more precisely.

Score	Percentile	Score	Percentile
69	99	51	38
68	98	50	33
67	97	49	29
66	96	48	25
65	95	47	21
64	92	46	18
63	89	45	15
62	86	44	13
61	83	43	10
60	79	42	8
59	75	41	7
58	71	40	5
57	66	39	4
56	62	38	3
55	57	37	2
54	52	36	2
53	47	35	1
52	42	34	1

Valid cases = 71,512

Mean = 53

Standard deviation = 8

Table 4 - Performance Scale Percentiles

USE OF THE NORM TABLE

By comparing an individual's raw score to the data in a norm table, it is possible to determine the percentile rank corresponding to that score. The percentile rank indicates an individual's relative position in the norm group. To obtain the percentile rank equivalent of a given raw score, first locate the raw score in the left-hand column.

The EI norms are based on a large sample of 71,512 applicants for positions which job analysis showed to fit appropriately with EI use. The industries represented include many specialties of retail, discount retail, grocery and food, quick service restaurant, gas station, drug store, materials handling, and light industrial assembly.

The average EI Performance score is 53 with a standard deviation of 8; the average EI Tenure score is 27 with a standard deviation of 4 (Table 5). Because EI scores do not fluctuate much across jobs or industries, the Inventory does not have industry-specific norms. This relative stability of scores reflects the universality and stability of those personality traits that underlie productive and counterproductive behaviors. Although slight variations may occur because of labor market

conditions in specific areas, and may require an adjustment of cutoff scores, most jobs require a certain, minimum level of dependability.

Score	Percentile	Score	Percentile
35	99	25	31
34	98	24	23
33	97	23	17
32	90	22	12
31	84	21	9
30	77	20	6
29	68	19	4
28	58	18	3
27	48	17	2
26	39	16	1

Valid cases = 71,512

Mean = 27

Standard deviation = 4

Table 5 - Tenure Scale Percentiles

RELIABILITY

Given the multidimensional nature of the EI, several of the most commonly used procedures for estimating test reliability, particularly the Cronbach alpha for internal consistency, are not fully appropriate. The alpha for the EI would be expected to be somewhat low since the EI samples several sources of variance.

Because the items for the four scales were written to measure numerous specific constructs, scale alpha coefficients of internal consistency reliability are only in the .60s and .70s, as expected.

The most demanding and operationally meaningful measure of the EI's reliability is test-retest reliability. This process requires the repeated administrations of the EI to given groups of subjects under controlled conditions. The four-week interval test-retest Pearson correlations from the University student sample during the EI's development were approximately .60. These correlations underestimate the instrument's true reliability because score ranges among job applicants are considerably larger than those among college students. With a range restriction correction, true EI reliability is expected to be approximately .80 for the Performance scale and .70 for the Tenure scale.

Scale Label/Contents	Number of Items	Test-retest		Internal Reliability
		Obtained	Estimated	
Performance Scale Scored from 11 multiple choice items, 10 adjective triads, and 31 true-false items, plus the 12-item Frankness scale	64	.62	.78-.89	.74
Tenure Scale Scored from 6 multiple choice items, 8 adjective triads, and 30 true-false items.	44	.59	.68-.77	.64
Frankness Scale Scored from 12 true-false items	12	.67	.84-.90	.65
Infrequency Scale Scored from 6 true-false items	5	.12	N/A*	.12

* Infrequency scale scores are not expected to be stable over time because the base rate of keyed responses is very low, and because high scale scores can indicate random responding.

Table 6 - EI Scale Descriptions and Reliability

VALIDITY

In its most basic and ideal sense, validity can be thought of as a condition whereby a test measures what it is intended to measure, and not something else. In practice, however, a more useful term is validation. A test is only "valid" for a specified purpose, and that purpose is detected through a process that produces evidence of validity. There are several different types of validity evidence, including content, construct, and criterion-related validity.

CONTENT VALIDITY

The content validity of an instrument such as the EI is commonly viewed as the extent to which the test includes a representative sample of the tasks, behaviors, and knowledge needed to perform the job. Usually evidence of content validity is gathered through job analysis and expert judgment, and is most appropriate for evaluating knowledge and skills tests.

For the EI, attention to content validity was evident in the process PDI used in developing the initial 25 dimensions that guided the writing of the test items. These dimensions portrayed constructs relevant to reliable vs. unreliable behaviors to help item writers link item content to dimensions of personality.

On the criterion side of the validity research, extensive steps were taken to ensure that the measurement of job performance was job- and organization- specific. In many EI studies, behavior rating forms were developed with input from job experts, supervisors, and managers. Human resource data were examined for their relevance to the EI constructs--for example, reason for termination, length of time on the job, mistakes and waste, commendations and warnings, and others.

Since the initial development and cross-validation of the EI, many more additional validation studies have been done. Validation is, in fact, an ongoing process, with new studies being conducted all the time. To evaluate the success of this selection instrument in terms of its validity and usefulness across a wide range of organizations and jobs, the EI has been applied in a variety of contexts where reliable job performance and stable tenure had high importance relative to other job dimensions. All of these studies evaluated the effectiveness of the EI in actual client applications. The results are summarized in Table 7.

These studies were carried out through procedures similar to those described in the development of the EI. Specifically, job analyses were performed for each of the jobs in each organization, and criterion measurement tools for many of the studies were customized on the basis of job analysis information to reflect the important job behaviors.

SUBSEQUENT CRITERION-RELATED VALIDATION STUDIES

The correlations shown in Table 7 are very similar to those observed during the development and cross-validation of the EI, indicating that the characteristics measured by the EI are important to success in a variety of jobs that have a significant component of dependability and/or tenure. In every job context where job analyses have identified these dimensions as relatively important factors in successful job performance, the EI has shown a strong and consistent relationship with job performance.

Many of the validity studies completed have been of a predictive design. The most widely used criterion measures have been rating forms completed by the employees' supervisors, and job outcome information such as reason for termination. Other criterion measures are available occasionally in the form of job evaluation forms already used by a company, or some other measure of productivity such as units per hour for a materials handling job.

The research rating forms in a validity study describe at least 30 dependable job behaviors, including these examples of typical items:

How often does this employee:

- take the initiative to find another task when finished with regular work?
- leave a display half finished in a rush to leave for home?
- spend unpaid time learning about store procedures and merchandise?
- skip work without calling in?
- check for concealed merchandise in a cart to prevent shoplifting?
- leave a lane cluttered and impassable while stocking shelves?
- help out during a slow period in another area which is very busy?
- pick up litter or debris which could cause a slip or fall?
- knowingly repeat a mistake and not correct it?

- work flexible hours by accepting schedule changes when necessary?
- make a mistake and blame another employee for it?
- take an unauthorized or extended break?
- clean up the work area before leaving, so the next shift doesn't have to do it?
- come to work properly dressed and groomed?

Organization	Subjects	Criteria	r
Discount Retail Correlations			
Discount Stores	4,292 employees	Termination Code	.26 to .34
Discount Stores	32,000 employees	Termination Code	.21 to .29
Discount Stores	114 security officers	Termination Code	.29
		Dependable Job Behavior	.23
Discount Stores	59 stores	Corporate Risk Rating	.35
		Inventory Shrinkage	-.57
		Termination Rate	-.51
Discount Stores	36,235 employees	Termination Code	.25
Discount Stores	25,109 employees	Termination Code	.25
Discount Stores	16,038 employees	Termination Code	.30
Off-Price Merchandiser	701 employees	Termination Code	.28
	46 loss prevention employees	Performance Appraisals	.28
	160 distribution center employees	Termination Code	.33
Off-Price Merchandiser	4,382 employees	Termination Code	.29
Off-Price Merchandiser	160 employees	Termination Code	.33
Discount Dept. Stores	1,108 employees	Termination Code	.14
Discount Dept. Stores	477 employees	Rehireability	.17
		Dependable Job Behavior	.32
Discount Dept. Stores	2,652 employees	Rehireability	.30
		Termination Code	.16
Discount Stores	408 employees	Rehireability	.18
		Dependable Job Behavior	.23
		Termination Code	.27
Discount Stores	652 employees	Rehireability	.21
Discount Dept. Stores	212 employees	Dependable Job Behavior	.27
Discount Dept. Stores	179 employees	Termination Code	026
Discount Hyper Stores	169 employees	Dependable Job Behavior	.37
Discount Fashion Stores	267 employees	Termination Code	.49
Discount Stores	131 employees	Dependable Job Behavior	.31
Discount Electronics Stores	1,359 employees	Dependable Job Behavior	.31
Discount Electronic Stores	434 employees	Dependable Job Behavior	.30
Discount Electronic Stores	101 employees	Termination Code	.20
		Dependable Job Behavior	.11
Discount Toy Stores	38 employees	Dependable Job Behavior	.53
Wholesale Clubs	100 employees	Dependable Job Behavior	.19
		"Rule Following" Rating	.32
Liquidator Outlet	49 employees	Rehireability	.30

Organization	Subjects	Criteria	r
Retail Correlations			
Department Stores	100 employees	Dependable Job Behavior	.38
High Fashion	416 employees	Termination Code	.31
Department Stores		Dependable Job Behavior	.23
Department Stores	179 employees	Dependable Job Behavior	.31
		Termination Code	.29
		Attendance	.13
Department Stores	700 employees	Dependable Job Behavior	.14
		Termination Code	.39
Casual Clothing Stores	326 employees	Dependable Job Behavior	.24
Casual Clothing Stores	37 employees	Dependable Job Behavior	.41
		"Dependability" Rating	.47
Casual Clothing Stores	123 distribution center employees	Dependable Job Behavior	.27
Furniture Stores	30 employees	Dependable Job Behavior	.42
Hard Goods Stores	370 employees	Overall Performance	.24
General Merchandiser	6,884 employees	Termination Code	.2
		Performance Appraisals	.15
Convenience Stores	480 distribution center employees	Dependable Job Behavior	.24
Convenience Store Distribution Center	456 employees	Dependable Job Behavior	.13
	461 employees	Disciplinary Incidents	-.20
Hyper Stores	1,167 employees	Termination Code	.15
		Rehireability	.18
Office Supply Stores	159 employees	Dependable Job Behavior	.20
		"Rule Following" Rating	.19
		"Trustworthy" Rating	.19
Toy Stores	2,514 employees	Dependable Job Behavior	.16
		"Rule Following" Rating	.21
Shoe Stores	45 employees	Dependable Job Behavior	.44
		Rehireability	.50
Shoe Stores	216 employees	Months on Job	.36
		Rehireability	.32
Shoe Stores	101 employees	Days on Job	.23
		Termination Code	.19
		Rehireability	.34
		Dependable Job Behavior	.38
Jewelry Stores	197 employees	Dependable Job Behavior	.20
Home Improvement Centers	116 employees	Dependable Job Behavior	.24
Home Improvement Centers	129 employees	Dependable Job Behavior	.24
Video Rental Stores	98 employees	Dependable Job Behavior	.19
Mail Order Retail	62 customer service operators	Dependable Job Behavior	.30
Gas Station/Stores	109 cashier/attendants	Dependable Job Behavior	.24
	190 cashier/attendants	Termination Code	.20
	48 station managers	Dependable Job Behavior	.41
Gas Station/Stores	275 cashiers	Dependable Job Behavior	.15

Organization	Subjects	Criteria	r
	45 managers	Termination Code	.42
Gas Station/Stores	150 employees	Termination Code	.20
	44 employees	Dependability	.25
		Rehireability	.23
Truck Stops	70 employees	Dependable Job Behavior	.16
Food Service Correlations			
Pizza Restaurants	45 employees	Dependable Job Behavior	.42
Quick Service Restaurants	94 employees	Termination Code	.33
		Rehireability	.49
Quick Service Restaurants	27 employees	Dependable Job Behavior	.29
Quick Service Restaurants	439 employees	Dependable Job Behavior	.22
	79 restaurants	Management Labor Cost	-.26
		Product Cost	-.28
Mexican Restaurants	41 employees	Dependable Job Behavior	.35
Seafood Restaurants	73 employees	Dependable Job Behavior	.33
	44 employees	Attendance	.29
Airline Kitchens	69 employees	Absenteeism	-.40
Food Store Correlations			
Food Wholesaler	465 employees	Termination Code	.23
Food Wholesaler	625 employees	Dependable Job Behavior	.25
	274 employees	Termination Code	.23
Food Wholesaler	235 employees	Termination Code	.24
Supermarkets	625 employees	Dependable Job Behavior	.25
		Termination Code	.23
Supermarkets	366 employees	Dependable Job Behavior	.20
Supermarkets	498 employees	Dependable Job Behavior	.24
Supermarkets	351 employees	Dependable Job Behavior	.29
Supermarkets	53 employees	Dependable Job Behavior	.35
		Performance Appraisals	.35
		Attendance	.47
Supermarkets	53 employees	Performance Appraisals	.33
		Times Tardy	-.47
	267 employees	Cases per hour	.50
		Days Absent	-.39
		Performance Appraisals	.32
		Workers Compensation	-.19
Supermarkets	254 employees	Dependable Job Behavior	.35
Supermarkets	132 employees	Dependable Job Behavior	.21
Supermarkets	120 employees	Dependable Job Behavior	.25
Supermarkets	101 employees	Dependable Job Behavior	.18
		Dress Code and Hygiene	.24
		Attendance and Punctuality	.20
		"Loyalty" Rating	.19
Convenience Food Stores	630 employees	Dependable Job Behavior	.25

Organization	Subjects	Criteria	r
		Termination Code	.18
Manufacturing Correlations			
Beverage Bottler	209 employees	Termination Code	.32
Beverage Bottler	466 employees	Termination Code	.32
		Attendance	.24
Key Manufacturer	46 employees	Dependable Job Behavior	.34
Manufacturing Plant	126 employees	Dependable Job Behavior	.32
		Performance Appraisals	.15
		Termination Code	.21
		Absences	-.19
Poultry Processing Plant	213 employees	Termination Code	.18
Transportation Correlations			
Trucking Line	121 drivers	Performance Appraisals	.22
Trucking Firm	48 drivers	Dependable Job Behavior	.38
Truck Rental	126 employees	"Trustworthy" Rating	.21
		"Rule Following" Rating	.16
Transit Commission	175 drivers	Attendance	.23
		Driving Performance	.23
Courier Service	77 drivers	Dependable Job Behavior	.32
Airline	57 baggage handlers	Performance Appraisals	.33
	297 ramp employees	Performance Appraisals	.46
Airline	87 fleet service clerks	Dependable Job Behavior	.28
		Training Evaluation	.40
	90 mechanics	Dependable Job Behavior	.21
	29 stock clerks	Dependable Job Behavior	.29
Airline	68 ground services employees	Dependable Job Behavior	.24
Health Care Correlations			
Hospital	96 employees	Rehireability	.25
Nursing Home	51 employees	Dependable Job Behavior	.35
Nursing Home	126 employees	Dependable Job Behavior	.28
Health Care Center	26 employees	Attendance	.17
Service Correlations			
Gas Utility	77 meter readers	Dependable Job Behavior	.25
Theaters	46 employees	Dependable Job Behavior	.30
Car Rental Agency	199 employees	Dependable Job Behavior	.29
		Rehireability	.30
Bank System	134 tellers	Cash Variance	-.27
Amusement Park	63 employees	Dependable Job Behavior	.40
Drug Store Correlations			
Drug Stores	55 employees	Termination Code	.28
	151 employees	Dependable Job Behavior	.21

Organization	Subjects	Criteria	r
Drug Stores	191 employees	Dependable Job Behavior	.20
	99 employees	Termination Code	.35
Drug Stores	170 employees	Dependable Job Behavior	.20
Drug Stores	233 employees	Dependable Job Behavior	.22
	117 employees	Termination Code	.27
Drug Stores	297 employees	Dependable Job Behavior	.17
		Months on the Job	.11
Drug Stores	573 employees	Termination Code	.14
Beauty Aids Stores	73 employees	Dependable Job Behavior	.31

Table 7 - Summary of Correlations

META ANALYSIS

Independent university researchers have conducted meta-analytic studies of the EI to estimate the true, generalizable validity.[1] They reviewed 92 EI studies of 28,674 employees and reported a .33 correlation with measures of job performance when the EI is used for hiring. From their review of 57 other EI studies of 114,534 employees, they calculated a .29 correlation with counterproductive job behavior. Because the standard deviations of these correlations were zero, they concluded that these are the true EI validities in any setting, job or situation.

CONSTRUCT VALIDITY

The construct validity of a test reflects the extent to which the test measures a theoretical construct or trait. Evidence for construct validity can be shown through convergent and divergent validity. Convergent validity is shown when a test correlates with other tests or variables that purport to measure the same trait or construct. Divergent validity results when a test does not correlate highly with tests or variables that measure different traits or constructs. Assessing construct validity lies in examining criterion-related and content validity evidence, as well as information about test development.

Convergent and Divergent Validity

Evidence of convergence and divergence comes primarily from a number of studies in which the EI has been administered in conjunction with other established personality and ability tests (Tables 8 and 9). The many samples show a sensible pattern of EI correlations, both high and low. Although some of the studies employed more than one test, the results are presented by instrument rather than by study. Where data from more than one sample were available, a sample weighted average correlation was used as the best estimate of the correlation with that test. Significance levels for the sample weighted average correlations were obtained by calculating sample weighted upper and lower confidence intervals.

Personality Measures	Scales	R	N

[1] These meta-analyses were conducted by Deniz S. Ones, Chockalingam Viswesvaran, Frank L. Schmidt, and Sara D. Schultz at the Department of Management and Organizations, University of Iowa. No monetary remuneration were provided to the researchers for these analyses.

Personality Measures	Scales	R	N
California Psychological Inventory	Do	-.0822	142
	Cs	-.0100	142
	Sy	-.1469*	142
	Sp	-.0942	142
	Sa	-.3326***	142
	In	-.0487	142
	Em	.1016	142
	Re	.2500***	370
	So	.4072***	370
	SC	.3914***	370
	Gi	.2842***	142
	Cm	.0717	142
	Wb	.1359	142
	To	.3218***	370
	AC	.1985**	142
	Ai	.0372	142
	Ie	.0777	142
	Py	.0376	142
	Fx	-.0646	142
	Fe	.2862***	142
	MP	.1067	142
	Wo	.2229**	142
	Lp	-.2398**	142
	Sm	.0441	142
	Cp	-.1124	142
	V1	.2338**	142
	V2	.1962*	142
	V3	.1741*	142
Guilford-Zimmerman Temperament Survey	General Activity	-.1164**	2245
	Restraint	.1244***	2245
	Ascendance	.1810***	2245
	Sociability	1244**	2245
	Emotional Stability	-.0034	2245

Personality Measures	Scales	R	N
	Objectivity	.1005***	2245
	Friendliness	.2005***	2245
	Thoughtfulness	.0271	2245
	Personal Relations	.1844***	2245
	Masculinity	-.1590	736
NEO-PI	NEO-C Conscientiousness	.07	289
	NEO-A Agreeableness	.31	289
	NEO-N Neuroticism	.07	289
	NEO-E Extroversion	-.20***	289
	NEO-0 Openness	-.11*	289
Personnel Reaction Blank	Personnel Reaction Blank	.47***	289
Hogan Personality Inventory	Employee Reliability Index	.42***	289
16PF	C: Ego Strength	.03	289
	G: Super-Ego Strength	.07	289
	Q3: Self-Sentiment Strength	.10	289
Work Styles Questionnaire	WR1 Persuasive	-.1034*	716
	WR2 Controlling	-.0697	716
	WR3 Gregarious	-.1755*	716
	WR4 Social Confident	-.0695*	716
	WR5 Caring	.1682***	716
	WT1 Imaginative	-.0846	716
	WT2 Traditional	-.0523	716
	WT3 Forward Planning	.1352**	716
	WT4 Methodical	.1052*	716
	WF1 Relaxed	.0085	716
	WF2 Tough Minded	-.0626	716
	WF3 Emotional Control	.1799***	716
	WF4 Optimistic	.0250	716
	WF5 Active	-.0771	716

Personality Measures	Scales	R	N
	WF6 Competitive	-.2545**	716
	WF7 Achieving	-.0117	716
	WF8 Decisive	-.1620	716
	WD1 Social Desirable Response	.0702	716
MMPI	L	-.11	114
	F	-.36***	114
	K	.23**	114
	Hypochondriasis (Hs)	.07	114
	Depression (D)	-.02	114
	Hysteria (Hy)	.05	114
	Psychopathic Deviate (Pd)	-.29***	114
	Masculine/Feminine (Mf)	-.43***	114
	Paranoia (Pa)	-.03	114
	Psychasthenia (Pt)	-.04	114
	Schizophrenia (Sc)	-.32***	114
	Hypomania (Ma)	-.32***	114
	Social Inversion (Si)	.08	114
	MacAndrew Alcoholism	-.26**	114
	Social Responsibility	.25**	114
	Prejudice	-.34***	114
	Control	-.27**	114
	Anxiety	-.19*	114
	Repression	.22*	114
	Ego Strength	.15	114
	Low Back Pain	.01	114
	Caudality	-.06	114
Gough Adjective Check List	Self Control	.2427*	59
	Personal Adjustment	.3247**	59
	Order	.2661*	59
	Exhibition	-.2285*	59
Occupational Personality Questionnaire	R1 Persuasive	-.0808	179

Personality Measures	Scales	R	N
	R2 Controlling	-.1374*	179
	R3 Independent	-.2968***	179
	R4 Outgoing	-.2502***	179
	R5 Affiliative	.0490	179
	R6 Socially Confident	-.0788	179
	R7 Modest	.2749***	179
	R8 Democratic	.1405*	179
	R9 Caring	.1468*	179
	T1 Practical	.0077	179
	T2 Data Rational	.1036	179
	T3 Artistic	-.0345	179
	T4 Behavioral	.1321*	179
	T5 Traditional	.0592	179
	T6 Change Oriented	-.2434***	179
	T7 Conceptual	.0522	179
	T8 Innovative	-.0751	179
	T9 Forward Planning	.1175	179
	T10 Detail Conscious	.1053	179
	T11 Conscientious	.0823	179
	F1 Relaxed	.0275	179
	F2 Worrying	.0736	179
	F3 Tough Minded	-.1374*	179
	F4 Emotional Control	.0874	179
	F5 Optimistic	.0946	179
	F6 Critical	-.1357*	179
	F7 Active	-.1278	179
	F8 Competitive	-.1372*	179
	F9 Achieving	.0510	179
	F10 Decisive	-.2896***	179
	D1 Social Desirability Response	.1341 *	179

*p<.05
**p<.01
***p<.001

Table 8 - EI Performance Scale Correlations with Personality Tests

Because the EI is a multidimensional, but single-purpose, measure of personality, no correlation would be expected with skills tests or other measures of cognitive or intellectual abilities. The EI, however, does correlate with the Basic Skills Tests Vocabulary and Reading Comprehension scales, possibly because they each have a language-based format. The EI's lower correlation with other cognitive and skill tests suggests that it is not measuring aspects of intelligence.

Ability Measures	Scales	r	N
Basic Skills Tests	BST1 Language Skills	.1580*	172
	BST2 Reading Comprehension	.6017***	600
	BST3 Vocabulary	.4245***	172
	BST4 Computation	.1394	600
	BST5 Problem Solving	.1090*	600
	BST6 Decision Making	.0883	172
	BST8 Follow Written Direction	.1466*	172
	BST9 Forms Checking	-.0557	172
	BST10 Reasoning	.1410*	600
	BST11 Classifying	.1967**	172
	BST12 Coding	.0426	172
	BST13 Filing Names	.0610	172
	BST14 Filing Numbers	-.0600	172
	BST15 Visual Speed/Accuracy	-.0506	172
	BST16 Memory	.0596	292
Watson-Glaser Critical Thinking Appraisal	Watson-Glaser	.3114***	1659
Bennett Mechanical comprehension Test	Bennett Mechanical	-.0182	910
Differential Aptitude Test	Abstract Reasoning	.0759	
Flannagan Industrial Tests	Assembly	-.0201	241
	Inspection	-.0036	3402
	Precision	-.0108	123
Employee Aptitude Survey	Expressional Fluency	-.1897	59
	Numerical Ability	.1152***	1839
	Visual Speed and Accuracy	-.0195	1839
Work Skills Series Production	Understanding Instructions	.1056	229
	Working with Numbers	.0138	48
Educational Level	College GPA	.25*	96
	Hours Spent Studying	.15	94
	Years of Education	.26**	236

Ability Measures	Scales	r	N

*p<.05
**p<.01
***p<.001

Table 9 - EI Performance Scale Correlations with Ability Tests

Comparisons of Extreme Groups

The EI was given to members of extreme groups in two different studies of criminals. Scores of white collar criminals were compared with scores of white collar nonoffenders, and juvenile delinquents' scores were compared to those of hourly job applicants.

Together with four other tests, the EI was administered to 350 white collar offenders serving time in 19 federal prisons and to 330 successful employees with jobs similar to those formerly held by the felons (Collins and Schmidt, 1992). The crimes of the offenders included bank fraud, embezzlement, tax fraud, and racketeering committed while they were working in various organizations. Those in the employed group worked as loan officers, and as government and university supervisors and managers. The average age of members of each group was 49 years, and 29% of each had a graduate degree. EI test scores showed a strongly significant difference: The average score of the nonoffenders was well-above-average at 59.67 with a standard deviation of 7.28, while the average score of the criminals was below- average at 46.83 with a standard deviation of 9.17.

The EI also was given to 37 teenage boys residing in a secure facility for violent juvenile offenders. The group mean score on the Performance scale was 41.9 which is 1.4 standard deviations below the job applicant mean of 54.5.

The substantially lower scores among both the adult and juvenile offenders provide some illumination of the low end of the EI construct space.

FACTOR ANALYSIS

The EI was not intended to measure a factorially pure construct. In fact, 25 different preliminary a priori constructs were used to drive the writing of its items. Nevertheless, defining factors among the items can help to better understand the constructs that the EI measures.

The store situation analysis and general background review had led to the initial 25 predictor constructs. This set of ideas was reorganized and reduced to 13 during the process of composing new test items and reviewing existing related tests. Principal component factor analysis with varimax rotation of the final EI items produced five factors with Eigenvalues greater than 1.0, with 8 to 13 items loading on each factor. These five factors accounted for only 15.7% of the total variance of the 69 items, but almost all (99.8%) of the common variance. The items clustered into small groups that were quite easy to label:

Irresponsibility

This factor accounted for almost one-fourth of the common variance (although less than 4% of the total variance). Items originally were written to scales of alienation, irresponsibility, hostility, socialization, and compulsiveness studies. (claiming an

external focus of control). Item content suggests a theme of low commitment to work and people, denial of responsibility, cynicism, and suspiciousness.

Sensation Seeking

This factor accounted for slightly more than one-fifth of the common variance, with items having to do with excitement, taking risks, doing things for fun and thrills, and liking new experiences.

Unstable Upbringing

This factor included all of the items initially written for the theme of Family Warmth and some for Unmet Psychological Needs. It accounted for 20.6% of the common variance, with most items referring to home relationship problems, having trouble with authority, and being in a difficult living situation.

Frankness

The fourth factor accounted for 18.6% of the common variance and contains most of the items on the Frankness scale. Items refer to social desirability, claiming unlikely virtues, denying common faults or unpopular attitudes, and exaggerating one's own strengths.

Conforming Work Motivation

This factor accounted for 15.7% of the common variance. Most of the items were intended to measure achievement motivation, but a few had to do with impulse control and rule-following.

Of the 69 true-false items, 49 had loadings of .24 or larger on the five factors; most were in the .30s and .40s. At this level of loading, only three items contributed to more than one factor. That leaves, however, 29% (20) of the items without large loadings on any factor, reflecting 84.3% unique variance. Because the items were written from many perspectives and retained on the basis of item-level statistics, relatively little of the total variance is explained by a small set of factors, which is as would be expected.

PRACTICAL OUTCOMES DERIVING FROM VALIDITY

Subsequent factors extracted, all having Eigenvalues less than 1.0, could be identified as Well-Behaved, Unlikely Virtues, Alcohol Use, Rebelliousness, and Caution. Although the content of these factors is quite homogeneous, they each contain only a few items and explain little of the factor structure.

Since correlation coefficients are expressed in units that represent mathematical abstractions, the practical value they signal is not readily apparent. However, when correlations between a test and measures of job performance are significant and they replicate successfully across samples, it is appropriate to calculate the organization-wide effects of using the test to select employees. This section contains a representative sampling of the many cross-validation studies. These examples were chosen because they are typical of all of the outcome analyses done and because they illustrate the amount of performance improvement from EI testing.

Two parameters are of primary importance for evaluating the kinds of work force improvements that will result from the use of a selection instrument in an organization: 1) the ratio of viable job candidates to available positions, and 2) the percentage of people who are considered successful on the job.

Employees can be thought of as performing at below-average, average, and above-average levels; it is generally acceptable to hire those whose performance is average or better. The employee sample from a representative retail company shown in Table 10 was divided into two groups-those who scored in the bottom one-third of the distribution of supervisors' ratings (below average), and those who scored in the upper two-thirds (average or better).

		EI Cutoff Score			
Rating Form Group	N	52	54	56	58
Average or Better	338	75.1%	67.2%	59.5%	48.5%
Below Average	162	54.9%	48.1%	40.1%	32.1%
Company Norm (whole sample)	500	68.6%	61.0%	53.2%	43.1%
Applicants Needed per Job Opening		1.5	1.6	1.9	2.3

Table 10 - Percent of Employees Passing the EI at Several Cutoff Scores

Table 10 shows the percentage of employees in each of the job performance groups who would have passed the EI at each of four different Cutoff scores. Several observations can be made from this table. First, as the cutoff score is increased (looking from left to right), the number of employees who pass the EI becomes smaller. This is true for both the "average or better" and the "below average" groups. With more selective hiring standards, fewer applicants win pass the EI. Secondly, however, the employees in the "average or better" group pass at a higher rate at all of the cutoff scores. This result shows that the EI will be an effective selection tool under a variety of labor market conditions, where the availability of viable job applicants varies. The bottom row of Table 10 is derived directly from the row above it, and shows how many applicants would be needed to fill each opening, on the basis of the passing rates observed in the sample of employees in this organization.

Another way of showing the impact of EI use is shown in Figure 2. Analysis was done on data from fleet service clerks at a major U.S. airline. Without using the EI, 50% of the employees in the sample were rated as satisfactory performers by their supervisors. Of those who passed the EI at a cutoff score of 53 on the Performance scale, however, 62% performed at the fully satisfactory level. By contrast, only 28% of those who failed the EI performed well on the job. Overall, a group of fleet service clerks hired with passing EI scores would contain about 12% (62% - 50%) more fully satisfactory employees than the company norm.

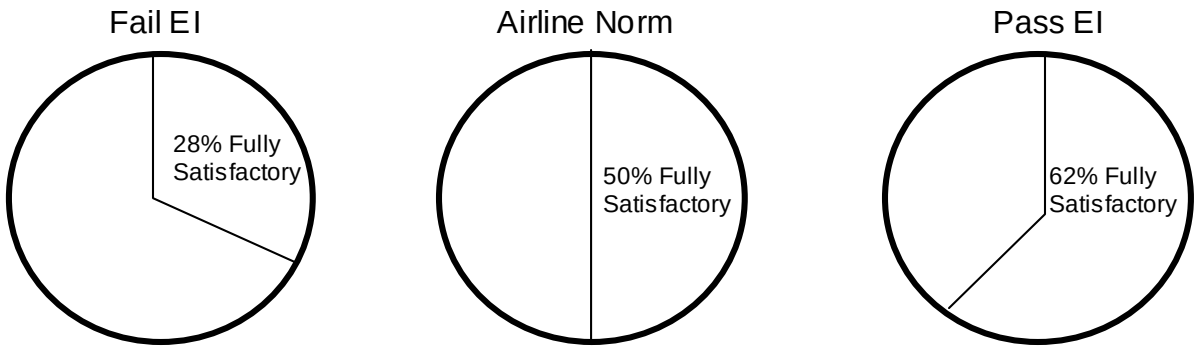


Figure 2 - Job Performance of EI Passers and Failers

Table 11 shows how often employees from a typical retail organization who passed an EI cutoff of 54 exhibited specific reliable and dependable behaviors, as rated by their supervisors, compared to those who failed the EI. These are the kinds of behaviors (selected from a pool of about 60, and measured in more than 77 validity studies) for which the most observable changes would be expected when the EI is used for selection.

Employee Behavior	Fail EI	Pass EI
Keep working, even when other employees stand around talking.	40%	66%
Check with supervisors, as policy requires, when in doubt about performing a task.	54%	80%
Clean assigned areas, creating a more attractive work space.	54%	82%
Forget to perform a routine task.	60%	36%
Deliberately slow work pace and productivity.	40%	20%
Let joking friends be a distraction and interruption to work.	18%	5%
Return from breaks and meals within the allotted time.	21%	39%
Take the initiative to find another task when finished with regular work.	37%	55%
Use weak excuses to stay home from work.	26%	10%
Follow rules much more consistently than other employees.	37%	66%
Exhibit superior performance overall.	10%	19%
Have perfect attendance.	20%	52%
Need major and minor disciplinary actions.	84%	40%
Be absent or tardy at least once during a three-month period.	80%	48%

Table 11 - Rating Form Behaviors of EI Passers versus Failers

ADVERSE IMPACT AND FAIRNESS

The Federal Uniform Guidelines on Employee Selection Procedures establish the proper use of tests for hiring. According to these Guidelines, employment tests must be free from adverse impact against all groups. Adverse impact is defined by the Guidelines' "four-fifths rule" which requires that the selection rate (the percent who pass the test) for protected groups is at least 80% of the selection rate of other groups.

Extensive research on the EI documents its lack of adverse impact. The selection rates for the applicant sample in Table 12 are in the same range for minority and non-minority groups. Table 13 shows the results of the adverse impact analysis for the Tenure scale with the same sample that was used for the Performance scale analysis. The samples for this analysis were drawn from a heterogeneous mix of industries and jobs. The element common to all of the jobs represented in the sample is that job analysis deemed the use of the EI appropriate. All of the cases included are from job applicants. There is no apparent restriction of range.

The EI does not show adverse impact against applicants on the basis of sex or ethnic background at scores corresponding to any selection ratio between .10 and 1.0. Also, the EI meets the requirements for, tests specified by the Civil Rights Act of 1991.

The EI scales produce no differential validity--the validity coefficients are virtually identical for males and females, and for minorities and non-minorities. Nor are there significant differences among regression residuals of predicted versus observed job performance scores. This method of measuring test fairness, tested with 9,570 applicants in 90 large department stores, shows no systematic over- or under- prediction of supervisor ratings or job outcomes for any group.

Applicant Group	Number	Percent of Total	Average EI Score	Selection Ratio[1]	Impact Ratio[2]
Non-Minority	43,718	62%	53.24	54.5	--
All Minorities Combined	23,074	33%	52-30	50.9	0.93
Black	15,385	22%	52.15	49.6	0.91
Hispanic	5,333	8%	52.54	52.7	0.97
Asian	1,373	2%	53.30	58.3	1.07
Native American	479	1%	51.58	47.6	0.87
Other	504	1%	52.73	53.4	0.98
Males	34,470	49%	51.44	45.9	--
Females	35,696	50%	54.50	61.3	1.34
Total	70,788	100%	53.01	53.7	

[1] Percent receiving Performance scale score of 53 or higher.
[2] Must exceed .80 to meet Federal Guidelines four-fifths rule.

Table 12 - EI Performance Scale Selection Impact Analysis of Large National Sample with Revised Scoring

Applicant Group	Number	Percent of Total	Average EI Score	Selection Ratio[1]	Impact Ratio[2]
Non-Minority	44,762	66%	26.54	53.5	--

All Minorities Combined	23,569	34%	26.20	49.9	0.93
Black	15,685	23%	26.27	50.6	0.95
Hispanic	5,456	8%	26.09	48.5	0.91
Asian	1,409	2%	26.19	52.1	0.97
Native American	495	1%	25.46	42.4	0.79
Other	524	1%	25.81	47.1	0.88
Males	34,470	49%	51.44	45.9	--
Females	36,433	51%	27.53	60.2	1.37
Total	71,836	100%	26.40	52.3	

[1] Percent receiving Performance scale score of 53 or higher.

[2] Must exceed .80 to meet Federal Guidelines four-fifths rule.

Table 13 - EI Tenure Scale Selection Impact Analysis of Large National Sample with Revised Scoring

As developed in 1985, the EI had a race norming correction to bring minority scores in line with non-minority scores. After the Civil Rights Act of 1991, PDI revised the EI to conform with the Act by removing the correction. Using several large EI data sets, individual items were examined for adverse impact and for the assurance that validity was not being lessened by the redevelopment.

A relatively small set of two types of items was found to be driving most of the impact. First, items containing words with more syllables were more likely to produce impact than those with fewer syllables, suggesting a reading-level issue. Second, the original keying of items with economic-based content was a disadvantage to minorities. For example, items referring to the following of traffic rules as an expression of general rule--following presuppose access to a car. In response, the scoring key was altered for a few items; the norms and validity remained unchanged.

PDI CUSTOMER SERVICE INVENTORY

INTRODUCTION

PURPOSE OF THE PDI CUSTOMER SERVICE INVENTORY

The PDI Customer Service Inventory (CSI) is a screening tool that identifies those job applicants most likely to exhibit helpful and positive service behaviors as they interact with customers. Numerous validation studies show that the CSI achieves this objective across a range of jobs and job settings.

Developed specifically to predict satisfactory service behavior, the CSI does so by measuring the employee characteristics which underlie effective interaction with customers and co-workers.

PDI has tested the predictive power of the CSI in over a dozen validation studies with thousands of job applicants in various industries: retail, transportation, quick service restaurants, health care, manufacturing, and more. Consistently, the studies have confirmed that applicants who get higher scores on the CSI are more likely to be pleasant, helpful, customer-oriented employees.

Two general conditions suggest that the CSI can be appropriate for hiring into a job:

- a substantial portion of the job involves direct, "real time" contact with customers, either in person or on the phone, and;
- success on the job requires the traits and capabilities that the CSI measures (e.g., friendliness, competence, courtesy, etc., as defined in this manual).

FEATURES OF THE CSI

The CSI was designed for simple administration and scoring. Unlike more general personality inventories that yield numerous scores from numerous scales, it produces only one score. Virtually anyone from a hiring office can be trained to administer and score the instrument appropriately. No specific psychological or test-related degree or other professional qualifications are required of a CSI administrator. The hiring organization, upon test implementation, makes policy decisions about how CSI administration and score interpretation will be handled in its selection process. The structured process and decision guidelines this manual recommends should help to simplify the actual administration and interpretation of the CSI.

This manual is the main source of information for CSI administrator training. It contains detailed instructions on what to say to applicants and how to answer typical questions, ensure the security of the test materials, and score the Inventory using a PC disk.

Available Versions

The CSI is available in a paper-and-pencil version which contains 64 items in the English (American) language. In addition, there is a bilingual version with Spanish and English texts for each item.

Also, the CSI is available in combination with the PDI Employment Inventory (EI). This version orders 145 CSI and EI items randomly. Here, employers get three scores for each applicant: Customer Service from the CSI and Performance and Tenure from the EI.

CUSTOMER SERVICE INVENTORY BACKGROUND

A review of the literature on customer service reveals that, while a lot of work has been done to identify service behaviors and improve them (e.g., through training or changing the structure of jobs), less has been done to facilitate the selection of employees who bring to the job the characteristics they need for better performance in a service role. Also, little attention has been given to understanding those characteristics themselves. Much of the psychological literature referring to customer service is related only loosely (e.g., prosocial, helping behavior, or altruism in a variety of contexts). Despite its long history, the development of selection tests and personality inventories reflects few attempts to build personality-based selection instruments specifically for the purpose of identifying individuals who exhibit personality characteristics associated with positive customer service behaviors.

FACETS OF CUSTOMER SERVICE

Customer service is portrayed in the literature as a broad topic area with many intersecting facets; a straightforward definition of it is difficult to give. However, seven themes, both explicit and implicit, run through nearly all of the work that has been done on customer service. Several different authors have articulated some of these themes:

1. *Customer service is an elusive concept.*

   Three aspects of service render it elusive:

   Intangibility. No one can count, measure, inventory, or store it in advance (Parasuraman, Zeithanil and Berry 1985; Schneider and Bowen, 1985).

   Heterogeneity. The performance of service varies from producer to producer, customer to customer, and day to day (Parasuraman, et al., 1985).

   Inseparability. Production and consumption of many services are bound together in the same process (Mills and Moberg, 1982; Heskett, Sasser and Hart, 1990).

2. *Service is evaluated both as a process and as an outcome.*

   Quality evaluations of service depend on two factors: what services are provided (outcome), and the manner in which these services are delivered (process) (Parasuraman et al., 1985; Schneider, Parkington, and Buxton, 1980). These factors also have been referred to as technical (what is done) and transactional (how it's done) (Mills and Moberg, 1982), and as mechanistic and humanistic qualities (Holbrook and Corfman, 1985).

3. *Evaluations are subjective, thus relative.*

   The evaluation of the service delivery process varies by judge and is highly relative (Holbrook and Corfman, 1985, in Parasuraman, et al., 1985). Customers have few objective reference points for evaluating service, and relevant cues are ambiguous and perceptions are subject to social influences (Mills and Moberg, 1982).

4. *Attitudes are formed with each interaction, and over time.*

   Customers' attitudes about service quality are enduring states built up over time. They are distinct from satisfaction, which can result from one specific outcome (Parasuraman Zeithanil, and Berry, 1988). Benefits of service quality are not based necessarily on one transaction, but may be reaped over time (George and Bettenhausen, 1990).

5. *Customers participate in the production process.*

   Service industries are distinguished from production ones by the customer participation in the production of service and in the customized nature of output (Schneider and Bowen, 1985). Customer participation allows service operations to be classified as open systems (Chase and Erikson, 1988) with permeable boundaries.

6. *Key components (most notably the customers) are not structured.*
   - The work system of service deliverers has a major component that is not structured-the daily customers (Schneider, Parkington and Buxton, 1980).
   - Mills and Moberg (1982) cite Slocum and Sims (1980) for pointing out the existence of work flow uncertainty (customers' arrivals and departures are unpredictable) and task uncertainty (how to solve a particular problem posed by a customer is equivocal), both of which threaten service efficiency.
   - Mills and Moberg (1982) also state that it is difficult to isolate service production from customer-induced uncertainties.
   - Berry (1986) says that: "The service quality issue is tricky. First is the reality of service decentralization...Second, most services are labor intensive and subject to considerable variability because of differing skills, knowledge levels, and attitudes among service personnel. The combination of multiple service outlets and the 'people factor' presents a formidable task to senior retailing executives."

7. *Consistency and flexibility have different outcomes, and this has implications for service delivery design.*

   Hensel (citing Shostack, 1987) notes that customers perceive service quality to be high when service is standardized and consistent. At the same time, when employees have more flexibility and freedom to make decisions, they can contribute more to responsive customer relations.

PERSONALITY MEASUREMENT

A notion frequently expressed in business literature and the popular press is that selecting the "right" people for customer service jobs is a critical aspect of any customer service improvement effort. The majority of these sources, however, deal with employee selection as a more intuitive, "common sense" process than an empirical one. Views about finding the "right people" for customer service range from expressing frustration about it to offering simplistic and even presumptuous prescriptions for the task.

Overall, this body of literature reflects a broad agreement that some people are more inclined to exhibit good service behaviors. It also suggests, however, that little science has been employed to connect beliefs about individual characteristics of people with specific selection procedures. Methods advocated typically include interviewing, realistic job previews, simulation exercises, and ability and personality tests. One source even lists handwriting analysis as a viable option. These sources are vague about methods of linking individual characteristics and behaviors to successful service outcomes. Albrecht (1988) has summarized the problem particularly well: "Employee selection has been a confusing problem for managers in service businesses because it is usually difficult to define the knowledge, attitudes, skills, and habits necessary to succeed in service work. Customer-contact jobs involve an element of emotional labor...Emotional labor is hard to define, and the competency for it is hard to measure. It is one thing to measure physical strength, manual dexterity, technical knowledge, or

typing speed. It is another matter to try to measure warmth, concern for customers, interpersonal skills, and emotional resilience. Yet that is what we must eventually learn to do if we are going to get service-oriented people into service jobs."

The work of Hogan, Hogan, and Busch (1984) represents progress toward the development of a personality measure for the prediction of customer service behavior in employment settings. The three created a Service Orientation Index, using the items of the Hogan Personality Inventory as an initial pool. This work is noteworthy because the criteria for selecting test items from the initial pool are based on job analysis and are related specifically to customer service job performance. Hogan et al. (1984) saw that the items with predictive power came from a number of their broader personality dimensions. They interpreted their results as an indication that the characteristics underlying customer service behavior are, a cluster, or syndrome, of more basic traits, each of which can be expressed in employment situations.

DEVELOPMENT OF THE CSI

Guion (1991) states that there is a need to focus the measurement of personality more narrowly on the behavioral domain for which the instrument will be used. In developing a tool to predict customer service behavior, then, PDI used measures of the specific job behaviors of interest as criteria for creating its test questions. Subsequently, PDI defined dimensions of personality which could guide its development of CSI items.

The assumptions behind PDI's development of the CSI were that: 1) a constellation of personality characteristics exists that can be considered to shape customer service orientation, 2) these characteristics can be measured, and 3) the characteristics will be demonstrated in some fashion in an employee's on-the-job behavior, without regard to the particular work setting (Figure 3).

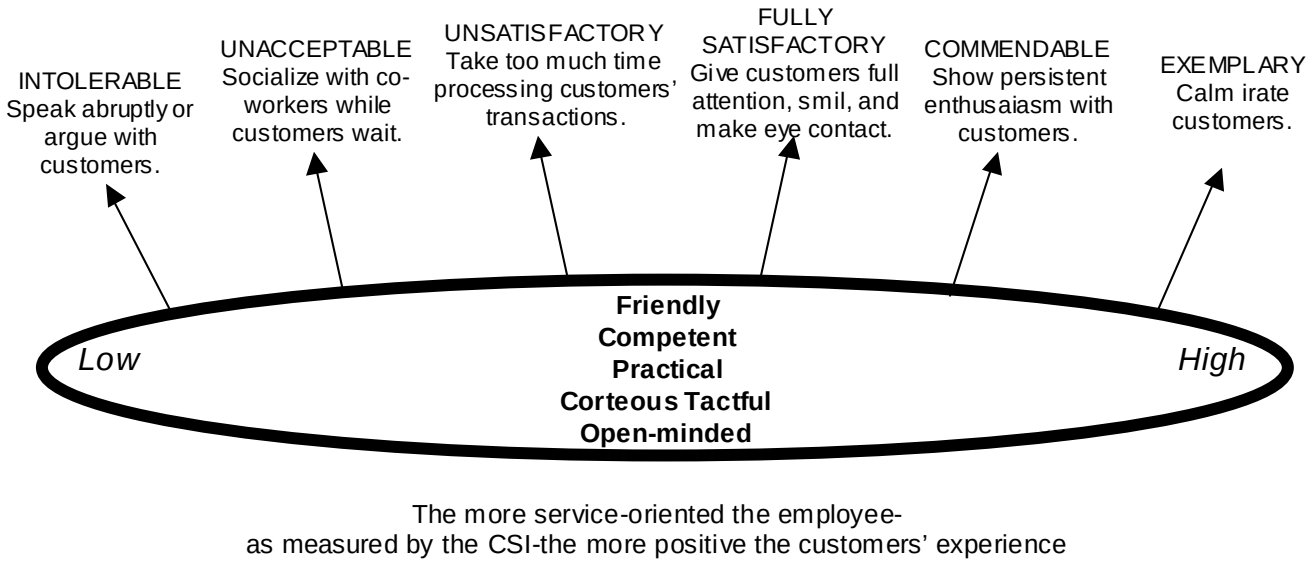


Figure 3 – Personailty Characteristics that Underlie Service Behavior

Personality Dimensions That Influence Service Behavior

After reviewing information on the few existing psychological tools that come close to measuring a customer service orientation, and the wide range of business and popular literature, 16 personality dimensions that influence customer service behavior were identified. This list guided the task of writing trial items for the CSI. The personality dimensions reflect a perspective of the entire service process that:

- viewed customer service as a set of tasks with people contact at their core
- considered what, beyond facing customers, is required of servers
- considered what is required of servers in various types of organizations and industries
- envisioned the sequence of events occurring as a customer approaches and interacts with a server
- developed two groups of dimensions--the interpersonal and the intrapersonal--that are relevant to the job or organization.

Task-Related Dimensions

The first six dimensions are the most easily observed and most directly related to the tasks involved in people contact.

Sociable:

The foremost of the people contact dimensions, sociability was defined as enjoying and being good at people contact, being extroverted, and showing warmth and friendliness to others. The sociable person likes people contact and therefore establishes rapport quickly with strangers, is open in interactions, and prefers to create harmony with others. Because sociable people like others, others tend to like them. They are gregarious, popular, and fun to be with.

Communicative:

Better customer servers use language that others can understand easily. They keep customers informed during interactions, and share information. In addition to communicating understandably, the more successful servers are able to understand the communications of others. They follow the verbalizations of others more readily, listen well, and don't interrupt people who are talking.

Courteous:

People who are polite, who show respect to customers, and who follow the common social rules of interaction are better servers. These people are kind to others and consider others before themselves.

Positive Body language:

Better customer servers use posture, body movement, gestures and other physical indications to show interest in, attention to, and understanding of others. The physical movements and indications of attention create an impression of responsive service. Smiling, making good eye contact, being expressive physically and vocally, and using open body positions create a positive impression with a customer.

Perceptive:

Successful servers are perceptive by picking up cues from customers and use that information to alter their own behavior. The perceptive server draws meaningful conclusions about others' feelings and needs from observing their behavior, so can

be more responsive and adaptive when needed. The perceptive server also is empathic-able to imagine how a customer would view the circumstances.

Responsive:

The responsive server is eager to help and persists in solving problems. This responsiveness influences the customer's assessment of the service quality and includes both speed of action and type of action taken to provide service. Where speed is very important, responsiveness also will affect the outcome of the service. Responsive servers are those who give customers' needs urgent priority, and are quick to react.

Interpersonal Dimensions

The next four personality characteristics are related to handling conflict in interpersonal contact.

Cooperative:

Because serving others-meeting their needs and wants-includes the possibility of not being able to satisfy the client, the better customer servers possibility have a 'team' orientation. Servers who are unselfish and not domineering win be more prone to cooperate, compromise, and collaborate with co-workers and customers. Cooperative servers focus on the goal of meeting a customer's needs within realistic organizational limits.

Tactful:

The successful server needs to know what to do and say to customers to promote harmony and to avoid giving offense. Servers may need to persuade customers or negotiate with them to resolve a conflict positively. Tact is required to soften the blow of bad news and accentuate the positive nature of the contact. Better servers will show social savvy and will be aware of implied, unspoken social rules.

Even-tempered:

Even-tempered servers can better control extreme emotions and present a calm countenance despite everyday minor frustrations. By being calm, they are less likely to alienate customers through rudeness. Someone who is even-tempered copes well with work stress, is patient, and is therefore more likable and reasonable, especially in conflict situations.

Flexible:

Servers encounter a great variety of people as customers, a variety in the rate at which customers need to be serviced, and variety in the types of demands made. They must adjust their work pace according to customers' personalities, the rate of work flow, and random special needs. Better servers can readily tolerate changes and interruptions, adjust priorities without undue stress, and can accommodate a lot of change on the job without confusion.

Intrapersonal Dimensions

The next six dimensions are more intrapersonal and may not be expressed as overtly as the first groups of characteristics. These dimensions influence a server's job behavior and, indirectly, the server's behavior with others.

Open:

Successful servers are open to a variety of people, receptive to new information, and free from stereotyping biases that negatively influence serving behavior. Someone who accepts differences is freer to concentrate on providing the service rather than on the particular bias. The successful server tolerates personal differences and different points of view, is approachable, generally trusts others, and is accepting of them.

Accepting of Authority:

A server's acceptance of authority encompasses following and accepting direction from others, being comfortable in a subordinate role, and being able to release control to someone else as necessary. Many customer service jobs place the incumbent in a role subordinate to the customer. Servers who do not accept the authority of customers to make requests are not likely to respond in a manner that satisfies those customers.

Optimistic:

An optimistic server has a positive yet realistic outlook, good self-esteem and self-confidence, and a healthy degree of trust/belief in others. Their tendency to look for positive options may allow optimistic servers to achieve a service goal, while their tendency to focus on obstacles may prevent pessimistic servers from fulfilling customers' requests. Anticipating difficulty in meeting customers' expectations may discourage a pessimistic server from trying.

Externally Rewarded:

Servers who care how customers regard them are likely to be more responsive and attentive to customers. Externally rewarded servers are motivated to receive attention and/or praise from others and to feel rewarded by good interaction with others, and they are concerned about the impressions and opinions others hold about them. Servers who do not care about the impression they make will not alter their behavior to please a customer.

Reliable:

Reliability is a basic work requirement that influences the quality of customer service delivered. Successful servers perform consistently and dependably, follow through on commitments, and are trustworthy, believable, and straightforward with customers.

Competent:

Competence is learning and applying the knowledge and skills required to perform the service, and being able to provide what the customer expects. The server must integrate job information with customers' needs and find the best solutions to problems.

Development of Test Items

After defining the set of customer service dimensions, the next step in the development of the CSI was the creation of test items which would tap into individual differences for each of these dimensions. Although item content and item formats which had been used successfully in the field of personality inventory construction were used as models, most of the relevant work required considerable adaptation, and in large part the CSI items were developed uniquely.

Each of the three sections of the CSI's trial form was comprised of different item formats. The first part of the instrument was intended to solicit opinions and attitudes relevant to the customer service dimensions, and was written as statements with "true" and "false" response options.

The second section of the trial CSI consisted of sets of three adjectives, each naming an individual's characteristics, values, or behaviors. Respondents were to select the one adjective in each triad which best described them.

The third section of the trial CSI consisted of multiple choice situational judgment items. These describe service situations about how to deal with customers. Four response options, corresponding to varying levels of customer service effectiveness and designed to reflect different levels of customer service orientation, were presented. Since each item focuses on only one of the 16 customer service dimensions, responses provide information about an individual's judgment and customer service orientation in specific dimensions, one dimension at a time.

All items were reviewed to eliminate obvious culture and gender biases. The Flesch Reading Ease method was used to ensure that the reading skill needed to take the CSI matched the level expected in the targeted job applicant populations, basically a ninth grade reading level.

ADMINISTRATION OF THE EXPERIMENTAL CSI

This preliminary, experimental form of the CSI consisted of 234 experimental test items and was administered to current employees at two organizations and to job applicants at two other organizations. The companies included two discount retail chains, a regional airline, and a national chain of home building materials stores. A variety of customer contact positions were involved: cashiers, sales clerks and associates, merchandise stockers, customer service counter workers, customer service agents, and reservation agents.

Job Analyses

Job analyses were done for the identified positions in each organization that participated in the development of the CSI. The first goal of the job analysis was to establish the relevance of the initial customer service constructs to successful performance in these jobs. The second goal was to identify discrete and observable job behaviors in each of the organizations which would be taken as outwardly visible expressions of the employees' customer service orientation.

Job analysis questionnaires (JAQS) were distributed in each organization to individuals who were thoroughly familiar with the target positions, including both job incumbents and supervisors. The first section of the JAQ listed and defined a wide range of employee characteristics; respondents were asked to rate the relative importance of each characteristic to successful job performance.

The second section of the JAQ listed specific, observable employee behaviors (both desirable and undesirable); items sampled the domain of behaviors relevant to service, as defined by the 16 dimensions of customer service.

Many of them were adapted directly from the real-life examples of effective and ineffective customer-employee interactions gathered from interviews, focus groups, and customer comment cards.

Development of Employee Rating Forms

The job performance measure used in the CSI validity studies was a rating form completed by supervisors evaluating the service behavior of their employees. The contents of the rating form came from JAQ respondents, who were asked to indicate both how frequently they observed the particular behavior in the work setting and how important it is for employees either to engage in or to avoid the behavior. A salience index score was derived for each of the behaviors listed on the JAQ as a

function of its frequency and importance. Those behaviors with relatively high salience scores were incorporated into the job performance rating forms used in the validity studies.

With these forms, supervisors' ratings produced four measures of employee performance:

1. rehireability (yes or no)
2. overall customer service evaluation (placement into one of five percentile ranges)
3. summed score of ratings on 12 customer service dimensions
4. score derived from the frequency of specific observed customer service behaviors. For example:

How often does this employee:

- calm irate customers?
- accuse customers of lying?
- give customers full attention?
- avoid helping customers?
- make good eye contact with customers?
- argue with a co-worker in front of customers?
- work faster during busy times?
- stop helping a customer to go on a break?
- sympathize with customer's problems?
- make fun of customers behind their backs?
- take responsibility for company errors?
- hurry or pressure customers?
- smile at customers?
- mumble when talking to customers?

In the two organizations where current employees took the experimental CSI, supervisors completed the rating forms at the time of test administration. In the other two organizations, supervisors rated the performance of newly hired applicants after at least 30 days of employment.

Rank Ordering of Criteria

Prior to examining the correlations between test items and job ratings, the four job performance criteria were rank-ordered according to the probability that they would yield information about customer service performance. The score derived from the set of 30 discrete behavioral items rated on a frequency scale was judged to be the most useful and reliable criterion measure for two reasons. First, it was the most systematically developed measure, most closely and obviously tied to observable customer service behaviors whose importance had been established through job analysis. Second, these ratings required the least amount of judgment, interpretation, or characterization from the raters and, hence, were judged to be less susceptible to rater biases. The next best criterion was determined to be the sum of the 12 customer service dimension ratings, because these also contained behavioral descriptions (although they introduced an element of personality judgment).

Next in the ranking was the single-item, overall customer service performance evaluation. The rehireability rating was placed last in this ranking, primarily because it was not specifically tied to customer service behavior.

The specific item content of the behavior-based section of the rating form was largely unique for each organization. For the subsample that was composed of employees from two different organizations, the raw score distributions were equated through the use of a procedure outlined by Thomdike (1982, pp. 140-141) which uses the common items as a "bridging test."

Data Analysis for Item Selection

The final form of the CSI included only items which predicted customer service performance in more than one organization. Each test item was subjected to a rigorous series of "survival" tests, both within and across the different samples of data.

From these samples three groups were defined for the purpose of item selection and final test validation-. a homogeneous item selection group (from one organization only), a heterogeneous (combined cases from two organizations) item selection group, and a homogeneous group for confirmatory validation only. Figure 4 presents a graphic representation of how the data were divided and utilized. In the figure, four organizations are designated as A, B, C, and D. Organization A was designated as the homogeneous item selection group, and the data from organizations B and C were combined to form the heterogeneous item selection group. Data from organization D were not used in the item selection process at A, but were held in reserve until the final form of the CSI was developed, at which point those data were used to validate that form in a completely independent, predictive context.

At the first stage of item selection, correlations between the 234 experimental test items and the four job performance criteria for each of the three independent item selection subsamples were computed. Each of the three 234x4 correlation matrices were examined for either of the following conditions:

- significant correlation of at least 10 with at least one of the four criteria, and no significant negative correlation with any remaining criteria.
- significant correlation of less than .10 with at least two criteria, and no negative correlation with any remaining criteria.

Items that fulfilled these conditions were pulled out to form three item sets from the three item-selection subsamples.

The next step was to eliminate from further consideration any test items which did not correlate as expected with ob performance criteria in both of the item selection subsamples for the homogeneous group. This left 87 surviving test items. This 87-item set was compared to the 72 items which survived from the heterogeneous item selection subsample (the composite sample from two organizations). There were 40 items common to both sets. At this stage, then, three sets of items (87, 72, and 40 items respectively) were compared for performance both within and across different samples of data in a test of validity and generalizability.

For simplicity, a straightforward summing of integer-weighted item scores was chosen for each test form to yield an overall test score.

In order to screen out invalid test protocols, a set of items to detect infrequent response patterns (reflecting carelessness, randomness, or reading difficulty) was borrowed from the PDI Employment Inventory (EI). Scores for subjects whose responses to these items fit the criteria for invalidating an EI (more than two infrequent responses) and scores for any subject who left more than five test items blank, for any of the three test forms, were not calculated (approximately 1% to 2% of each sample).

The three sets of surviving test items were correlated with employee ratings in two independent cross-validations, in a form of double cross-validation via the hybrid 40-item test form, and in a completely independent predictive validation. Scores for each of the three test forms and the four job performance criteria were correlated within each of the data groupings.

Phase I: Item Selection Using Development Samples

Phase II: Cross-validation and Double Cross-validation Using *Holdout* Samples

Phase III: Evaluation Using *Completely Independent* Sample

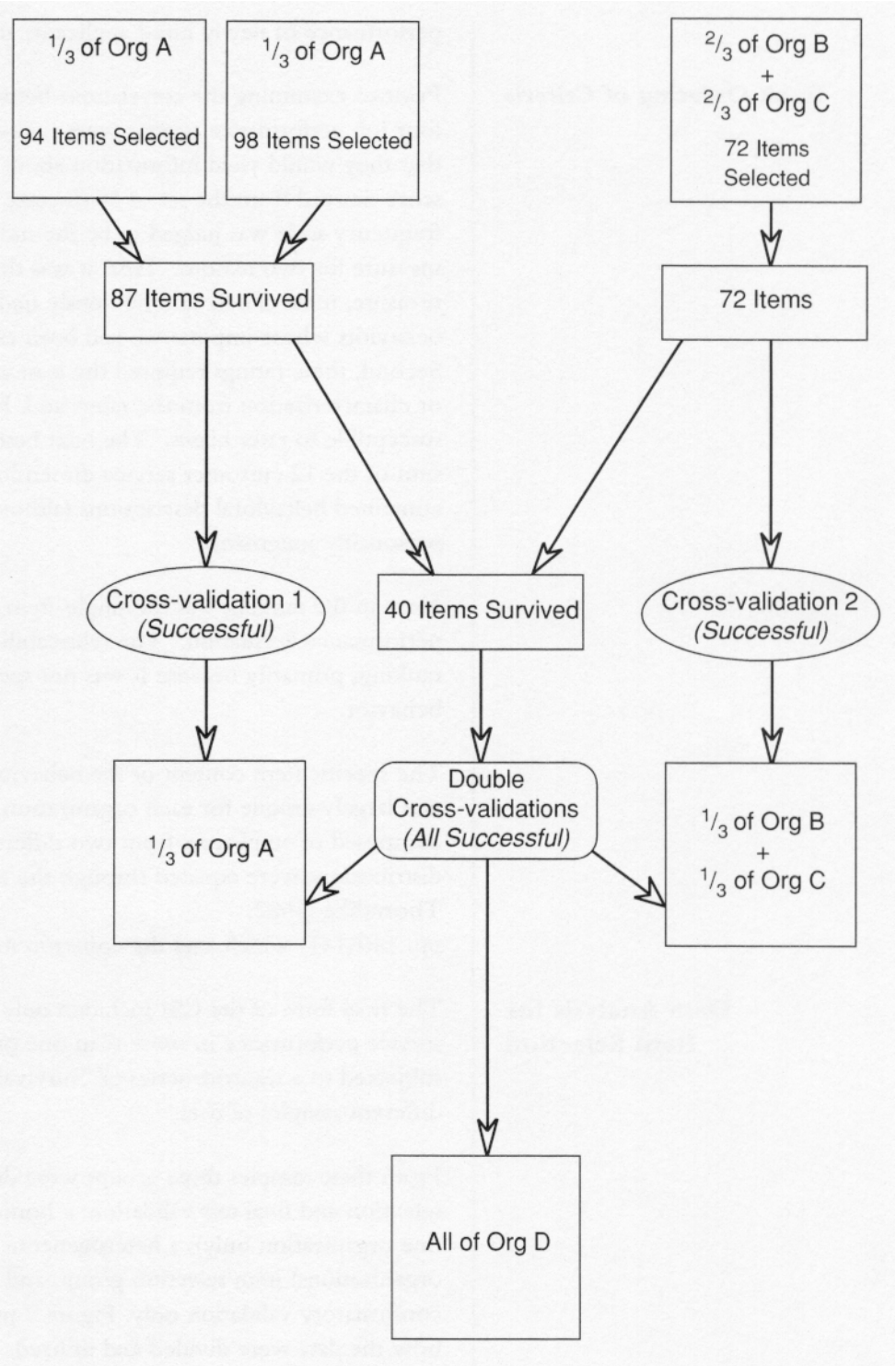


Figure 4 - Validation Flow Chart

The test scores also were correlated with the criteria within each of the item selection holdout subsamples to evaluate the within-sample generalizability (traditional cross-validation) (Figure 4).

Although it was anticipated that the 40-item test would yield a validity for all samples lower than those for the other two versions within their own samples due to the loss of situation-specific variance, the drop in validity for the 40-item form (from .01 to .03) was small enough to be considered trivial. Correlations for the item selection and holdout portions of each organization's data are presented in Table 14.

The results summarized in Table 14 confirm that the method used to select the final 40 items was successful in identifying items that tap into individual differences influencing customer service behavior across a range of organizational contexts and positions. Therefore, all subsequent work with the CSI focused on this set of 40 items.

Sample	N	Behavior Composite	Trait Composite	Overall Customer Service	Rehireability
Org A: Whole Sample	615-652	r = .25 p <.001	r = .28 p <.001	r = .25 p <.001	r = .17 p <.001
Holdout only	217	r = .18 P = .004	r = .25 p <.001	r = .26 p <.Ool	r = .17 p = .006
Org B: Whole Sample	276-279	r = .28 p < .001	r = .26 p < .001	r = .22 p < .001	r = .1 p = .003
Holdout only	93	r = .25 p = .009	r = .24 p = .010	r = .23 p = .015	r = .21 p = .019
Org C: Whole Sample	168-169	r = .35 p < .001	r = .31 p <.001	r = .23 p = .002	r = .22 p = .002
Holdout only	57-59	r = .38 P = .001	r = .37 p = .002	r = .32 p = .007	r = .22 p = .048
Org D: Holdout only	82-84	r = .25 P = .013	r = .18 p = .049	r = .19 p = .043	r = .23 p = .018

Table 14 - Correlations between 40-item CSI Scores and Organization Participating in CSI Development Criterion Measures for Each

DESCRIPTION AND USE OF THE CSI

The final version of the CSI is written at a sixth grade reading level and has 64 items: 40 items predict customer service behavior, six items comprise the Infrequency scale which checks for random responding, and 18 items are experimental.

The 44 items in the first part of the CSI are written as statements with “true" and "false" response options. The second section of the CSI consists of 11 adjective triads which describe individuals' characteristics, values, and behaviors. Respondents select the one adjective in each triad which is most descriptive of themselves.

The third section of the CSI consists of nine multiple-choice situational judgment items. In each of these, a customer service situation is described in which decisions have to be made about how to deal with a customer. Four response options corresponding to varying levels of customer service effectiveness are presented. The four response options are designed to reflect different levels of customer service orientation; each item focuses on only one of the customer service dimensions.

USE OF THE CSI IN EMPLOYEE SELECTION

If successful performance of a job requires that an employee exhibit the personality characteristics which the CSI measures, then the CSI can be considered appropriate for use even in jobs that are different from those in the research base. For example, the CSI should predict important service behaviors for sales persons in a computer store (i.e., a job requiring a high degree of technical knowledge) in much the same way as it has for floor sales associates in building supply centers. Similarly, it could be used to select employees who have no contact with external customers, but who must work cooperatively and maintain effective working relationships with other members of a team. To the extent that jobs are different from those that have been researched, however, additional steps may be recommended to document the appropriateness of using the CSI.

The CSI is most appropriate in the selection of employees for positions in which good relationships with customers and co-workers is a major factor distinguishing successful from unsuccessful employees. Jobs that fit this description tend to be hourly (nonexempt) positions. While CSI scores for managers may fall in the same range as scores for other Inventory takers (some will score high, and some will score low), the CSI alone will not predict which applicants will make the best managers. This is because successful managerial performance requires a more complex set of skills and abilities, including technical, leadership, and administrative skills.

Even with its Infrequency scale, the CSI should not be used as a measure of reading ability. CSI scores should be used only to help make hiring decisions for service jobs. For current employees, the quality of job performance, rather than a CSI score, should be used for all decisions concerning rehiring, promotions, or terminations. An exception would be when an employee is going to make a transition from a position in which customer service behavior could not be observed into a position in which it is important.

Integration of the CSI in the Hiring Process

The best way to use the CSI is as one part of the overall hiring process. The Inventory is not designed to be a replacement for other components of a selection system, and applicants should not be hired or rejected solely on the basis of their CSI scores. Rather, the test is a source of additional information to be considered together with other factors that need to be evaluated during the employee selection process. The interview, application form, reference checks, and perhaps supplementary tests should evaluate any other special skills, abilities, or personal characteristics that the CSI does not measure but are needed for the job.

Employee selection typically involves several sequential components, often including a written job application, one or more interviews, reference checking, and testing. Each of these components contributes unique information to the decision of whether or not to hire someone.

Since application forms provide some hard and fast factual information related to minimal requirements for the job such as academic credentials or hours of availability, these forms usually are placed first in the selection sequence. Thus, resources are not spent in the consideration of applicants who clearly do not meet basic requirements.

Reference checking is typically one of the last steps in the selection process and limited to a small number of final candidates. The task can be time consuming, and people named as references often are reluctant or unable to provide much substantive information.

For jobs with few technical requirements or in which employees are expected to execute simple and well-structured procedures, the interview often is very brief Its main purposes may be simply to clarify factual information from the application form and make a general judgment about how well the applicant will fit in, on the basis of the interpersonal and communication skills demonstrated by the applicant. Interviews are prone to several sources of error, most of which stem from a lack of standardization in format, structure, job relatedness, evaluation guidelines, interviewer training, and even fluctuations in the interviewer's mood.

For situations where there is a large applicant-to-opening ratio, it is recommended that the CSI be administered at the time that applications are taken. Applicants who have the necessary minimum qualifications and whose CSI scores are satisfactory can be called back for interviews. The most promising of those candidates can have their prior work records checked as a final hurdle before being hired. This type of multiple-stage process can be especially economical for mass hirings.

Where interview practices are not well standardized, it is recommended that the CSI be administered first, so the whole group that goes on to the interview is more qualified.

The picture is more complex if multiple tests are used. Maintaining consistency in executing the process is especially important in this situation because each step trims the field of candidates in a particular and reliable way only if the candidates present at each step have been treated similarly in the previous steps.

Because administering the CSI is usually less expensive than the time spent conducting a personnel interview, it is cost-effective for many organizations to have applicants complete both the application form and the CSI as the first step of the selection process.

NORMATIVE DATA

SCORE INTERPRETATION

Interpretation of CSI scores is quite straightforward: *the higher a person's score, the greater the probability that the person will consistently exhibit a pattern of helpful and positive behavior with customers*. High scorers will be more apt to exhibit behaviors from the positive end of this spectrum, such as showing enthusiasm, focusing on the customer's need, smiling, making eye contact, tolerating rudeness calmly, etc. Conversely, low scorers can be expected to show behaviors more often from the negative end of the continuum (e.g., arguing with customers, ignoring customers, failing to pay attention, limiting service, etc.). All of the research to date shows that this relationship is a linear one; there does not seem to be a point on the possible CSI score range beyond which scores lose their ability to separate people in terms of their probability of success in customer service positions.

Score Interpretation Guidelines, found in the back of this manual, show the score ranges obtained by job applicants in the United States. The color coding on the Score Interpretation Guidelines is like a stop light: CSI scores falling in the green zone indicate "go" or hire; scores in the yellow zone mean "caution" or look carefully at all factors in making a hiring decision; and scores in the red zone suggest "stop" or don't hire.

CSI results are based on an applicant's overall pattern of responses, not on individual questions. Administrators have to resist the temptation to focus on any answers to specific questions. Also, the CSI cannot predict with 100% accuracy; sometimes a test taker will get a low score, yet be a satisfactory employee. Consistent use of the Inventory, however, will reduce the frequency of an organization's hiring unsuccessful employees. Hiring decisions, in any case, are best made on the basis of all of the information available on job candidates.

An "invalid" Inventory is the result either of language difficulties or of random responding--leaving more than 15% of items blank or with more than one answer. Approximately 1% to 2% of all Inventory test-takers obtain an invalid Inventory.

Cutoff Scores

In order for an organization to use selection tests systematically, it needs defined procedures for making its decisions based on test scores. In the case of the CSI, these typically involve defining a minimum acceptable score, or "cutoff score." For many hiring situations, simplicity is essential to the acceptance and operation of the selection system, and concrete policies that define a cutoff score are helpful in this respect. Here, again, there can be many Permutations that balance firm testing guidelines with the hiring managers' discretion; these should be discussed with a qualified consultant.

One important outcome of using cutoff scores is that over time, different cutoff scores result in different passing rates. This effect is of practical relevance when the organization makes an evaluation of how to incorporate the CSI into a larger selection process. Passing rates are fairly predictable once enough normative data (usually about 100 applicant scores for a given job) have accumulated through actual use, assuming that other factors affecting the composition of the applicant population remain reasonably stable. However, average CSI scores of applicants can differ dramatically from one type of ob to another because different jobs attract applicants with different qualifications. Therefore, cutoff scores should be chosen initially by examining the norm table (Table 15) in this manual and looking at the norms for the sample that most closely resembles the intended job group.

Use of Norms Tables

When using the norms in Table 15, look for the group that is most similar to the individual or group tested. For example, if a person has applied for a receptionist position with a business firm, that person's CSI score might be compared with those of applicants for a similar position such as that of an airline counter service employee.

To obtain the percentile rank equivalent of a given raw score, the scorer first needs to locate the raw score in the extreme left-hand column of the form. The corresponding percentile rank then can be read from the relevant column in the table. For example, a CSI score of 52 would put a department store job candidate in the 9th percentile, while a fast food applicant with a score of 52 would be in the 43rd percentile.

Each norm group's size (N), mean, and standard deviation (SD) are shown at the bottom of the table.

CSI Score	Department Store Employee	Specialty Store Employee	Convenience Store Employee	Airline Service Employee	Fast Food Employee	Flight Attendant
85						
84						
83						99
82				99		97

CSI Score	Department Store Employee	Specialty Store Employee	Convenience Store Employee	Airline Service Employee	Fast Food Employee	Flight Attendant
81	99			98		94
80	98			97		91
79	97	99	99	94		85
78	95	97	98	92		80
77	94	95	98	90	99	74
76	91	92	97	87	98	68
75	88	90	95	85	98	60
74	85	87	93	82	97	52
73	81	84	91	78	96	46
72	76	80	89	73	95	39
71	72	78	87	68	93	33
70	67	74	85	65	92	28
69	63	68	82	60	90	24
68	58	64	79	55	89	20
67	53	60	76	51	87	16
66	49	55	73	47	84	13
65	44	52	70	43	82	10
64	40	48	65	38	78	8
63	36	45	61	34	76	6
62	32	41	57	30	72	5
61	29	37	54	26	70	4
60	26	34	49	23	68	3
59	23	31	46	21	64	2
58	20	29	42	19	61	1
57	17	26	38	16	58	
56	15	23	35	13	55	
55	14	22	31	12	52	
54	12	19	27	11	49	
53	11	16	25	9	47	
52	9	14	22	7	43	
51	8	13	20	7	40	
50	6	11	17	5	38	
49	6	9	16	4	35	
48	5	8	14	3	33	
47	4	7	13	2	30	
46	3	6	11	2	27	
45	3	5	10	2	25	
44	2	4	9	2	23	
43	2	3	7	1	21	
42	2	2	6		19	
41	1	2	6		17	
40		2	5		15	
39		1	5		14	
38			5		13	
37			4		11	

CSI Score	Department Store Employee	Specialty Store Employee	Convenience Store Employee	Airline Service Employee	Fast Food Employee	Flight Attendant
36			3		11	
35			2		10	
34			2		9	
33			1		8	
32					8	
31					8	
30					7	
29					7	
28					6	
27					6	
26					5	
25					5	
24					4	
23					4	
22					3	
21					3	
20					2	
19					2	
18					2	
17					2	
16					1	
15						
14						
13						
12						
11						
10						
9						
8						
7						
6						
5						
Mean Score	65.59	63.66	59.81	66.43	53.26	73.41
Std. Dev.	9.02	9.83	10.47	9.03	13.86	5.86
S.E.M.*	3.37	3.68	3.92	3.38	5.19	2.19
N	7949	517	535	636	1221	938

* Standard error of measurement, using test-retest reliability of .86.

Table 15 - CSI Norms: Score Percentiles for Six Job Groups

RELIABILITY

Given the multidimensional nature of the CSI, several of the most commonly used procedures for estimating test reliability, particularly the Cronbach alpha for internal consistency, are not fully appropriate. The alpha for the CSI would be expected to be rather low because a number of sources of variance are being sampled by it. However, when Cronbach's alpha for the entire development data set was computed, a value of .73 was obtained. Also, split- half reliability was found to be .73 by two methods (the Spearman-Brown method for equal length halves, and the Guttman method). These values are fairly close to those reported for other instruments intended to measure unidimensional constructs.

The most meaningful measure of the CSI's overall reliability is test-retest reliability. This requires repeated administrations of the CSI to groups of subjects under controlled conditions. To date, data for this kind of analysis has been obtained from two samples of university undergraduates (combined n=77). CSIs were administered under similar conditions, approximately one month apart. There were no significant differences in mean CSI scores between the two times, and the correlation between the two scores was .86. This result, together with higher than expected internal consistency, indicates that the CSI can be expected to provide stable results when it is used in actual selection situations. The high test-retest reliability, in particular, indicates that the characteristics underlying CSI scores are stable and that the CSI provides a reliable measure of them.

VALIDITY

The CSI can be considered appropriate for use in jobs that are quite different from those in the research base, as long as it can be established that success in the job requires the characteristics the CSI was designed to measure. It is expected that this will be true for many more kinds of jobs than have been studied thus far. For example, it is expected that the CSI would predict important service behaviors for bank tellers in much the same way as it has for sales people in retail stores. However, in this case there would be a greater need for job analysis, and possibly some form of validation, simply because this sort of position has received less study to date.

CONTENT VALIDITY

For the CSI, attention to content validity was evident in the process used to develop the initial 16 dimensions that guided the writing of the test items. These dimensions were written to portray the relevant job conditions to item writers, and to help writers link item content to dimensions of personality.

On the criterion side of the validity research, extensive steps were taken to ensure that the measurement of job performance was job- and organization- specific. Customer service managers were interviewed, customers were surveyed, and customer comment cards were mined for specific on-the-job customer service behaviors and events.

For the CSI, content validity was a prominent concern in the creation of "stimulus material" (i.e., test items) and in the measurement of employee outcomes on the job. The process that links these two is essentially criterion-related validation.

CRITERION-RELATED VALIDITY

The criterion-related evidence produced during the development of the CSI already has been documented in this manual. Since the initial development and cross-validation of the CSI, eight additional validation studies have been completed. To evaluate how successfully the CSI's validity generalizes across a wide range of organizations and jobs, it has been applied in

a variety of contexts where job analysis showed that customer service dimensions were important. All of these studies evaluated the effectiveness of the CSI in actual client applications. The results are summarized in Table 16.

These studies were carried out with procedures similar to those described for the four organizations involved in the development of the CSI. Specifically, job analyses were performed for each of the jobs in each organization, and criterion measurement tools were customized on the basis of job analysis information to reflect the important customer service behaviors. The format of the job performance rating forms used in these studies was similar to that of the forms used in the CSI's development, except in the case of the convenience store chain. In that study, the performance measurement form included only ratings of characteristics or traits, and an overall job performance rating.

The correlations shown in Table 16 are very similar to those observed during the development and cross-validation of the CSI, indicating that the characteristics measured by the CSI are important to success in a variety of jobs that have a significant customer service component. In every job context where job analyses have identified customer service dimensions as relatively important factors in successful job performance, the CSI has shown a strong and consistent relationship with job performance.

Sample	Behavior Composite	Trait Composite	Overall Performance	Rehireability
Quick Service Restaurant Hourly Crew Members N = 427 to 442 (U.S.)	.23**	.26**	.24**	.1 3**
Quick Service Restaurant Hourly Crew Members N = 11 2 to 11 3 (Canada)	.27**	.32**	.28**	.07
Regional Department Store Chain Sales Associates N = 386 to 390	.29**	.26**	.23**	.1 5**
Truck Rental Company Rental Representatives N = 125 to 129	.29**	.28**	.33**	.1 5*
Convenience Store Chain Cashiers & Pump Attendants N = 351	n/a	.32**	.25**	n/a
Shoe Store Chain Store Associates N = 101 to 105	.24**	.21	.11	.26**
Discount Retailer/ Liquidator Store Associates & Stockers N = 48 to 52	.24*	.17	.30*	n/a
National Grocery Store Chain All hourly public contact jobs N = 1343 to 1492	.21	.20**	.1 9**	.1 5**

* p <.05
** p <.0l

Table 16 - Correlation Coefficients from CSI Post-Development Validation Studies

FACTOR ANALYSIS

The CSI was not intended to measure a factorially pure construct. Its initial premise held that customer service orientation is really a constellation of personality characteristics which together influence an individual's responses in interpersonal interactions with customers. In fact, 16 different preliminary dimensions of personality were used to drive the writing of items. Nevertheless, a search for statistical factors in the 40 scored items can help foster a better understanding of the constructs that the CSI measures.

Because of the multidimensional beginnings of the CSI, a large number of small factors was expected to emerge that would account for a rather small amount of total variance. The results of the factor analysis, therefore, should be interpreted as suggestive rather than exhaustive. The idea was to identify any distinct and uncorrelated personality themes present in the set of 40 test items which did the best job of predicting effective customer service behaviors.

Principal component factor analysis with varimax rotation produced ten factors with Eigenvalues greater than 1.0, with three to five items loading on each factor. These ten factors accounted for 43.3% of the variance, and the content of the items comprising each factor was quite clearly suggestive of a narrow concept or meaning for each factor. The items clustered into small groups that were quite easy to label. Many of them also appear to be very similar to the initial 16 dimensions resulting from the review of the customer service literature.

CSI Factors

These are the labels written for the ten clusters of items:

Frustration Tolerance / Stable Mood - maintaining emotional control in challenging situations

Approachability / Desire for Affiliation - desiring contact with other people; being receptive to others' desire for personal contact

Objectivity and Practicality - applying common sense and balanced judgment; avoiding excessive risks

Patience / Willingness to Cooperate - demonstrating courtesy and patience in order to work productively with others

Person vs. Task Orientation - valuing others' feelings at least as much as completing tasks; maintaining a measure of sensitivity when attempting to influence others

Goal-directed Empathy - understanding the thoughts and feelings of others in order to resolve problems, assist others, or make decisions

Locus of Control - relying on their individual efforts and decision-making to achieve personal objectives or rewards

Energy / Activity Level - feeling comfort in fast-paced or high-pressure situations

Open-mindedness - valuing diversity; appreciating differences between people; not prejudging others on the basis of stereotypes

Compliance with Expectations - pursuing objectives in a manner consistent with stated expectations; following rules and procedures

While the ten factors were quite instructive about the smallest, most unitary components of a "customer service constellation," it still was necessary to examine the broader constructs embedded in the Inventory. In order to identify the most salient general themes in the CSI, more attention was focused on the five largest factors. These five factors accounted for 28.2% of the total variance. The content of the items loading highly on each factor was examined, and factor descriptions were written. Subsequently, factor scores for each individual in the sample were computed, and these scores were correlated with criterion measures from the rating form, including the discrete behavioral items and the ratings on 12 customer service dimensions. The intent was to supplement further the definitions of the five test factors by blending in observed behavior that correlated with them. This procedure was not intended to produce "type" descriptions, but rather to more richly illuminate the personality characteristics which the CSI measures (and does not measure) by incorporating raters' observations with employees' self- descriptions. This process resulted in these descriptions of the five most salient CSI factors:

The Five Most Salient CSI Factors

1. Friendly

   Applicants who answer the items in this factor in the keyed direction describe themselves as being friendly toward other people. Compared to other people they have more patience, more stable moods, and more control over their anger. They are better listeners and do not annoy other people. They like to work in groups and are generally more agreeable than others. Their supervisors rate them as being likable, warm, friendly, and approachable. On the job, they show interest in and understanding of other people.

2. Competent

   Applicants who endorse these items tend to be competent, hardworking, and self-determining. They see themselves as reliable, perfectionistic, and able to perform under pressure. They take responsibility for their own actions and have had successful experiences. In hourly jobs, they follow through on commitments, and more easily acquire job knowledge. They are good at integrating information to find solutions to customer problems. They use language well and communicate effectively.

3. Practical and Realistic

   Applicants who endorse these items are sensible, pragmatic, and down-to-earth. They do not have a background of extreme behavior but are more well-balanced and dependable. They cope well with work stress and consistently show positive affect toward others.

4. Courteous and Tactful

   The items keyed in this factor indicate good people skills. High scorers show sensitivity and empathy and are aware of their own impact on others. They show respect, courtesy, and awareness of social conventions. Behaviorally, they smile and use good eye contact with customers. They give customers' needs urgent attention and are eager to help.

5. Open-minded

   Applicants endorsing these items do not show prejudice toward people different from themselves. They are tolerant and open-minded, and they value diversity. They cooperate and even mediate in groups.

Practical Outcomes Deriving from Validity

Since correlation coefficients are expressed in units that represent mathematical abstractions, the practical value that they signal is not readily apparent. However, when correlations between a test and measures of job performance are significant and replicate successfully across samples, it is appropriate to calculate the organization-wide effects of using the test to select employees. This section contains a representative sampling of analyses that were performed for the organizations which participated in the development and validation of the CSI. These examples were chosen because they are typical of all of the outcome analyses done for each of the participating organizations. They illustrate the amount of performance improvement commonly observed from CSI use.

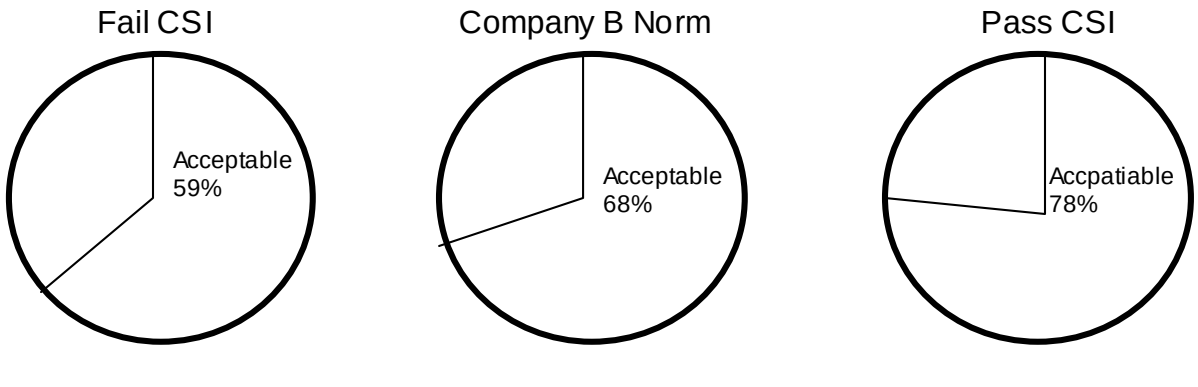
It was assumed that employees perform at below average, average, and above average levels, and that it is acceptable to hire those whose performance is average or better. Therefore, the sample from Company B in the original CSI research was divided into two groups-those who scored in the bottom one-third of the distribution (below average) from the behavior item section of the rating form, and those who scored in the upper two-thirds (average or better). Using four different cutoff scores, the percentage of satisfactory employees who would be selected is shown in Table 17.

		CSI Cutoff Score			
Rating Form Group	N	53	59	66	70
Average or Better	189	82.0%	65.1%	39.7%	27.5%
Below Average	90	74.4%	42.2%	27.8%	13.3%
Company Norm (whole sample)	309	79.6%	57.6%	36.2%	23.0%
Applicants Needed per Job Opening	1.26	1.74	2.76	4.35	

Table 17 - Percent of Employees Passing the CSI at Several Cutoff Scores

Two observations can be made from Table 17. First, as the cutoff score is increased (looking from left to right), the number of employees who pass the CSI becomes smaller. This is true for both the "average or better" and the "below average" groups. With more selective hiring standards, fewer applicants will pass the CSI. Secondly, the employees in the "average or better" group pass at a higher rate at all of the cutoff scores. This shows that the CSI will be an effective selection tool under a variety of labor market conditions, where the availability of viable job applicants varies. The bottom row of Table 17 is derived directly from the row above it, and shows how many applicants would be needed to fill each opening on the basis of the passing rates observed in the sample of Company B (home improvement/ building stores) employees.

Figure 5 is a graphic display of the same analysis performed on Company B data, using a cutoff score at the sample average CSI score of 61.



*The Chi Square for this cross tabulation = 9.10, p=.003

Figure 5 - Job Performance Group Breakdown Passing vs. Failing the CSI*

Without CSI use, as the company norm shows, about two-thirds of the sample, those rated average or above by their supervisors, are considered acceptable. Of those who pass a CSI cutoff score of 61, three-fourths are considered acceptable. Of those who would have failed the CSI, 59% are considered acceptable.

Had the CSI been used to select this group, 8% more people would be considered acceptable.

The 30 behavioral items in Part 3 of the rating form provided an opportunity to illustrate the relationship between CSI scores and behavior observed on the job. Table 18 lists a series of comparisons which show how often employees in Company B who passed the CSI at a cutoff score of 61 exhibited selected customer service behaviors (as rated by their supervisors), compared to those who did not pass the CSI. There are ten of these comparisons-five for positive behaviors, and five for negative behaviors. These are the kinds of behaviors for which the most observable changes would be expected when the CSI is used for selection.

Employee Behavior	Fail CSI	Pass CSI
Search for misplaced merchandise or information for customers.	52%	70%
Remain cheerful when explaining company policies.	55%	72%
Question customers to determine their needs.	53%	71%
Suggest best products for customers' needs.	45%	68%
Offer more information than customers ask for.	12%	28%
Answer the phone improperly.	86%	75%
Socialize with co-workers while customers wait.	75%	63%
Forget to say "thank you" to customers.	85%	72%
Make fun of customers behind their backs.	86%	72%
Take too much time processing customers' transactions.	77%	66%

Table 18 - Rating Form Behaviors of CSI Passers versus Failers

Another job performance measure from the rating form asked managers to compare the customer service orientation of the employee with all other company employees. The managers placed employees into one of five categories, from the bottom

10% at providing customer service to the top 10%. Figure 6 shows the results of contrasting CSI passers with CSI failers at a cutoff score of 62:

- The group in Company A (national chain of discount stores) which failed the CSI was rated in the lower three job performance categories more frequently than was the group that passed the CSI. By contrast, the group of CSI passers was rated in the top two categories more frequently than were the CSI failers.
- Twice as many CSI failers as passers were rated in the bottom 10%, and twice as many CSI passers as falters were rated in the top 10%.
- Overall, as CSI scores increased, an employee was more likely to be rated as better at providing customer service in comparison to all other Company A employees.

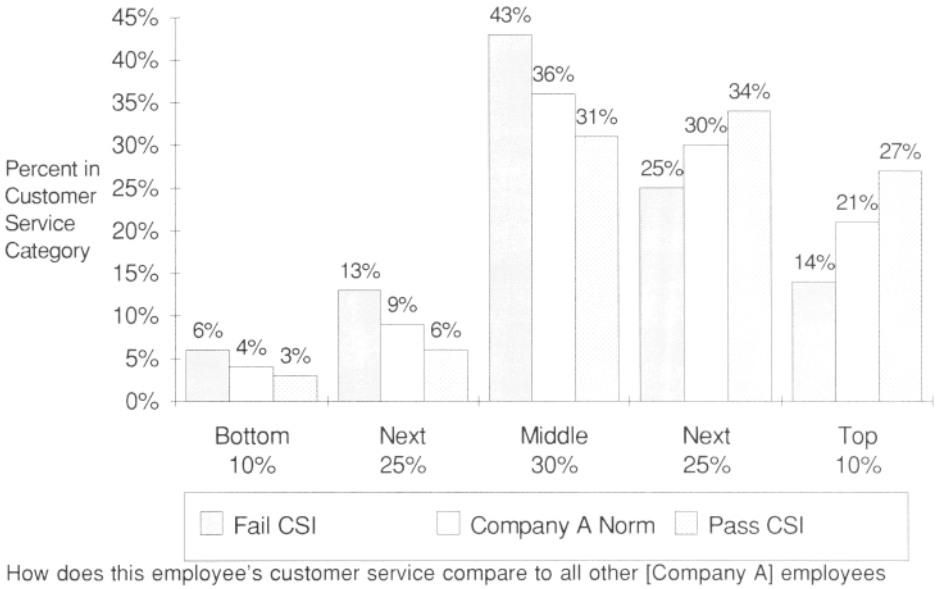


Figure 6 - Overall Comparisons of customer Service

ADVERSE IMPACT AND FAIRNESS

As part of an assessment of the usefulness and predictive effectiveness of the CSI, it was necessary to evaluate the instrument's performance with respect to the "four-fifths rule" used by the EEOC as an indicator of selection impact. Since the original administration of the experimental CSI to the four samples involved in test development, the CSI has been administered to a number of additional samples. These cases have been included in the analysis of selection impact.

As the distribution characteristics of CSI scores and the relative representation of ethnic groups across the independent samples were examined, several important differences were noted among the samples that influenced the methodology used to evaluate selection impact. First, there were large differences in CSI scores across industries and job types. The difference between the lowest and highest sample mean scores was about 20 points, and the standard deviation of scores for each sample ranged from six to 14 points. These differences made sense given the different jobs represented and the kinds of individuals who could reasonably be expected to occupy or apply for them. Second, there were large differences in the relative proportions of cases from various ethnic groups among the samples. Minority representation ranged from 13.7% to 64.3%.

In order to incorporate all of the data into one impact analysis and to stabilize the results for the smallest minority groups as much as possible, each case was assigned a value designating the passing or failing of a cutoff score set at the group mean for the sample to which the case belongs. This enabled the aggregation of the samples in a meaningful way that also represented the manner in which the CSI would be used typically (e.g., to screen job applicants where the ratio of viable candidates to open positions is approximately two-to-one). The results of this analysis are presented in Table 19.

All of the impact ratios meet the requirements of the EEOC's four-fifths rule. The Native American group showed the lowest impact ratio (.80), although this result must be interpreted with caution since the number of persons in this group is extremely small (0.9% of the total sample). Adverse impact was not observed in any single organization's data.

Group	Number	Percent of Total	Percent Passing	Impact Ratio
Non-Minority	7,322	64.3%	61.7%	-
All Minorities Combined	4,068	35.7%	53.2%	.86
Black	2,517	22.1%	53.5%	.87
Hispanic	1,028	9.0%	52.0%	.84
Asian	285	2.5%	56.8%	.92
Native American	107	.9%	49.5%	.80
Other	131	1.2%	52.7%	.85
Males	4,117	36.1%	50.3%	-
Females	7,192	63.1%	63.3%	1.26
Total	11,390	100%	58.7%	

Table 19 - Selection Impact Analysis for the CSI, Inncluding Development Data and Subsequent Data

Test fairness analyses also were carried out for the four original development samples. These were conducted by comparing prediction error by ethnic group with analysis of variance, using the sum of the behavior items from the rating form as the job performance measure for each sample. Within each sample, the criterion ratings were regressed on the CSI scores to derive the components for a common prediction equation. Predicted criterion scores for each case, and then residuals (the predicted criterion score minus the actual criterion score) were computed. These residuals were used as the dependent variable in the analyses of variance, while ethnic group membership was the independent variable for each of the four samples.

The results of these four analyses of variance are contained in Table 20 through 23. The analyses showed that the CSI neither systematically overpredicted nor underpredicted job performance by ethnic group in any of the four samples. Similar analyses conducted to check for differential prediction error by gender also showed no differences in predictive accuracy for males and females.

Group	Number of Cases	Mean Residual	Standard Deviation of Residual
White	472	-1.16	27.64
Black	66	5.98	27.00
Hispanic	66	3.76	27.41
Asian	9	-11.66	25.26
Native American	2	-18.62	35.11
Other Minority	4	16.68	28.78
Groups not indicated	33	-.61	29.68
Total	652	.00	27.71

Overall F=1.52, p=. 1 7

Table 20 - Analysis of Variance for Residuals[2] by Ethnic Group for Organizaiton A[3]

Group	Number of Cases	Mean Residual	Standard Deviation of Residual
White	233	.68	21.91
Black	9	3.11	21.18
Hispanic	21	-2.91	15.11
Asian	0		
Native American	1	-11.22	
Other Minority	1	-29.35	
Groups not indicated	14	-5.97	19.30
Total	279	.00	21.30

Overall F=.82, p=.54

Table 21 - Analysis of Variance for Residuals[4] by Ethnic Group for Organizaiton B[5]

[2] Residual is the predicted criterion score minus the actual criterion score, where underprediction yields a negative residual and overprediction yields a positive residual.

[3] Criterion scores in this sample ranged from -27 to 140. Standard deviation of criterion scores in this sample, including all ethnic groups, was 28.59.

[4] Residual is the predicted criterion score minus the actual criterion score, where underprediction yields a negative residual and overprediction yields a positive residual.

[5] Criterion scores in this sample ranged from -35 to 88. Standard deviation of criterion scores in this sample, including all ethnic groups, was 22.16.

Group	Number of Cases	Mean Residual	Standard Deviation of Residual
White	137	-1.49	30.40
Black	2	11.69	3.11
Hispanic	12	-.05	27.39
Asian	4	-13.13	10.41
Native American	4	18.39	24.66
Other Minority	4	16.40	35.85
Groups not indicated	6	15.82	37.65
Total	169	.00	30.10

Overall F=.95, p=.46

Table 22 - Analysis of Variance for Residuals[6] by Ethnic Group for Organizaiton C[7]

Group	Number of Cases	Mean Residual	Standard Deviation of Residual
White	21	-10.44	22.32
Black	43	4.98	26.37
Hispanic	8	-3.38	23.19
Asian	2	-15.69	21.14
Native American	1	-13.11	
Other Minority	0		
Groups not indicated	7	10.96	30.45
Total	82	.00	25.79

Overall F=1.54, p=.19

Table 23 - Analysis of Variance for Residuals[8] by Ethnic Group for Organizaiton D[9]

[6] Residual is the predicted criterion score minus the actual criterion score, where underprediction yields a negative residual and overprediction yields a positive residual.

[7] Criterion scores in this sample ranged from -55 to 100. Standard deviation of criterion scores in this sample, including all ethnic groups, was 32.15.

[8] Residual is the predicted criterion score minus the actual criterion score, where underprediction yields a negative residual and overprediction yields a positive residual.

[9] Criterion scores in this sample ranged from -19 to 99. Standard deviation of criterion scores in this sample, including all ethnic groups, was 26.61.

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ADMINISTERING AND SCORING THE EI AND CSI

DIRECTIONS FOR ADMINISTERING THE EI AND CSI

Before giving the EI or CSI to job applicants, the administrator should become familiar with the questions and instructions in all three sections. Then, make sure that applicants have two pencils and a comfortable place to work. The administrative script in this manual will help to ensure that applicants get the same information about the Inventories.

- Administer the Inventories consistently; all applicants should take it at the same point in the hiring cycle and should receive the same oral instructions. Follow the instructions in this manual to set up standard procedures.
- Schedule enough time for applicants to complete the Inventory. Most applicants finish in less than 30 minutes, but there is no time limit.
- For security reasons, do not allow applicants to take the Inventory off-site.
- Provide a relatively quiet, well-lighted place for the applicant to take the Inventory, where a test administrator can be available to answer questions. Try to provide similar conditions for all applicants.
- Do not use ethnic and gender information for hiring decisions. If an applicant is uncomfortable providing this information, explain that it is optional, but important for record keeping. The Federal Uniform Guidelines of Employee Selection Procedures (1978) prescribes that employers maintain records of the race and sex of job applicants (Section 4). Furthermore, the 1991 Civil Rights Act prohibits the discriminatory use of test scores on the basis of race, color, religion, sex, or national origin (Section 106). In compliance with both of these regulations, the PDI Inventories request information on each applicant's sex and ethnic background for record keeping. This information is not used to calculate scores and is not used in hiring decisions, but is collected only to ensure that the Inventory is fair to all.
- No one has to remain with applicants once they start filling out the Inventory, but they should be checked occasionally to see that they are completing it correctly and making steady progress. Answer applicant questions about vocabulary (see glossary), but do not suggest answers to test questions.
- When the applicant has finished the Inventory, check to see that it has been properly completed and that all information is provided on the front. It is acceptable for the applicant to leave a few questions unanswered, but too many unanswered questions may result in an “invalid" Inventory.

ADMINISTRATIVE SCRIPT

This section provides specific guidelines for administering the Inventory, with recommended wordings that convey the correct information to test takers.

When handing out the Inventory, explain what you want the applicant to do. Be consistent among applicants and among test sessions:

"This is a questionnaire for you to fill out as part of your job application. The questions ask about your opinions and attitudes, and about yourself as a person. Read the questions and mark your answers in the test booklet. "

Point out the three sections and the different directions for each one:

"This questionnaire has three parts, each with its own instructions. Read the directions for one section at a time and answer all of the questions in that section. Then go on to the next section. Answer all of the questions in all three sections, even if you have to guess on some."

Set expectations:

"There is no time limit, but most people finish in less than 30 minutes. The best way to answer is to give your first reaction to each question. You don't need to think a long time about them."

Collect the details:

"Print your name and Social Security number. The other information on the front-the ethnic background and gender questions-is collected to ensure that the Inventory is fair to all who take it. If you don't have a Social Security number, put in your phone number."

"Do you have any questions?"

"When you have finished, bring the Inventory, to me and ... (tell the applicant what will happen next-go home, have an interview, etc.). *Go ahead and begin."*

"When applicants finish, thank them for completing the Inventory. Explain what will happen next in the selection process.

ANSWERING APPLICANT QUESTIONS

Very few applicants have questions about taking the Inventory. However, if questions arise, answer them with these guidelines.

Answer general questions regarding the test, but if an applicant asks how to answer a specific question, suggest, *"Use your own judgment on that."*

If an applicant asks, *"Why does it ask this question?"* or *"How is it scored?,"* explain that, *"Each of the questions contributes to a final score that helps us make our hiring decisions."*

If an applicant refuses to answer an Inventory question, don't argue. Encourage applicants to answer all of the questions, but allow a few blank answers if the person really can't decide.

If an applicant comments that a question seems odd, respond with, *"Yes, a few questions are included only to make sure you are actually reading and understanding the Inventory."*

If an applicant has difficulty answering the self-descriptions in Section 2, suggest that, *"Yes, this section is more difficult. Try eliminating one item at a time to end up with just one answer in each group of three,"* or *"Try answering faster. Don't study them a long time. just quickly pick the one from each group that is the most like you."*

If an applicant asks what a word or phrase means, use this glossary for the definition.

GLOSSARY OF WORDS AND PHRASES

Part I - Opinions and Attitudes

Adventurous-bold, daring, defiant Cover up-conceal, hide

"Don't get mad-get even"- get revenge

Fair pay-earning an amount of money that seems night for the kind of work you do

Fooling around-not paying attention, playing when you should be working

"Look over your shoulder"-when someone watches what you are doing, or supervises you closely

Meet someone "halfway"- compromise, work things out

Moral support-help in time of trouble

Perfectionist-one who likes to get things exactly right, who is careful with details

Raising hell-making trouble, being loud and attracting attention to oneself

Sensible-practical, reasonable

Street smart-sharp, savvy, not naive or gullible

Talk back-contradict, be rude to, mock, make fun of

"Turn the other cheek"-forgive, reconcile

Part 2 - Self-descriptions

Active-move quickly, be energetic

Alert-awake, paying attention

Brave courageous, bold, confident

Clear thinking-logical, precise, accurate

Clever-inventive, quick

Cheerful-happy, good-natured

Conforming-following rules, going along with the crowd

Conscientious-careful, responsible

Courteous-polite, respectful

Creative be inventive, have original ideas

Curious-interested in many things

Daring---bold, takes risks

Dependable-trustworthy, faithful

Eager-enthusiastic, ready to go

Energetic-active, not tiring easily

Fair-minded-just, reasonable, objective

Friendly-helpful, sociable

Generous-unselfish, giving to others

Hardworking-industrious, motivated

Honest-truthful, open, straightforward

Independent-resourceful, self-reliant

Informal-casual, relaxed

Inventive-creative, solves problems

Kind-gentle, friendly, generous

Likable-warm, friendly

Logical-orderly, clear thinking, rational

Orderly-neat, tidy, organized

Patient-calm, self-possessed

Persuasive-influential, convincing

Persistent-thorough, diligent, steady

Playful-laughing, witty, spirited

Pleasant-kind, agreeable, friendly

Quick-lively, alert, active

Realistic-sensible, practical

Reliable-constant, steady, trustworthy

Responsible capable, trustworthy, stable

Satisfied-comfortable, contented, happy

Serious-committed, earnest

Sincere genuine, honest, truthful

Skillful-efficient, able, resourceful

Smart-intelligent, quick, clever

Stable steady, calm

Steady-calm, dependable

Strong-healthy, brave, tough

Systematic-careful, orderly, methodical

Thorough-careful, complete

Thrifty-prudent, careful with money

Tolerant-unprejudiced, forgiving

Trustworthy-honest, safe, responsible

HOW TO USE THE SCORE INTERPRETATION GUIDELINES

The color coding on the Score Interpretation Guidelines is like a stoplight: Green is "go" or recommend hire; yellow is "caution" or check other information carefully; red is "stop" or recommend do not hire. These color zones indicate average scores obtained by job applicants in the United States. Particular labor markets and specific job families may differ slightly from these norms.

Inventory scores are based on an applicant's overall pattern of responses, not on their answers to any specific question. An "Invalid" score results from an applicant's random responding, difficulties with the language, or failure to answer some items. About 1% to 2% of all EI and CSI test takers get an invalid score.

POINTS TO REMEMBER

Higher scores suggest better job performance.

The higher an applicant's score on Performance, Customer Service, and Tenure, the greater the chances for satisfactory performance in the relevant job dimension. A higher Performance score, for example, means a greater likelihood that an applicant will behave responsibly and dependably on the job; a higher Customer Service score means a greater chance of positive service behaviors; a higher Tenure score means a greater likelihood of staying on the job for at least three months.

Higher scores are better, even within color zones.

For example, applicants who score 60 on the Performance scale will, on average, perform better than applicants who score 54, even though both scores are in the same "Recommend Hire" zone.

The difference of a few points is not very significant.

A two- or three-point difference between applicants' scores does not strongly suggest that one applicant will perform better than another. When comparing applicants, larger score differences are more meaningful.

The Inventories are not perfect.

The EI and CSI scales are good predictors of future job performance. However, they are not perfect; they do not predict with 100% accuracy. Some employees who score below average will still perform satisfactorily, and some who score above average will do poorly on the job.

All parts of the hiring process are important.

When making hiring decisions, use Inventory scores along with all the information that is available about an applicant (e.g., interview information, work experience, references).

EI-SALES SCALE INVENTORY

INTRODUCTION

PURPOSES AND FEATURES OF THE EMPLOYMENT INVENTORY-SALES SCALE

The PDI Employment Inventory - Sales scale (EI-Sales) is a tool for selecting employees with attributes that underlie success in jobs which involve selling. It measures dimensions related to success at commissioned sales jobs and similar roles which demand high levels of initiative, energy, and commitment. The EI-Sales scale is most appropriate for jobs in which the incumbent must be persuasive, has significant contact with customers, and must show persistence in the face of rejection.

The PDI Employment Inventory - Sales scale was designed to be used as an economical supplement to an organization's employee selection system. Items comprising the EI- Sales scale are written in simple terms and are designed for self-administration. The EI-Sales scale has 140 items: 117 true/false items, 14 adjective triads, and nine multiple-choice items. Embedded within the 117 true/false items is an Infrequency Scale to check for careless or random responses. The EI-Sales scale requires approximately 15 minutes to complete and can be scored in about 3 minutes. It provides a single, composite score that reflects sales effectiveness, rather than a profile of personality traits.

Easy to administer and score, the EI-Sales scale requires no psychological or test- related degree or other professional qualifications of the test administrator. Anyone from a hiring office can be trained to administer and score the EI-Sales scale appropriately. Unlike more general personality-based inventories with multiple scale scores requiring interpretation, the EI-Sales scale yields a single score.

The decision to use the EI-Sales scale as a pre-employment test for a particular job is best made with a thorough job analysis. The more important it is for employees to demonstrate perseverance in the face of rejection and show initiative and achievement orientation, relative to other determinants of success on the job, the greater weight the employer should give the applicant's EI-Sales scale score in the selection process.

VARIOUS FORMS

Seven combinations of the EI-Sales scale with other Employment Inventory Family scales are available. The particular combination of scales should be determined by use of information from a sound job analysis. Currently, the EI- Sales scale is available in American English. An experimental form in Spanish is available for research.

BACKGROUND

PERSONALITY TEST APPROACH

Theories underlying many employment tests assume that human personality is manifested by a consistent pattern of behavior. An employee with more of the characteristics of persistence, interpersonal confidence, and initiative will behave more productively on the job. The EI-Sales scale measures these characteristics, thus enabling some prediction of the applicants' sales-related behavior supported by these personal characteristics. Generally, personality test questions do not inquire about specific behaviors. Tests for alcoholism, for example, ask not only about how much alcohol a person drinks, but also about thoughts and consequences associated with drinking. Since most alcoholics at some time are depressed, tests ask about feeling depressed or hopeless. They also ask about missing work, having blackouts, and experiencing deteriorating relationships. The EI-Sales scale works similarly. In asking questions that reflect a person's preferences and background, the EI-Sales scale items correlate with job behaviors important for productive performance in sales roles. Some fairly confident conclusions can be drawn about applicants' probable behaviors on the job from their responses to questions about their personalities and backgrounds.

PREDICTING BEHAVIOR

Other conclusions based on EI-Sales scale scores can be made about the potential seriousness of these behaviors. The higher an applicant's score, the more likely that person's behavior on the job will be effective, and will thrive in sales roles. Alternately, people with lower scores will be less likely to thrive.

Although the EI-Sales scale does a good job predicting the degree of persistence and interpersonal confidence an individual will show at work, it cannot predict specific behaviors. People can choose to show high or low sales performance- related behaviors in many different ways. The EI-Sales scale can't predict, for example, that a particular candidate will lie to customers or be unable to answer customer questions, however, it can predict that the person will tend to show lower levels of the personal characteristics needed to succeed in sales roles.

HISTORY OF SALES SELECTION

Testing for sales effectiveness has been used since the early years of the 20th century, when face-to-face selling was the only means available. In 1917, Elsie Oschrin of Barnard College described a study that attempted to,obtain a vocational correlation for sales ability in settings such as department stores. This early attention to the characteristics underlying effective sales was magnified as the century progressed, demonstrating that the sales role has consistently been critical to the success of most businesses.

The instruments used for selecting sales people have generally used the same measures for selecting employees in general:

- Cognitive measures
- Personality measures
- Knowledge measures
- Interpersonal skill measures

The history of testing for selection of sales people shows a consistent sense that a specific "type" of person will succeed in the sales role. Indeed, many variables, such as some degree of interpersonal dominance, have remained constant through

80 years of application. However, the sales role has changed over time, and some of the predictors used in the past, such as aggressiveness leading to "sales-at-any-cost" behaviors, are no longer acceptable.

In the past, employment tests for sales were built for specific jobs. The research emphasized the difference among sales jobs. Very specific tests for insurance sales, car sales, retail sales, etc., were used. The EI-Sales scale was developed with the intention that it could be used with a range of sales jobs. It tests for the core underlying attributes these jobs have in common. As a result, the EI-Sales scale can be used for multiple sales jobs within an organization and its validity can be tested for a variety of jobs.

SALES AND CUSTOMER SERVICE

Although customer service jobs and sales jobs share many common elements, the sales role is different from customer service. In customer service, the customer usually initiates the interaction because they are seeking help. In sales, however, the salespeople initiate the interaction, and as a result they often experience rejection and must be willing to try again.

WHAT THE EI SALES SCALE DOES NOT MEASURE

Several factors that are critical in sales jobs are not measured by the EI-Sales scale because they can be determined by other means. These include:

- Product and Industry Knowledge
- Communication Skills
- Knowledge and Facility with Sales Techniques
- Thinking Skills

The reason these factors of sales success were not included in the domain of the EI-Sales scale is that they are either a) very specific to a given job, b) better measured by means other than a paper-and-pencil test, or c) not required for virtually every sales job. Leaving these elements explicitly out of the EI-Sales scale enables us to make more precise judgments about what to consider adding to any given test battery based on job analysis. The elements that are more likely to vary with specific jobs and selection applications were judged to be outside of the domain of the sales scale, while the set of personal characteristics that is common to a broad range of sales jobs was included. Depending on job analysis information, employers may wish to build a selection system that assesses more than simply the personality domain that the EI-Sales scale covers.

SALES PREDICTOR CONSTRUCTS

A set of 14 predictor constructs was developed by using information from the literature (popular press, psychological, sales and marketing management, PDI work with sales selection, etc.). Most of the research focused on personality constructs that had been demonstrated by previous research to be both related to sales success and amenable to measurement with self-report, paper-and-pencil measures. These theoretical predictor constructs, therefore, were used for item development to ensure that a broad domain of personality constructs relating to success in sales roles was sampled:

Target Constructs

- Accomplishment

- Adaptability
- Commitment
- Dominance
- Energy
- Financial Motivation
- Goal Setting/Drive
- Initiative
- Influence and Persuasion
- Planfulness
- Persistence
- Tolerance for Pressure

Administrative Scales

- Frankness
- Infrequency

ITEM SELECTION

PDI developed the EI-Sales scale to meet the needs of client organizations whose success depends on the effectiveness of their sales force. The EI-Sales scale began as a 53-item inventory developed for a specific client and job. This initial inventory was aimed toward the constructs of achievement and dominance.

After developing the 53-item inventory, the appropriateness of using the inventory for other jobs was investigated. A brief initial review of the literature indicated that the constructs at which the inventory was aimed were too limited. A much more detailed review of literature as far back as 1917 was conducted, applicable material in psychological literature was identified, and current sales force management literature was reviewed. The business literature on the measurement of sales force effectiveness was also reviewed, as were all sales selection studies conducted by PDI. This exhaustive literature review contributed to the development of criteria and guided the choice of target constructs. About 380 items were written to tap these constructs. The 380 items were trimmed down to create an experimental 244-item inventory. Test data were collected from 1,200 current job holders at a half-dozen sites, along with the performance measures that were available at those sites. The accumulated data were standardized and combined into a single large data file. Various criterion measures were standardized, and the final 140 items were selected.

In Table 24 the organizations contributing data and the types of criteria, or performance measures, are described. The types of jobs represented ranged from commissioned retail to upper level financial. Wherever possible, both subjective and objective measures of performance were collected.

Organizations Contributing Data	"Soft Criteria" Subjective	"Hard Criteria" Objective
Specialty Retail-Sales Associate	Supervisory Ratings: Traits, Behaviors	Frequency of meeting sales goals, Dollar amount sold
New Car Dealership-Car Sales	Supervisory Ratings	Average Number of Cars Sold
Custom Building Products Sales	Supervisory Ratings: Traits, Behaviors	--
Rental Car Counter Agent	Supervisory Ratings: Traits, Behaviors	Dollars Sold, Levels of Commission Received
Industrial Business-to- Business Equipment Sales	Supervisory Ratings: Traits	Estimated Annual Dollar Sales
Bank-Relationship Manager	Supervisory Ratings: Traits	--

Table 24 - Organizational Contributing Data

To be included in the final EI-Sales scale, items had to a) predict employee job success, b) be free from undue adverse impact, and c) make sense rationally. The final version of the EI-Sales scale includes 117 true/false items, 14 adjective triads, and 9 multiple-choice items. Embedded within the 117 true/false items is an Infrequency Scale to check for careless or random responses. The final version was reviewed by sales managers.

VALIDITY RESULTS

Table 25 shows the results of testing the final scale in the pooled data set in the development and holdout samples. The correlation for the subjective criterion showed very little shrinkage when applied to the holdout sample. The objective criterion showed a greater degree of shrink. We investigated possible alternatives for this shrink, other than the test failing to cross-validate, by using the a priori scoring of all 244 items which would be unaffected by any item choice decisions, and be immune to any capitalizing on change. The same pattern of validation and cross-validation was found. This suggests that some degree of shrink shown for the objective criterion may be due to chance variation in the random process used to divide the criteria into development and holdout samples.

Sample	N	Development Subjective	Development Objective	Holdout Subjective	Holdout Objective
Pooled Development	131	.37	.43		
Pooled Holdout	147			.31	.15

Table 25 - Testing the Final Scale

Listed below in Table 26 are the target constructs for the items in the Employment Inventory - Sales scale. The constructs that didn't survive the development/item selection phase have been dropped from the list. The letters in the left column are shorthand scale names used to keep the scales straight for research purposes. None of these scales are to be reported to users. Generally, the scales have 5 to 10 items each. A couple of sample items are presented to give a flavor for the items in each of the target construct scales.

AC	Accomplishment Takes satisfaction from accomplishing tasks; achieves difficult goals; brings tasks to completion. Sample Items You like to seek out additional responsibilities at work. You prefer to have too much to do rather than too little to do.
AD	Adaptability Has willingness and ability to change; adapts to different people and situations; is coachable; changes work methods when starting a new job, Sample Items You get frustrated when priorities suddenly change. You dislike being interrupted.
CM	Commitment Demonstrates personal commitment to the organization's accomplishments; willingly carries out the organization's goals; identifies with the organization's goals and priorities; has pride in working for the organization; willingly makes personal sacrifices for the organization when necessary. Sample Item You think about work a lot when you are at home.
DO	Dominance Is forceful; takes initiative in interpersonal situations; has Self-confidence; is capable of influencing others. Sample Items Others usually expect you to take charge. You often can't seem to get people to listen to you.
EN	Energy Starts work quickly; moves energetically; stays busy and active; displays a high level of energy and stamina. Sample Items People describe you as energetic. It is hard for you to sit still and relax.
GSD	Goal Setting/Drive Shows a desire to achieve results and master tasks beyond expectations; strives for excellence in all things; never settles for second best; sets difficult and challenging goals and works hard to accomplish them; sets and accomplishes challenging goals; seeks increasing responsibility on the job; sets high standards of performance; pursues aggressive goals and works hard to achieve them. Sample Items You are very aware of the progress you are making against your goals. You rarely set daily goals for yourself.
IN	Initiative Takes immediate and independent action when needed; suggests improvements; recommends solutions to problems; does what's necessary without having to be prompted or reminded. Sample Items When you see a problem, you start solving it. People tell you that you are independent.
IP	Influence and Persuasion Asserts own ideas and persuades others; gains support and commitment from others; persuades others (individually or in groups) to adopt attitudes, opinions, or courses of action; enjoys persuading and convincing others. Sample Items You have always liked selling.

	It is difficult for you to defend your ideas when others disagree strongly with you.
PL	Planfulness Uses plans to organize work; works efficiently, in an organized manner; keeps track of details. Sample Items You are more disciplined about your work than others are. You are good at setting and following priorities.
PR	Persistence Works hard and steadily; perseveres in the face of obstacles; puts in sustained effort for long periods; works hard to overcome obstacles; works long and hard to get things done, even when confronted with obstacles; shows urgency in getting work done. Sample Items You push yourself to your limits. You sometimes have trouble maintaining momentum in your work.
TP	Tolerance for Pressure Works and remains productive under pressure; is willing to accept supervision and close monitoring of performance. Sample Item You don't mind having your performance monitored closely.
RO	Relentless Optimism Research scale only. Sample Items You believe you can always make a sale. You are the most optimistic person you know.
IFQ	Infrequency Infrequent response scale to check for careless or random responding Sample Items It is important for businesses to retain customers Careless people make more mistakes than careful people.

Table 26 - Target Constructs for the Items in the Sales Scale

DESCRIPTION AND USE OF THE EMPLOYMENT INVENTORY-SALES SCALE

USE OF THE EI-SALES SCALE IN EMPLOYEE SELECTION

The EI-Sales scale works best alone in selecting employees for those jobs in which the dimensions of perseverance in the face of rejection, persuasiveness, and achievement orientation are most important, and in which other skills and abilities play a smaller role. For jobs with other requirements, such as specific product knowledge, numerical reasoning or computation, or knowledge of sales technique, other screening methods and tools should be considered in addition to the EI-Sales scale.

When designating the jobs for which the EI-Sales scale will be used, organizations must make several decisions about how the EI-Sales scale win fit into their selection process to ensure appropriate and consistent application. First, organizations must establish when in the selection sequence the applicant will complete the EI-Sales scale. Typically, this occurs at one of three times: when the candidate completes the application form, before the interview, or after the interview. Some considerations in this decision are discussed later in this section.

Next, organizations need to decide how to use the scores (norms are provided in this manual). They typically apply one of two strategies:

- With a top-down strategy, applicants with the highest scores are interviewed first. Often this strategy is used by companies that have a number of applicants for one position.
- With a cutoff score strategy, applicants who score below a recommended minimum will not be considered for hire. In this strategy, managers may end up hiring candidates who score below the cutoff if they feel strongly, based on interviews, application, and references, that the person is qualified for the position. Managers should discuss possible exceptions to established procedures with someone from the company human resources function.

Finally, organizations need to decide who is authorized to score the EI-Sales scale, from whom to obtain additional tests, and where completed EI-Sales scale test forms should be stored. As a pre-employment test, the EI-Sales scale forms should be stored separately from personnel files, in locked "hired" and "not hired" files. In organizations with a number of locations, the completed test forms can be stored in a central location.

ONE PART OF THE SELECTION SYSTEM

The best way to use the EI-Sales scale is by considering it as one part of the organization's overall hiring system; applicants should not be hired or rejected solely on their EI-Sales scale scores. Rather, the test is a source of additional information that should be considered together with other factors that organizations need to evaluate when hiring, such as the interview, application form, resumes, appropriate credentials, reference checks, and possibly other tests to evaluate particular skills, abilities, knowledge, or personal characteristics not covered by the EI-Sales scale but needed for the job.

Because administering the EI-Sales scale usually is less expensive than the time spent conducting a personal interview, it is cost effective for many organizations to have applicants complete the application form and the EI-Sales scale together as the first step in the selection process.

Applicants who appear to be the most qualified can proceed with an interview, and the most promising of those candidates can then have their prior work records checked as a final hurdle before being hired. This multiple-stage process can be particularly economical in mass hirings and in situations where there are many applicants and only a few jobs.

Use of the EI-Sales scale is most appropriate in the selection of employees for positions for which selling or persuading, persisting in the face of rejection, and showing energy and initiative support most of what is required for their successful job performance. There are many sales jobs for which the EI-Sales scale will effectively cover the personal characteristics that lead to success in the sales role, but may not cover other specialized knowledge and skills. The other elements included in a sales selection system should be driven by job analysis. One very relevant skill that supports success in sales is interpersonal communication. While paper-and-pencil tests are adequate for assessing comfort and orientation toward interpersonal communication, they are less able to assess how well a candidate is actually able to communicate. If interpersonal communication is indicated by job analysis to be critical to job performance, consider explicitly assessing that skill with either a simulation or interview.

Even with its Infrequency scale, the EI-Sales scale should not be used as a measure of reading ability, and EI-Sales scale scores should be used only in pre- employment situations for hiring decisions. For current employees, the quality of job performance, rather than the EI-Sales scale score should be used for decisions concerning rehiring, promotion, or termination. The only exception to this might be a case where a job class is to be significantly restructured, adding a strong sales or selling component. Incumbents might need to be assessed in areas that can't be assessed by looking at current job performance.

ADVERSE IMPACT

The Federal Uniform Guidelines on Employee Selection Procedures establish the proper use of tests for hiring. According to the Guidelines, employment tests must be free from adverse impact against protected groups. Adverse impact is defined by the Guidelines' "four-fifths rule" which requires that the selection rate (percent passing the test) for protected groups be at least 80% of the selection rate of other groups.

The selection rates for the applicant sample shown in Table 27 are in the same range for minority and non-minority groups. Also, the impact ratios for au protected groups exceed the minimum required 80%. Therefore, the EI-Sales scale does not show adverse impact against applicants on the basis of sex, race, or ethnic background.

NOTE: The number of cases in most of the minority group categories are smaller than we would like them to be. We will continue to collect data and track adverse impact.

Applicant Group	Number	Percent of Total	Average Sales Score	Selection Ratio [1]	Impact Ratio [2]
Non-minority	2327	53.9%	102.5	54.1	---
All Minorities Combined	1988	46.1%	101.4	50.1	0.93
Black	1309	30.3%	101.6	51.2	0.94
Hispanic	499	11.6%	100.5	45.7	0.84
Asian	93	2.2%	100.2	48.4	0.98
Native American*	23	.5%	---	---	---
Other	64	1.5%	105.8	68.8	1.27
Males	1518	35.6%	103.3	56.6	---
Females	2743	64.4%	101.2	50.0	0.88

[1] Percent receiving EI-Sales scale score of 103 or higher.
[2] Must exceed .80 to meet Federal Guidelines four-fifths rule.
*Groups with less than 30 cases are not reported (sample too small).

Table 27 - Selection Rates for the Applicant Sample

NORMATIVE DATA

SCORE INTERPRETATION

Interpretation of the EI-Sales scale score is actually quite straightforward: the higher a person's score, the greater the probability that the person will consistently exhibit a pattern of persistent, initiating, achievement-oriented behavior. High scorers will be more apt to exhibit behaviors from the positive end of this spectrum, such as demonstrating initiative and independence, keeping motivated after a hard rejection, and asking for sales. Conversely, low scorers can be expected to become overwhelmed by challenging goals, have trouble maintaining momentum, and be satisfied with being average in job performance.

As a screening tool, the EI-Sales scale makes estimates of the relative chances of success of an individual applicant compared to other applicants. The instrument is not designed to make point predictions about specific behaviors for any

given individual. EI-Sales scale results are based on an applicant's overall pattern of responses, not on individual questions. Resist the temptation to focus on any answers to specific questions. Also, the EI-Sales scale cannot predict with 100% accuracy; sometimes a test taker will get a low score, yet be a satisfactory employee. Consistent use of the Inventory will reduce the frequency of hiring unsuccessful employees. Hiring decisions, in any case, are best made on the basis of all the information available on job candidates.

An "invalid" Inventory is the result of language difficulties, random responding, or leaving more than 15% of items blank, or with more than one answer to an item.

Score Interpretation Guidelines for the EI-Sales scale (found at the end of this manual) indicate the score ranges obtained by job applicants in the United States, although average scores for any particular labor market of job may vary from these national norms. The color coding on the Score Interpretation Guidelines is like a stop light: EI-Sales scale scores falling in the green zone indicate "go" or hire; scores in the yellow zone mean "caution" or look carefully at all factors in making a hiring decision; and scores in the red zone suggest "stop" or do not hire.

CUTOFF SCORES

In order for an organization to use selection tests systematically, it needs defined procedures for making decisions based on test scores. In the case of the EI-Sales scale, such procedures typically involve defining a minimum acceptable score, or “cutoff score." For many hiring situations, concrete policies that define a cutoff score are helpful because they simplify the process and thus make it more acceptable to those involved. Established policies, however, need not eliminate management input. The balance of organizational guidelines with hiring managers' discretion should be discussed with a qualified consultant. One logical outcome of using cutoff scores is that over time, different cutoff scores result in different passing rates. This effect has practical relevance when the organization evaluates how to incorporate the EI-Sales scale into a larger selection process. Passing rates are fairly predictable once enough normative data (usually about 100 applicant scores for a given job) have accumulated through actual use, given that other factors affecting the composition of the applicant population remain stable.

Starting with estimates of the number of people who will be tested and the number needed for the next step in the hiring sequence, a desired passing rate can be determined. For example, if on average there are three viable applicants for each open position, and the organization wants to interview only two applicants, the EI-Sales scale cutoff score could be selected such that two-thirds of those tested will pass. The EI-Sales score that corresponds with the 33rd percentile can be identified in the norm table (Table 28). Using this score as a cutoff then would allow about two-thirds of the applicants to pass on to the next step. To be conservative in the early stages of implementation, the cutoff score should be set a couple of points lower than that identified by this method. As applicant test scores accumulate, the cutoff scores can be adjusted to yield the desired passing rate more precisely.

Raw Score	Percentile	Raw Score	Percentile
127	99	99	40
125	98	98	37
123	97	97	33
122	96	96	32
121	94	95	30
120	93	94	28
119	91	93	26
118	89	92	23
117	88	91	22
116	85	90	20
115	83	89	18
114	81	87	15
113	78	86	14
112	76	85	12
111	73	84	11
110	70	83	10
109	67	82	9
108	64	81	8
107	61	80	7
106	58	79	6
105	55	77	5
104	53	76	4
103	50	73	3
102	48	70	2
101	45	65	1
100	42		

Valid Cases = 4,737
Mean = 102
Standard Deviation = 14

Table 28 - Sales Norm Table

USE OF NORM TABLES

By comparing an individual's raw score to the data in a norm table, it is possible to determine the percentile rank corresponding to that score. The percentile rank indicates an individual's relative position in the norm group. To obtain the percentile rank of a given raw score, first locate the raw score.

The EI-Sales scale norms are based on a sample of 4,737 applicants for positions which job analysis showed to fit appropriately with EI-Sales scale use. The industries represent retail, banking, telephone call center, and equipment rental applicants. These norms were prepared in May of 1997.

The average EI-Sales scale score is 102 with a standard deviation of 145. As we collect more data in various industries, we will be exploring the need for industry or job-level based norms.

RELIABILITY

	Number of Items	Internal Reliability	N
Sales Scale	117	.90	3,609
Infrequency Scale	7	.19	4,030

Table 29 - EI-Sales Scale Descriptions and Reliability

Infrequency scale scores are not expected to show high reliability because the base rates of keyed responses is very low, and because high scores can indicate random or careless responding.

INTERPRETATION GUIDELINES

PDI EMPLOYMENT INVENTORY

Score Interpretation Guidelines

Performance • Customer Service

Performance Scale

Higher Performance scores suggest more reliable and generally satisfactory job performance.

Recommend Rejection bottom 25%	**Caution** lower 25%	**Recommend Hire** top 50%
0 – 47	48 – 52	53 – 88

Are more likely to be terminated; have a tendency toward:

- Excessive lateness or absence
- Shirking responsibility
- Gross violation of rules
- Acting hostile or angry

Are less likely to follow rules or be reliable; may show:

- Disruptive work behavior
- Low work motivation
- Minor violation of rules

Are more likely to be dependable and responsible on the job by:

- Adhering to rules more closely
- Showing more self-control and stability in behavior
- Being careful while performing tasks
- Taking responsibility

Customer Service Scale

Higher Customer Service scores suggest more competent, responsive, and courteous service behavior.

Recommend Rejection bottom 25%	**Caution** lower 25%	**Recommend Hire** top 50%
0 – 57	58 – 64	65 – 85

Are more likely to be rude to customers; have a tendency to:

- Act irritated at customers' requests
- Argue with customers
- Limit service for certain types of customers
- Take too long processing customers' transactions

Are less likely to be responsive by:

- Forgetting to give customers special information
- Interrupting or failing to pay attention when customers speak
- Socializing with a co-worker while helping customers
- Mumbling when talking to customers

Are more likely to be competent and courteous on the job by:

- Making good eye contact, smiling, and communicating effectively
- Showing persistent enthusiasm in customer interactions
- Tolerating rude customers calmly
- Giving customers full attention
- Putting aside other work to help customers
- Finding solutions to customer problems
- Remaining cheerful through a long, hard workday

Employment Inventory Score Interpretation

Higher scores suggest better job performance.
The Employment Inventory scale-s are linear. That is, the higher an applicant's score, the greater the chance that the applicant will perform satisfactorily on the job. Therefore, to raise your percentage of satisfactory employees, hire the top scorers whenever possible.

Higher scores are better, even within color zones.
For example, applicants who score 80 on Customer Service will, on average, perform better than applicants who score 70, even though both scores are in the same "Recommend Hire" zone.

The difference of one point is not significant.
A one-point difference does not strongly suggest that one applicant will perform better than another. Score differences of three or more points are more meaningful.

Use the Score Interpretation Guidelines as a reference.
The Score Interpretation Guidelines provided are based on large national norms. Because your labor market and specific job families may differ from those of the norm, your borders for each zone may be different. For instance, if half of your job applicants score above 50 on the Performance scale, and the other half score below 50, you could establish your own "Green Zone" by hiring only those who score above 50.

The Employment Inventory is not perfect.
The Employment Inventory scales are good predictors of future job performance. However, they are not perfect; they do not predict with 100% accuracy. Some employees who score below average still perform satisfactorily; some who score above average do poorly on the job. When hiring, use the Inventory scores with all of the other applicant information you have available.

All parts of the hiring process are important.
Always use all of the information you have about an applicant (e.g., interview and work experience) in making your hiring decision.

CHECKS:
Hire the highest-scoring applicants.
Look at other applicant information in addition to the Inventory scores.
Use the Score Interpretation Guidelines as a reference.
Remember that the Inventory cannot predict with 100% accuracy.
Use the Inventory consistently to increase your chances of hiring successful employees.

PDI EMPLOYMENT INVENTORY

Score Interpretation Guidelines

Sales

Sales Scale

Higher Sales scores suggest more committed, persistent, and energetic job behavior.

Recommend Rejection bottom 25%	**Caution** lower 25%	**Recommend Hire** top 50%
0 – 92	93 – 102	103 – 136

Employees who score in the bottom half are more likely to:

- Work at a slow, steady pace
- Lack self-confidence and initiative
- Become overwhelmed by challenging goals
- Have trouble maintaining momentum
- Be satisfied with average job performance

Employees who score in the top half are more likely to:

- Be rated above average on "sales skills"
- Prefer challenging tasks
- Work quickly and get more done
- Be a self-starter
- Continually set new, higher goals for themselves

Employment Inventory Score Interpretation

Higher scores suggest better job performance.
The Sales scale is linear. That is, the higher an applicant's Sales score, the greater the chance that the applicant will perform satisfactorily on the job. Therefore, to raise your percentage of satisfactory employees, hire the top scorers whenever possible.

Higher scores are better, even within color zones.
For example, applicants who score 120 on the Sales scale will, on average, perform better than applicants who score I 10, even though both scores are in the "Recommend Hire" zone.

The difference of one point is not significant.
A one-point difference does not strongly suggest that one applicant will perform better than another. Score differences of three or more points are more meaningful.

Use the Score Interpretation Guidelines as a reference.
The Score Interpretation Guidelines provided are based on the initial validation study with job incumbents. Because your labor market and applicants may differ from those in this norm, your borders for each zone may be different. For instance, if half of your job applicants score above 95 on the Inventory, and the other half score below 95, you could establish your own "Green Zone" by hiring only those who score above 95.

The Employment Inventory is not perfect.
The Employment Inventory is a good predictor of future job performance. However, it is not perfect; it does not predict with 100% accuracy. Some employees who score below average still perform satisfactorily; some who score above average do poorly on the job. When hiring, use the Inventory with all of the other applicant information you have available.

All parts of the hiring process are important.
Always use all of the information you have about an applicant (e.g., interview and work experience) in making your hiring decision.

CHECKS:
- Hire the highest-scoring applicants.
- Look at other applicant information in addition to the Inventory score.
- Use the Score Interpretation Guidelines as a reference.
- Remember that the Inventory cannot predict with 100% accuracy.
- Use the Inventory consistently to increase your chances of hiring successful employees.