

“WASTE INDUSTRY” Validation Study: Drivers

May 2008

Conducted by The Executive Group 

Rick Tiemann, President

Michael Karson, PhD, A.B.P.P. (Clinical)

Purpose

The purpose of the validation study was to quantify the personality characteristics which are most conducive to high performance in order to improve the selection process of Drivers.

Overview

Ninety-one truck drivers were evaluated from this Company to determine if there is a relationship between personality characteristics and good performance on the job. All Drivers completed the 16PF Personality Questionnaire, a highly validated personality test, which measures characteristics along 16 dimensions and 5 global areas.

All the Drivers were men. Sixty were identified as White, 7 as Black, and the race of 24 was unknown. There were not enough black drivers to run meaningful statistical analyses for potential disparate impact, but the current numbers did not reveal statistically significant racial differences either on performance ratings or on the impact of the new Scale.

The Process

All participants who took the 16 PF were evaluated by their Supervisors along 9 dimensions critical for drivers. Each employee was rated on safety, attendance, productivity, customer service, equipment use, adaptation, team orientation, self-control, and likelihood of being rehired (REHIRE). Performance in each dimension was rated on a scale from 1-5, 1 being the lowest and 5 being the highest. These scores were then added together for a TOTAL REVIEW SCORE potentially ranging from 9 to 45. Fourteen employees either quit or were terminated and these people were assigned a TOTAL REVIEW SCORE of 9 and a REHIRE score of 1, both scores indicating poor performance.

Data was analyzed using the TOTAL REVIEW SCORE and the REHIRE score since that appeared to be a good indicator of performance as well. As expected, the TOTAL REVIEW SCORE and the REHIRE ratings were essentially identical. They correlated .90. Using a cut off score of 30.5 on TOTAL REVIEW SCORE would correctly identify all but 2 (*) of the drivers whose REHIRE scores were high (4 or 5) or low (1 or 2).

Correlation Between REHIRE Score and TOTAL REVIEW SCORE

N = 91

Rehire Score	Low 1 or 2	3	High 4 or 5
< 30.5	28	6	1 *
> 30.5	1 *	6	49

Personality Factors Affecting Job Performance

As with almost all jobs, Workplace Coping Skills, Self-Control, and Areas of Potential Concern should be taken into account before looking at factors relevant to the specific job of driving at this Company. For the job of Driver, the best cutoffs for these factors would be at 4.5 or higher for Workplace Coping Skills, at 4.0 or higher for Self-Control, and at 1 or 0 for Areas of Potential Concern. However, for the purposes of selecting drivers, a low score on Factor B (Verbal Facility) should not be considered an Area of Potential Concern, as there were too many top drivers who scored poorly on the word puzzles that make up this factor.

The remainder of this section will discuss factors specifically related to driving at This Company. **All of the information in this section can be seen at a glance on the this Company's Driver's Scale page, where the relevant pieces are reproduced in graphical format for a specific applicant, and on the Primary Personality Factors page, where the shaded areas represent scores obtained by good drivers and the unshaded areas represent scores disproportionately obtained by bad drivers.** Keep in mind even top drivers are going to have some of these less than desirable scores. **The information is also reduced to a single score on a 1 to 10 scale, the Drivers Scale, which is reported on the Drivers Scale page.** (For the technically-minded reader, this scale combines the number of marginal scores on all scales with a linear regression formula created from all the data.)

The Personnel Report - Guidelines for Interpretation

Section of the Report	Recommended Cutoff	Exception
Primary Personality Factors	Shaded areas	
This Company Drivers Scale	4.5	
Areas of Potential Concern	1 *	* Does not include Factor B
PF Self-Control	4.0	
PF Workplace Coping Skills	4.5	

All of the following observations are determined by the data in the validation study, not from common sense; however, they all also seem commonsensical.

Factor A (Sociability): After other personality traits are accounted for, Sociability turns out to be positively related to performance as a driver. This is only true up to a point, though, since the top drivers were still slightly less sociable than most people are. The extent of the correlation with good driving is reflected in the RDS, while the limitations of the connection are reflected in its not being weighed very heavily in the RDS.

Factor B (Verbal Facility): Even though several top drivers scored very low on this factor, it is still true that verbal facility is generally an asset.

Factor C (Frustration Tolerance): Very low scores signal problems with frustration tolerance, obviously relevant to good driving.

Factor E (Assertiveness): Scoring too high on assertiveness creates difficulties for drivers.

Factor G (Rule-Consciousness): Good drivers follow the rules, and scoring too low on this factor may signal difficulties.

Factor I (Sensitivity): None of the drivers tested, good or bad, scored high on this scale. There's no comparison data, therefore, but it seems like it would not be a good sign to find too much emotionality in a driver.

Factor L (Vigilance): Vigilance is obviously an important trait for a good driver, who must watch the road and anticipate problems, but too much vigilance can also be problematic as it is sometimes associated with irritability.

Factor M (Impracticality): Another obviously poor sign in a driver, partly because it also suggests inattentiveness.

Factor Q3 (Orderliness): The best drivers are reasonably orderly, or even quite orderly, but are not excessively orderly. Disorderliness is an obvious drawback, but excessive orderliness can lead to slow decision-making that is also a drawback.

Factor Q4 (Impatience): The best drivers were more impatient than the worst drivers, but on closer inspection, the best drivers were still more patient than the average person. Thus, scores in the middle of the spectrum are preferred, with excessive patience probably interfering with efficiency and excessive impatience probably interfering with due caution.

Workplace Coping Skills: In addition to a cutoff score at the bottom end of the spectrum, it is not ideal to find scores on this global factor in the extremely high range. These very high scores probably indicate the same kind of patience and relaxation discussed under Factors Q3 and Q4.

Independence: This global factor, when very high, may suggest aggressive driving or not following rules.

Interpersonal Skills: While Interpersonal Skills are generally desirable, in excess, in an occupation like driving, they can signal boredom and dissatisfaction while working alone.

Toughmindedness (Groundedness) Those who score high on Tough-Mindedness tend to experience the world in concrete, logical, unsentimental terms. **NONE** of the drivers scored low on Toughmindedness and low scores would be somewhat peculiar in any driver.

Other Factors

There are other Factors which the 16PF measures that did not relate individually in a significant way to high performers. While they are not factored into the RDS, they still may warrant scrutiny in very low or very high ranges. Refer to the shaded area on the Profile Summary graph and the Work-related section of the Personnel Report for more information on these factors and how they affect performance in any position.

Factor F (Liveliness)

Factor H (Social Boldness)

Factor N (Directness)

Factor O (Concern)

Q1 (Openness to Change)

Q2 (Teampayer)

Characteristics of the Drivers Scale (DS)

The DS combines correlational data with cutoff data. Correlational data involves the tendency of good drivers to generally score higher or lower on a scale than bad drivers. Cutoff data examines each scale to see whether there is some cutoff point that would separate good and bad drivers. Several of the scales that correlated with driving ability could be misleading, because even though good drivers scored higher on them than bad drivers, very high scores were not desirable. Therefore, we have not combined correlational and cutoff data equally, but have emphasized the cutoff data in the final DS. The DS was designed to resemble most of the other scales on The Personnel Report; that is, the scores are aligned so they range from 1 to 10, the average is 5.5, and the standard deviation is 2. That makes 4.5 a fairly decent score, and we recommend looking for applicants who score 4.5 or higher on the DS.

The following tables show how the samples used in this study look, using a cut off score of 4.5 on the DS scale.

Data for REHIRE Score

N = 91

Rehire Rating:	Worst 1	2	3	4	Best 5
RDS < 4.5	12 *	2	4	3	0
RDS >or = 4.5	10	5	8	15	32

This scale would have screened out 12 (*) of the 22 worst drivers and none of the top drivers.

Data for TOTAL REVIEW SCORE

N = 91

Total Review Score:	Worst 0-19	20-25	26-35	Best 36-45
RDS <4.5	9 *	3	7	2 *
RDS > or = 4.5	6	5	20	39

This scale would have screened out 9 (*) of the 15 worst drivers and only 2 (*) of the top drivers.

The Outcome

Statistical analysis of the data from the Drivers Validation Study showed indicators to help quantify the appropriate characteristics most conducive to improving the selection process for Drivers. The results are suggestions to consider when evaluating test data.

The Personnel Report will aid in the selection process and support the information from reference checking and the structured interview to help provide objectivity and reduce the subjectivity of selection. The new interview process with revised format and questions will aid in that process as well. The objective here is to improve employee productivity and reduce poor selection decisions. This can be accomplished by using the features of the Personnel Report, specifically the Areas of Potential Concern and in the Performance Factors section the Personal Responsibility/Self-Control and Workplace Coping Skills. Additionally, using the Drivers Scale and the Primary Personality Factors supports the hiring process because they predict better performance.

The Personnel Report is modeled on the professional experience and research publication of Dr. Michael Karson, a recognized authority on objective personality testing. As a well-constructed, scientifically validated personality inventory, interpreted according to the way traits are expressed in the workplace, *The Personnel Report* constitutes a vital addition to other sources of data used in

making personnel selection decisions. As we usually find, there was excellent overlap between the 16PF data and common sense expectations, which suggests that the 16PF is a valid personality test for use with this population.

Recommended Procedure Using the Personnel Report

Personality test data should **NOT** form the sole basis for personnel decisions. Other sources of information should be considered to make an overall assessment of qualifications and job fit. Consider these points using The Personnel Report:

1. *Consider very carefully any applicant with one or more Areas of Potential Concern.* The data in this group revealed several good drivers with low scores on Verbal Facility (B), and this should not count as an Area of Potential Concern for Drivers at this Company. There should be supportive material from other sources (e.g. background investigation and interview) for a positive hiring decision. Conversely, when one or more Areas of Potential Concern occur and a decision not to eliminate the person is made, there should be additional information to support the candidate.
2. If one Potential Risk Factor is present, management should assess how critical this factor may be to the particular job. *If the factor is highly relevant, then consideration should be given to other candidates.* Also consider the one Potential Risk Factor in relationship to the Performance Factors and any of the personality factors and the Driver Scale.
3. In the Performance Factors section of *The Personnel Report*, Personal Responsibility/Self-Control should be 4.0 or higher, and Workplace Coping Skills should be 4.5 or higher. If either of these factors is in the questionable range, a hiring decision should be well supported by interview data and/or a review of past work history.
4. If an applicant is not eliminated based on the above criteria, then the personality factors on the Primary Personality Factors page of the report should be reviewed for overall "goodness of fit."
5. Evaluate the Drivers Scale (DS), with scores over 4.5 considered desirable, scores under 4.5 considered questionable. We recommend using the Driver Scale only if the applicant passes certain other screens, including driving credentials and safe driving requirements.

Further Investigation

When scores in *ANY* of the four procedures above are in question, further exploration is *HIGHLY* recommended. Spend additional time reviewing the report, conducting thorough background checks or checking with past supervisors regarding questionable areas. Consultation with The Executive Group is available for further insight and clarification.