

PROFILES CUSTOMER SERVICE SURVEY

TECHNICAL MANUAL

Copyright © 1998-99

Profiles International, Inc.
5205 Lake Shore Drive

TABLE OF CONTENTS

Chapter One: Introduction

Background History and Development
Theoretical Background and Development of Questionnaire
Customer Service Survey
Sales Knowledge Test
Using the Technical Manual and Guidelines

Chapter Two: Item and Scale Development

Item Selection and Background Research
Scale Groupings
Description of the Scales
Aggregation and Correlation

Chapter Three: Research Studies and Statistical Analysis of the Customer Service Survey

Sample Descriptions
Results
Descriptive Statistics
 Reliability
 Split-Half and Test/Re-test Analysis

Chapter Four: Validity Analysis

Validation Design
Outcome Analyses and Job Relevancy Measures
Criterion Validity
California Psychological Inventory (CPI)

Chapter Five: Research Studies and Conclusions

Appendices

A - Description of Industrial Norms Groups: Customer Service Representatives

Chapter One: Introduction.

Gaining momentum in the late 1940's, the measurement of traits in potential employees continues to be a widespread practice. Government, municipalities, businesses large and small have shown an increased need for well-designed, validated instruments. Test batteries may help with selection, but are increasingly becoming an integral component of development and succession planning. Since a validated testing program increases the probability of success in employment, it follows that employers place an economic value on such programs. Its value can not only be gauged in improved productivity, but is often assessed in terms of reduced expenses associated with job turnover and retention. Premature terminations often result in costs of hiring: salary, hiring and training costs, management time and production loss are but a few.

In order to make an informed decision about what test protocol is most appropriate for a particular setting, organizations must have detailed background information on the available instruments. Potential test users must know the theoretical background, validation and reliability research, and impact on protected groups.

Background History and Development

Early psychological test research substantiated, and later research confirmed, the presence of core, stable personality traits (Gough, 1965; Conley, 1984; Hogan, 1996; Barrick and Mount, 1993). Popular reference to these factors has often centered on the phrase "the Big Five Personality Factors" (Goldberg, 1993; Digman, 1990). The Customer Service Survey has taken advantage of these stable traits by combining them with a standardized set of skill measures. This yields a battery of tests that quickly and cost-effectively measures key traits required for success in the customer service environment: know-how and behavior.

The discussion of the development of the Customer Service Survey must therefore start with two definitions. First are skills. For the purposes of this document a distinct skill measure is described by the Customer Service Knowledge Survey (a measure of select methods of servicing customers). This skill measure is described in detail in this manual. Second are personality traits. For the purposes of this discussion, these are sets of observable and non-observable factors rooted in genetically based traits and seen in behavioral expression.

The Customer Service Knowledge Survey uses a combination of skill measures and behavioral measures to focus on the key items. The behavioral traits are measured by the Opinion and Attitude Survey (O&A), a multiple measure of behavior traits.

The O&A is a short, comprehensive test of dimensions of personality that are linked to job functioning. In customer service work for example, a critical behavior such as organizational ability is required. The O&A yields these behavioral categories:

1. Empathy
2. Organization
3. Maturity
4. Drive
5. Incentive
6. Assertiveness
7. Persistence
8. Creativity

Theoretical Background and Development of Questionnaire

The O&A was designed to fill the need for a test that has the following:

Data appropriate and normed for the normal working population rather than clinical subgroups. A wide variety of items that tap different attitudes and trait characteristics relevant to a variety of job functions. Standardization and reliability of test items and scales. Demonstrated validity for target populations within their particular work settings.

The original Opinion and Attitude Survey was developed by Dr. David Merrill and Roger Reid, both psychologists associated with Reid, Merrill, Brunson and Associates (RMBA) of Denver, Colorado. These researchers initiated test development with a large pool of items selected from the California Psychological Inventory (CPI) and originally drafted items.

The O&A, in use since 1968, has undergone dozens of construct, concurrent and predictive validity studies. Subsequent revisions have eliminated outdated language and language showing an editorial sex-, racial- or cultural-bias. In addition to language considerations, two additional requirements were observed in establishing the instrument. Each item had to be statistically sound (based on unique contributions to the overall scales and the test itself) and, they had to be valid predictors of actual job performance. To insure these criteria were met, multiple-year validity and reliability studies were performed, and are described in the manual.

At each point, the same guiding principles were held true:

- constructs must be useful and reliable
- items must load regardless of face validity
- scores must remain stable across time and populations
- scores must describe useful information, i.e. behavior, in a valid way.

The Big Five Personality Factors and the O&A

Since there are many hundreds of measures of personality, a user must decide what is relevant to the application at hand. Also, how does one separate the good from the bad measures. In addition to knowing the technical data on which the test is built, the user must decide what behaviors and constructs are useful to the job at hand.

Using the Big Five Personality Factors is a good starting point, but further breakdown of the factors adds to the utility of the test. This model relies on the Big Five as primary, plus several secondary factors. They are as follows and are contained in the Customer Service Survey.

BIG FIVE FACTORS

O&A EQUIVALENT MEASURES & SECONDARY FACTORS

- | | |
|----------------------|-------------------------------|
| 1. Openness | 1. Assertiveness, Persistence |
| 2. Extroversion | 2. Empathy, Assertiveness |
| 3. Emotionality | 3. Maturity |
| 4. Conscientiousness | 4. Organization, Creativity |
| 5. Agreeableness | 5. Drive |

Development of Skill Questionnaire

The Customer Service Survey contains a skill test called Customer Service Knowledge (CSK)

The **Customer Service Knowledge** scale was developed beginning in 1987 under contract to the United States' largest cable television provider. The company delivered its training manuals for call center, customer service, help-desk and technical representatives, and asked that a measure be built. As a means of establishing generalized validity, RMBA then sought and found four additional organizations (call centers, insurance companies, wholesaler) to participate in the same type study. In all, over eleven hundred pages of training materials were isolated into fifty-five categories. Items, questions and instructions were then subjected to Q-sort techniques. A three-judge panel sorted by pre-established category and ended with a research pool of 355 items. These were later reduced to 175 items and this final pool used in the studies with the five organizations.

Three concurrent-plus-longitudinal and two longitudinal studies were conducted. Total scores on the measure were compared to measures as indicated in Table 1.

TABLE 1: Criteria and Item Correlation

<u>Criteria</u>	<u>Total Score R</u>
Call-turn ratio (a)	.34 *
Customer complaint	-.48 *
Customer satisfaction	.39 *
Down-time ratio (b)	-.23
Service rating (c)	.53 **

- (a) company - set time to turn calls
- (b) unauthorized off-line time
- (c) weighted

n = 871

* = significant <.05

** = significant <.01

Subsequently, over the period 1989 to 1992, four additional studies were conducted using similar design. Two concurrent and two longitudinal studies were completed with three different locations (same company, three different locations and three different "clients" served by that location), and one in-house group of customer representatives.

The number of items on the Customer Service Knowledge scale was established at sixty-three. The descriptive statistics are shown in Table 2.

TABLE 2: Descriptive Statistics for the Customer Service Knowledge Scale

Minimum Score:	19
Maximum Score:	63
Average Score:	46.22
STD Deviation:	7.74
Range:	44

n=454

Finally, from 1993 through 1998, three additional studies were conducted where the test data were held away from the hiring decision, in order to observe the scores against future performance without the scores affecting the decision. The results were assessed using multiple-correlation statistics and similar criteria to the earlier studies. These results are displayed in Table 3.

TABLE 3: Multiple-correlation and criteria

<u>Criteria</u>	<u>Multiple R</u>
Call-turn ratio	.54 **
Customer complaint	-.29 *
Customer satisfaction	.49 *
Down-time ratio	-.51 **
Service rating	.48 *

n=1644

* = significant <.05

** = significant <.01

Using the Technical Manual and Guidelines

The guidelines set forth in this technical manual are similar to those of other measures of skill and behavior. To properly use this technical manual, users are advised to replicate studies and establish specific criterion validity where needed. Other forms of validity research are recommended in order to help generalize the findings contained herein. The publisher requests that copies of those studies be forwarded to the address shown on the title page of this document.

To make the most of a technical manual, it is vital that the user of the instrument, the Customer Service Survey, become familiar with the applications of the instrument as well as its interpretive value to develop potential employees.

Chapter Two: Item and Scale Development

Item Selection and Background Research

The Customer Service Survey items were selected based on the descriptions above. Just as important, the scales to which they load were subject to similar analysis. In each validation study performed, a theoretical scale loading was established. This was then subject to review by several psychologists and Industrial Organization Psychology Department students for highest-order agreement. When completed, this method insured consistency and reliability as demonstrated in the analyses below.

Scale Groupings

The principal constructs (scales to which items load and reveal the basis of behavior or personality) are listed here:

- Customer Service Knowledge
- Empathy
- Organization
- Assertiveness
- Persistence
- Maturity
- Creativity
- Incentive
- Drive

Each construct then became the basis for scales and uniform descriptions of factors that are now reported on as scaled scores in each Customer Service Survey report.

Aggregation and Correlation

Predicting job performance is one of the more difficult roles of tests and test batteries. To do so properly requires not only solid reliability determination among items and scales, but also must take one additional step: aggregation.

Rushton (1996, 1998) defines the *Principle of Aggregation* as the use of averaged means across several measures. In practice, this principle controls for the "randomness in any one measure (error and specificity variance) averaged out over several measures, leaving a clearer view of the underlying relationship." (Rushton, 1996). Simply put, test scales often correlate in a weak-to-mild range against a performance measure because they are single dimensions. When multiple dimensions are observed, correlations increase significantly.

Take the construct of leadership, for example. This complex notion has a meaning to most people; businesses and organizations of all types seek it and wish to test for it. When asked to define leadership as a construct, we often receive responses from businesses that range widely from "is aggressive"; "innovates and takes risks"; "has take-charge personality" etc. Any of these many descriptors alone may not correlate highly with a measure of leadership, but all of them in the aggregate, can together show a stronger correlation with the behavior.

Description of Customer Service Survey Scales

Empathy	This scale assesses the degree to which an individual describes him/herself as one who prefers taking action toward accomplishing a specific task; or, one who prefers taking action with people.
Organization	This scale assesses the degree to which an individual likes a variety of activities but dislikes organizing and following established routines and procedures; or, is generally conforming to routine procedures or accepted standards and is well organized.
Assertiveness	This scale assesses the degree to which an individual is retiring, quiet, and not outgoing; or, is persuasive, confident, and outgoing.
Persistence	This scale assesses the degree to which an individual is undecided, uncertain, and vague in his or her opinions; or, is persevering, unchanging and determined in pursuing goals.
Creativity	A measure of bringing into being new ideas and unique approaches, a propensity for innovative things. Measuring the ability to interpret information and apply the knowledge to other uses or other solutions.
Incentive	This scale assesses the degree to which an individual is reserved, unpretentious, and is one who has little need for social recognition; or, is desirous of recognition and feedback from others and wants to feel important by receiving attention and favorable notice. It also measures a person's approach to ideas and plans, whether the orientation is levelheaded, pragmatic and concerned with production and profit or more idealistic, imaginative and optimistic.
Maturity	This scale measures an individual's personal maturity level, the degree to which he or she uses good judgement, is stable, level-headed and accountable.
Drive	This scale assesses the degree to which an individual is competitive and aggressive and may be described by others as being opportunistic at times; or, is unassuming and may be described by others as wanting to please and gain personal acceptance.

Chapter Three: Research Studies and Statistical Analysis of the Customer Service Survey (CSS)

Sample Descriptions

The CSS was administered initially and in subsequent research to 3,650 incumbents or candidates.

Their demographics are as follows:

Male	39%	Female	61%				
White	49%	Hispanic	18%	African-American	26%	Other	7%

Results

Descriptive Statistics

Participants from the CSS studies were randomly selected and subjected to meta-analysis to determine the consistency across measures and across time as compared to predicting success or failure in the job. Table 4 shows these results. NOTE: a smaller but representative sample size was chosen to allow for most conservative analysis and therefore power of prediction.

Table 4: Representative Sampling and Meta-Analysis

<u>Aggregate Criteria</u>	<u>Multiple R</u>
Top 25% of customer service representatives	.53 **

n = 525

** p<.01

Split-Half and Test Re-Test Analysis

The CSS was subjected to two kinds of reliability analyses, split-half in which each half of the items per each scale were subject to analysis with the other half of the items for each scale to determine consistency within scales. And, test/re-test reliability where the same subjects took the instrument over time to determine consistency of traits. These results are summarized in Tables 5, 6 and 7 below.

Table 5: Reliability Analyses

<u>Scale</u>	Split-half Reliability:	
	<u>Split-half and Total Scale Score</u>	<u>Test-retest Reliabilities</u>
1. Empathy	.87 and .90	.72
2. Organization	.76 and .76	.57
3. Drive	.90 and .90	.77
4. Assertiveness	.82 and .82	.79
5. Persistence	.89 and .89	.83
6. Maturity	.75 and .79	.41
7. Creativity	.88 and .81	.49
8. Incentive	.83 and .83	.66

n=365

Table 6: Split-Half Reliability

<u>Scale</u>	<u>Intercorrelation</u>
1. Empathy	.88
2. Organization	.84
3. Drive	.72
4. Assertiveness	.89
5. Persistence	.84
6. Maturity	.71
7. Creativity	.91
8. Incentive	.81

n=365

Table 7: Test/Re-Test Reliability

<u>Scale</u>	<u>Coefficient</u>
1. Empathy	.79
2. Organization	.74
3. Drive	.66
4. Assertiveness	.81
5. Persistence	.84
6. Maturity	.86
7. Creativity	.83
8. Incentive	.82

n=365

Chapter 4: Validity Analysis

Validation Design

Several large-scale studies using the Customer Service Survey were conducted with up to ten outcome criteria specified. Most studies came up with an overall rating based on a weighted value of the criteria such as Top 10% overall, etc. to simplify the range of results. Anchor scores - the final aggregate criteria - are listed in Table 8 to show the running correlations.

Table 8: Correlations Between O&A (Form B) Scale Scores and Anchor Scores

<u>Scale</u>	<u>Correlation</u>
1. Empathy	.46**
2. Organization	.41*
3. Drive	.44**
4. Assertiveness	.40*
5. Persistence	.35*
6. Maturity	.43*
7. Creativity	.41*
8. Incentive	.51**

n = 1463

* p < .05

** p < .01

Outcome Analyses and Job Relevancy Measures

Aggregation tables were constructed for the scale combinations and overall outcome criteria. Table 9 displays those relating to the CSS. Job relevancy measures were taken from organizations who participated in the studies. These Measures allowed for an analysis of job specific predictions from test data.

Table 9 : Aggregation of Scales for the CSS

<u>Aggregation</u>	<u>Job Relevancy Measures</u>	<u>r</u>
Empathy + Organization + Maturity + Persistence	Customer satisfaction	.45 **
Persistence + Sales Knowledge	Cross-selling	.32 *
Drive + Assertiveness	Call-back efficiency	.29 *
Organization + Persistence	Paperwork handling	.50 **
Maturity + Organization	Supervisor potential	.38 *
Assertiveness + Persistence + Drive	Sales potential	.49 **
Creativity + Organization	Innovation	.26 *

* p<.05

** p<.01

NOTE: These Job Relevancy Measures combine numeric values and supervisor's ratings

Criterion Validity

California Psychological Inventory (CPI)

The CPI by Harrison Gough is a well-reviewed (Buros, 1975; 1984; 1995) instrument that measures traits correlated with behavior. It is considered one of the few truly sound instruments for measuring normal personality.

The CSS as described earlier, has its roots in the CPI and using these two measures affords some degree of equivalency where studies support. Table 10 displays the correlations between scales on the measures.

Table 10: Correlations Between O&A Scales and California Psychological Inventory Scales

CPI Scales	EM	OR	DR	AST	PRS	CR	M	IN
Dominance	04	03	11	86	09	00	14	65
Status	29	04	-47	21	24	82	07	90
Sociability	11	13	06	38	14	-03		42
Social Presence	02	10	04	14	18	26	-07	06
Self Acceptance	10	18	11	39	21	19	23	65
Well Being	27	02	37	10	22	02	26	02
Responsibility	14	27	-26	22	02	10	39	31
Socialization	03	-02	01	04	00	30	01	30
Self Control	26	49	16	47	14	01	44	21
Tolerance	37	26	-39	21	16	21	05	42
Good Impression	74	42	22	27	03	-05		-12
Communality	20	32	30	38	26	02	04	-19
Conformity	06	87	11	12	24	10	06	03
Independence	03	20	13	19	09	08	05	72

*EM=People Orientation, OR=Conformity, DR=Drive, AST=Assertiveness, PRS=Persistence, CR=Creativity, M=Maturity, IN=Incentive

n = 314
 r = .16; p.<.05
 r = .19; p. <.01

Note: Based on a sample of male and female adults, mixed occupations. Decimals removed.

Chapter Five: Research Studies and Conclusions

The Customer Service Survey has undergone extensive analysis primarily within the confines of organizations that controlled the outcome criteria as well as the initial analysis of the data. Each study by itself had average to strong predictive results. In the aggregate, however, the test battery appears to yield the following:

- solid prediction of performance in the specified area
- strong intercorrelation with complex traits
- predictive value in selecting and training employees
- high confidence job-related and criterion validation
- normal personality trait and applicable skill measurement

Appendix A

Description of Industrial Norms Groups: Customer Service Representatives

Proportion by Gender		Proportion by Racial-Ethnic Groups			
<u>Male</u>	<u>Female</u>	<u>White</u>	<u>Nonwhite</u>	<u>Total n</u>	<u>Mean Age</u>
86%	14%	74%	26%	1840	30.9
<u>Occupations</u>		<u>Industry and Number of Companies Represented</u>			
Center, Technical		Retail Stores (2) Financial Services (3) Manufacturers (7) Varied (6)			
Computer Based CSR		Bank (2) Savings & Loan (2) Trust Company (3) Software Development (4) Varied (2) Energy company Life Insurance (6) Claims (2) Consumer Survey (2) Postal Service/Package (3)			