



DriveTest®
Development and Validation
Technical Manual

02/08/2016

BEHAVIORAL ASSESSMENT DEVELOPMENT AND VALIDATION TECHNICAL MANUAL

SalesDrive, a sales assessment organization helping companies select and hire successful salespeople, partnered with Quintela Group (QG), an assessment and technology consulting firm, to design and validate a personality assessment. This personality assessment is referred to as the DriveTest, and is intended for the pre-employment selection and career development of sales professionals.

The assessment questions were written to measure critical sales behaviors as defined by the SalesDrive model. The assessment was then administered to sample of sales professionals using a criterion-related concurrent validation study methodology. The goal of the validation research was to establish statistical evidence supporting the job-relatedness of the behavioral assessment in accurately predicting observed sales performance. The assessment scoring was designed based on the validation study results and subject matter expert input from SalesDrive staff.

PREVIOUS RESEARCH

The focus of this project was on the job of a sales professional. The sales professional role is most closely aligned with the O*NET occupation of "Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products (41-4012.00)". O*NET summarizes the responsibilities of this role as: "Sell goods for wholesalers or manufacturers to businesses or groups of individuals. Work requires substantial knowledge of items sold."

SalesDrive had predetermined the critical work behaviors for sales professional success before engaging with QG on this project. Dr. Christopher Croner is a recognized expert in the field of sales performance and author of "Never Hire a Bad Salesperson Again."

Dr. Croner reviewed more than 80 years of academic research on the personality characteristics common to high performing salespeople to develop the SalesDrive model. Dr. Croner also examined his own work and experiences in conducting intensive behavioral interviews with both sales candidates and highly successful incumbent sales professionals. Based on this collective analysis, Dr. Croner created a sales success work behavior model. These sales work behaviors were used as the primary content domain factors to inform the creation of assessment questions, criterion measures, and assessment results reporting.

The SalesDrive model includes the sales professional characteristics and work behaviors summarized in Table 1.

Table 1: SalesDrive Model of Sales Professional Work Behaviors

Characteristic	Work Behaviors
Need for Achievement	<i>Sets demanding personal goals; is ambitious; strives for excellence; willing to work as hard as necessary to get things done.</i>
Competitiveness	<i>Thrives on competition and winning; determined to be the top producer; takes challenges head on; works to outperform others.</i>
Optimism	<i>Expects to succeed; remains resilient in the face of difficulties.</i>
Confidence	<i>Is unfazed by rejection; not offended by difficult buyers; feels self-assured; freely expresses opinions or concerns.</i>
Persuasion	<i>Builds a good case, taking customer needs into account; closes compellingly; enjoys selling, negotiating, and changing others' point of view; stays calm under pressure.</i>
Relationship	<i>Easily establishes and maintains relationships with prospects and customers; enjoys social interaction and building rapport; freely expresses enthusiasm.</i>
Organization	<i>Is disciplined and methodical; detail-oriented; is organized and orderly; checks thoroughly to avoid mistakes; tracks opportunities and contacts; task-oriented; follows-up.</i>

SELECTION PROCEDURE (BEHAVIORAL ASSESSMENT)

The behavioral assessment was written by QG's team of industrial-organizational consultants with ongoing advisement from and collaboration with the SalesDrive team. The final behavioral assessment included 42 questions and required approximately 20 minutes to complete. The characteristics of the SalesDrive model of sales professional work behaviors was used as the framework and content domain for the creation of assessment scales and writing of assessment statements. Throughout the remainder of this technical report, the SalesDrive characteristics will be referred to as "scales" when used in the context of the behavioral assessment.

The assessment was formatted and presented to testers using an ipsative response format. Eighteen behavioral statements were written for each of the seven SalesDrive scales. This resulted in a total of 126 behavioral statements in the assessment. To align with the desired ipsative response format, QG combined these 126 statements into 42 triads. Each triad essentially served as a separate question in the assessment. The ipsative approach requires that the tester select one of the three statements that is most like them and one of the three statements that is least like them. The online assessment required that a most/least response be provided for each question before the tester could move onto the next question screen.

Special consideration was taken during the construction of each triad to ensure that no two facets from the same scale were combined in the same triad. QG also analyzed the triads to ensure that the same facets were not used in consecutive triads. Furthermore, triad reviews were undertaken to ensure the length of each statement within each triad was similar.

The online version of the assessment was programmed with a feature to mitigate concerns related to the top-down order effects of the behavioral statements within each triad. This feature automatically randomized the top-down order in which the 3 statements were presented for each triad/question. This was implemented to avoid unintended response biases that may result from certain statements always being presented first, second, or last.

See Figure 1 to view an online sample assessment question including 3 behavioral statements using the ipsative response format.

Figure 1: Sample Behavioral Assessment Question Screen

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Please read each statement and answer as it relates to you in the workplace.

1. Indicate the one statement that is "Most Like You" and the one statement that is "Least Like You".

I choose demanding targets at work.

I do repetitive tasks quickly and accurately.

I am relaxed before important meetings.

Next

Considerable effort was also taken to minimize the potential effects of social desirability differences for statements within the same triad. QG consulted with Dr. George Paajanen to assist with this phase of the assessment development. Dr. Paajanen has been developing and validating employment assessments for over 35 years including experiences at UniCru and PDI. During his career, hundreds of organizations have administered Dr. Paajanen's tests to over 1 million candidates. Dr. Paajanen reviewed the 42 triads and assigned a 5-point rating to each behavioral statement based on social desirability. For triads where the social desirability rating differences within triads was greater than plus or minus 1, the statements were re-worded by QG in collaboration with SalesDrive. The statement rewording was done in an effort to attain approximately equal social desirability for statements within the same triad.

RELATIONSHIP TO WORK REQUIREMENTS

The 126 behavioral statements were written based on the 7 scales in the SalesDrive model of sales professional work behaviors. These 7 scales were further broken into facets and sub-facets to ensure the multiple constructs included in the scale definitions were appropriately represented and measured in the assessment statements. QG created a content domain using these facets and sub-facets. This content domain was used as the blueprint for all subsequent item writing efforts. The QG and SalesDrive teams collaborated closely through multiple iterations and revisions of the content domain.

A different number of facets and sub-facets were defined for each scale depending on the scope and complexity of the constructs being measured in the scale. For example, the Need for Achievement scale was broken down into 2 facets: Goals and Career. The Goals facet was then further broken down into 2 sub-facets: Demanding and Results. The Career facet was also divided into 2 sub-facets: Ambition and Plan. Definitions were created at the sub-facet level. Alternatively, the Persuasion scale definition included a broader combination of constructs and therefore required a greater number of facets. This scale was broken down into 3 facets: Influencing, Closing, and Composure. Each facet was further broken into 2 sub-facets each. The number of statements written for each sub-facet also differs in some cases. This is due to situations where certain constructs have more conceptual depth and complexity compare to others.

Table 2 provides a full description of the facets and sub-facets created for each of the 7 scales along with the number of statements per sub-facet included in the final version of the assessment.

Table 2: Content Domain Scales, Facets, and Sub-Facets

Scale	Facet	Sub-Facet	Sub-Facet Definition	# of Statements
Need for Achievement	Goals	Demanding	Sets demanding goals	6
		Results	Achieves results	4
	Career	Ambition	Has high career aspirations	4
		Plan	Has a clear career plan	4
Competitiveness	Winning	Thrives	Thrives on competition and winning	6
		Challenge	Takes challenges head on	4
	Best	Top	Desires to be number one	4
		Better	Focuses on being better relative to others	4
Optimism	Positive	Outlook	Has positive expectations for the future	5
		Focus	Focuses on the positive aspects of a situation	4
	Resiliency	Regret	Is not overly self-critical or regretful of failures	5
		Persistence	Persists and moves forward despite setbacks	4
Confidence	Self-Assuredness	Self-Confidence	Is confident in his/her capabilities	5
		Pride	Talks about achievements and strengths	3
	Toughness	Insults	Is not offended by insults	3
		Criticism	Does not internalize criticism from others	3
	Assertiveness	Opinions	Freely expresses opinions	2
		Concerns	Freely expresses concerns	2
Persuasion	Influence	Selling	Enjoys selling, negotiating, and changing others' point of view	4
		Needs	Takes customer needs into account	3
	Closing	Lead	Likes to be in charge and take the lead	3
		Directing	Directs the work of others	2
	Composure	Calm	Stays calm under pressure	3
		Relaxed	Is free from worry before big events	3
Relationship	People	Likes	Likes to be around people	4
		Miss	Can miss the company of others	2
	Connection	Rapport	Easily establishes rapport	4
		Comfort	Is comfortable at social events	3
	Expressive	Emotion	Openly expresses feelings and emotions	2
		Passion	Shows others his/her passion for work	3
Organization	Detail	Attentive	Focuses on details	2
		Careful	Is thorough to avoid mistakes	3
	Structured	Organized	Is organized, orderly, and keeps track of things	3
		Process	Likes to be methodical and systematic when doing work	2
	Follow Through	Commitments	Delivers on commitments	5
		Routine	Is prepared to do repetitive work	3

CRITERION MEASURES

A key part of the behavioral assessment development planning was the execution of a concurrent criterion-related validation study. The study predictor was the behavioral assessment and the study criterion measure was a performance rating survey. The performance rating survey was designed to be completed by supervisors managing sales professionals.

The survey offered respondents a 5-point rating scale including the following response options:

- Weak (bottom 20%) = Far less effective than others
- Fair (next 20%) = Less effective than others
- Good (middle 20%) = About as effective as others
- Strong (next 20%) = More effective than others
- Best (top 20%) = Far more effective than others

A Not Applicable (NA) response option was also provided for situations where the supervisor did not have the opportunity to fully observe the employee's performance on that particular behavior. In order to align the raters' frame of reference in a consistent manner, supervisors were instructed to rate the employee's effectiveness compared to other employees at similar experience levels in the same job

The performance rating survey was created with two (2) objectives. First, rating items were included that aligned with the assessment facets. This would provide the data necessary to analyze the relationship between the work styles self-reported on the assessment by a sales incumbent and the observed work styles as evaluated by the sales incumbent's supervisor. Secondly, rating items were included that were broader in terms of allowing the supervisor to evaluate the sales performance of the employee. The sales performance categories included overall, sales revenue, sales goals, hunter behaviors, and farmer behaviors.

See Table 3 for a listing of all behavioral rating items in the survey with linkages to the content domain.

Table 3: Behavioral Rating Item Alignment with Content Domain Facets

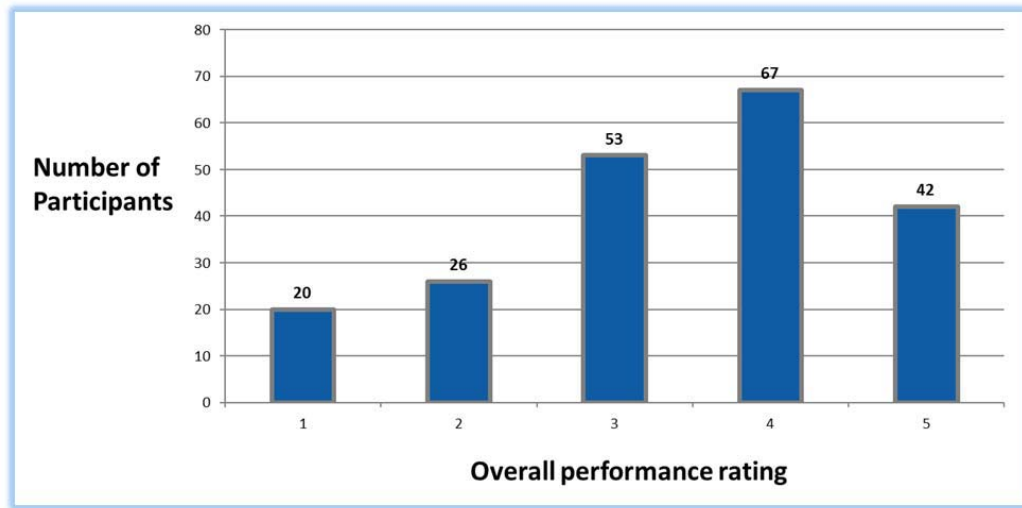
Behavioral Rating Item on Performance Survey	Aligned Content Domain Facet
Displays a high need for achievement.	Goals
Sets demanding personal goals at work.	Goals
Consistently delivers results.	Goals
Displays high career ambition.	Career
Thrives on winning and competition.	Winning
Is determined to be the best.	Best
Displays an optimistic future outlook.	Positive
Remains resilient in the face of rejection.	Resiliency
Displays self-confidence.	Self-Assuredness
Talks about his/her achievements and strengths.	Self-Assuredness
Can handle criticism from others.	Toughness
Freely expresses opinions and concerns.	Assertiveness
Persuades and influences clients' viewpoints.	Influence
Enjoys selling and negotiating.	Influence
Takes customer needs into account.	Influence
Takes charge of situations.	Closing
Stays calm under pressure.	Composure
Enjoys working with people.	People
Easily establishes rapport with prospects.	Connection
Easily maintains relationships with customers.	Connection
Expresses emotions clearly and appropriately.	Expressive
Demonstrates attention to detail.	Detail
Works in an organized manner.	Structured
Follows up with clients.	Follow Through
Is prepared to do repetitive work.	Follow Through

A primary concern of any criterion-related validation study is obtaining honest and accurate performance ratings. If the rating task is not framed appropriately, supervisors may not feel comfortable assigning low performance ratings even when the employee being reviewed is performing below expectations. This can result in a lack of variance in performance rating data. To mitigate this concern, QG included the following elements in all study communications sent to supervisors/raters:

- The ratings you assign to each employee will be 100% confidential.
- The ratings will not affect their jobs or your job in any way.
- Only the external research vendor will have access to the ratings.

See Figure 2 for the distribution of overall performance ratings assigned by supervisors.

Figure 2: Distribution of Overall Performance Ratings Assigned by Supervisors



See Appendix A for the full performance rating survey instructions and items.

RESEARCH SAMPLE

SalesDrive created a consortium of companies to participate in the concurrent criterion-related validation study. These companies included several organizations that were long-time SalesDrive clients. These organizations represented various industries including:

- Information Technology
- Convenience Store Wholesale
- Building Restoration Supplies
- Real Estate Services
- Transportation Solutions

The sales employees from the participating companies invited to take the behavioral assessment were all sales professionals performing duties similar to the O*NET occupation of “Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products”. A total of 223 sale employees completed the behavioral assessment for the validation study. See Table 4 for the study participant sample demographics for those completing the behavioral assessment.

Table 4: Demographics for 223 Validation Study Participants Completing the Behavioral Assessment

Demographic		Percent
Gender	Male	78.2%
	Female	21.8%
Ethnicity	White	84.2%
	Hispanic	7.2%
	African-American	2.3%
	Asian	3.6%
	Other	2.7%
Age*	Under 40	50.3%
	40+	49.7%

*Average age for sample = 40.53

Supervisors from the participating organizations were invited to complete a performance rating survey for each sales employee they supervised that participated in the study. A total of 212 supervisors completed a performance rating survey for the validation study. Table 5 provides demographic information for the supervisors completing performance rating surveys.

Table 5: Demographics for 212 Supervisor Participants Completing the Performance Rating Survey

Category	Group Average
Years of Experience Supervising Sales Employees	3.93
Years of Experience Supervising the Employee He/She Rated	1.99
Number of Employees the Supervisor Rated in the Study	7.31
Overall Performance Rating Assigned	3.41

There were a total of 175 participants for which both a behavioral assessment and a performance rating survey was collected. Criterion-validity analyses were conducted for these 175 participants. 163 participants completed the behavioral assessment as part of the study and had previously completed the Occupational Personality Questionnaire (OPQr) by CEB (formerly SHL). Convergent validity analyses were conducted for these 163 participants.

RESULTS

Item Analyses

A value was assigned for each of the 126 statements in the assessment. Values were assigned based on responses follows:

- Most = 2
- Least = 0
- Not Selected = 1

Selected behavioral rating items from the performance survey were combined and averaged to create composite performance scores aligned with each behavioral assessment scale (see Table 3 for alignments to each scale facet). This resulted in the creation of 7 composite performance scores aligned with the 7 behavioral assessment scores. The values for each of the individual 18 statements from each assessment scale were correlated with the composite performance score associated with that scale. For each scale, the top 12 statements with the strongest, positive correlation were identified. These 12 statements were selected to be used in the assessment scale scoring. The remaining 6 statements per scale would be retained as part of the assessment, however they would not be used for scoring until such time additional data collection and analyses could be conducted to determine their utility for measuring the intended construct. The 12 statement values for each scale were summed to create 7 raw scale scores. These raw scores were used throughout the remaining predictor analyses reported in the Results section of this technical report.

Scale Analyses

Reliability analyses were conducted to examine the internal consistency of the statements within each scale. Cronbach's Alpha was used to examine scale reliability. Table 6 summarizes the reliability estimates for each assessment scale.

Table 6: Scale Reliability Estimates

Scale	Cronbach's Alpha
Need for Achievement	.528
Competitiveness	.810
Optimism	.649
Confidence	.355
Persuasion	.595
Relationship	.715
Organization	.817

Intercorrelations between the raw scores for the 7 scales were analyzed to determine relationships among the attributes being measure in the assessment. Table 7 provides the intercorrelations between the assessment scales.

Table 7: Intercorrelations for the Behavioral Assessment Scales

		NFA	COMP	OPT	CONF	PERS	ORG	RELS
NFA	Pearson Correlation	1	.451	-.086	.030	-.102	-.160	-.304
	Sig. (2-tailed)		.000	.203	.658	.129	.017	.000
COMP	Pearson Correlation		1	-.210	.215	-.017	-.314	-.314
	Sig. (2-tailed)			.002	.001	.805	.000	.000
OPT	Pearson Correlation			1	-.228	-.039	-.132	-.053
	Sig. (2-tailed)				.001	.567	.050	.430
CONF	Pearson Correlation				1	.088	-.170	-.272
	Sig. (2-tailed)					.189	.011	.000
PERS	Pearson Correlation					1	-.428	.160
	Sig. (2-tailed)						.000	.017
ORG	Pearson Correlation						1	-.289
	Sig. (2-tailed)							.000
RELS	Pearson Correlation							1
	Sig. (2-tailed)							

Convergent Validity Analyses

Correlation analyses were conducted to establish convergent validity for the behavioral assessment scales. 163 participants had completed both the OPQr and the behavioral assessment. Table 8 provides the correlations between behavioral assessment scales and the relevant OPQr scales measuring a similar construct. For the scales Confidence, Persuasion, Relationship, and Organization, correlation analyses were conducted at the facet level due to these scales measuring constructs with significant conceptual depth and complexity.

Table 8: Convergent Validity Analyses between Behavioral Assessment and OPQr

Behavioral Assessment Scale/Facet	OPQr Scale	Correlation
Need for Achievement	Achieving	.41 (p < .01)
Competitiveness	Competitive	.54 (p < .01)
Optimism	Optimistic	.38 (p < .01)
Confidence (Self-Assuredness)	Modest (reverse)	.37 (p < .01)
Confidence (Assertiveness)	Outspoken	.15 (p = .06)
Confidence (Toughness)	Tough-Minded	.18 (p < .05)
Persuasion (Influence)	Persuasive	.31 (p < .01)
Persuasion (Closing)	Controlling	.35 (p < .01)
Persuasion (Composure)	Worrying (reverse)	.23 (p < .01)
Relationship (People)	Affiliative	.35 (p < .01)
Relationship (Connection)	Socially Confident	.16 (p < .05)
Relationship (Expressive)	Emotionally Controlled (reverse)	.17 (p < .05)
Organization (Detail)	Detail Conscious	.32 (p < .01)
Organization (Structured)	Conscientious	.36 (p < .01)
Organization (Follow Through)	Variety Seeking	.15 (p < .05)

The convergent validity analyses met expectations and confirmed that the scales are measuring the intended constructs.

Criterion-Validity Analyses

Correlation analyses were conducted to establish criterion-related validity for the behavioral assessment scales. Study data collection resulted in 175 participants having both behavioral assessment data and performance ratings data. The 7 composite performance scores (described in the Results section on page 8) were used as criterion variables in these analyses. The 7 behavioral assessment raw scale scores were used as the predictor variables. In the analyses, each composite performance score was aligned with the corresponding assessment raw score according to the construct being measured. See Table 9 for a summary of the criterion-related validity results.

Table 9: Criterion-Related Validity Analyses

Behavioral Assessment Scale	Correlation with Associated Composite Performance Score
Need for Achievement	.30 (p < .01)
Competitiveness	.40 (p < .01)
Optimism	.14 (p < .06)
Confidence	.19 (p < .01)
Persuasion	.14 (p < .06)
Relationship	.17 (p < .05)
Organization	.23 (p < .01)

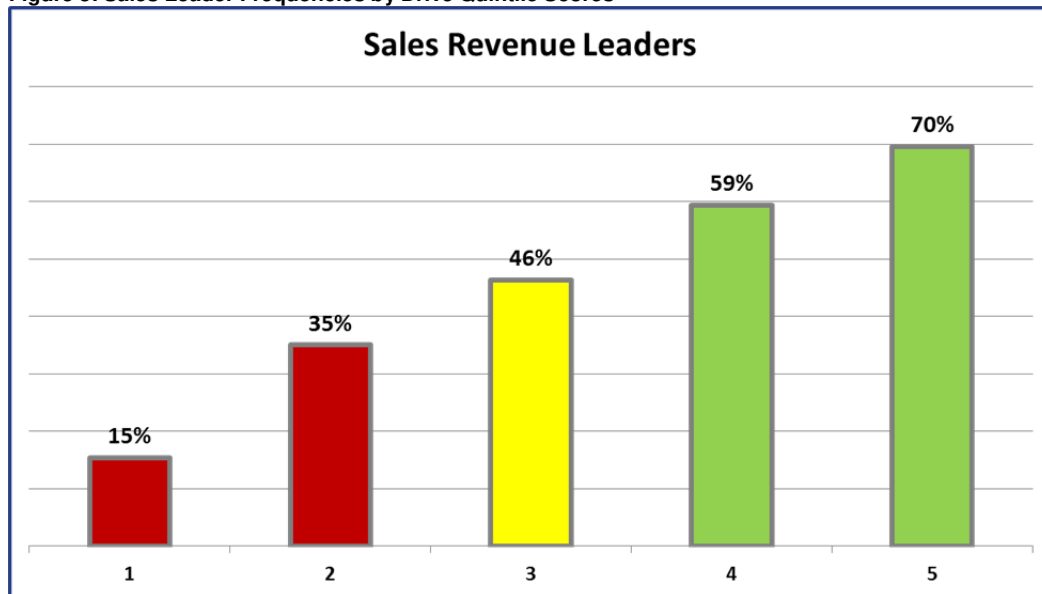
Overall, the criterion-related validity analysis results met expectations and confirmed that the scales are accurately predicting observed behaviors. The Need for Achievement, Competitiveness, Confidence, Relationship, and Organization scales performed extremely well in predicting performance for the relevant behaviors. The Optimism and Persuasion findings were borderline in terms of strength, but still met expectations for practical significance.

Three composite predictor scales were created using combinations of other scale scores. These composite predictor scales include:

- Drive: Weighted combination of the Need for Achievement, Competitiveness, and Optimism raw scores.
- Hunter: Combination of Drive, Confidence, and Persuasion quintile scores. Defined as the capability to develop leads and new business opportunities and close new accounts.
- Farmer: Combination of Drive, Relationship, and Organization quintile scores. Defined as the capability to develop and resell existing opportunities, follow up diligently, and grow business steadily.

Regression analyses were conducted to identify beta weights for each primary scale included in the Drive predictor scale score calculation (this calculation is described in more detail in the Scoring and Transformation of Raw Scores section of this report). The Drive composite predictor scale raw score was correlated with performance rating survey item evaluating the employee's total sales revenue for 2014. The result was a statistically significant, strong, positive correlation (.24; p < .01). The Drive raw score was converted into a standard 1-5 quintile score (this conversion is described in more detail in the Scoring and Transformation of Raw Scores section of this report). A Drive quintile score of 1-2 was categorized as "Red", a score of 3 was categorized as "Yellow", and a score of 4-5 was categorized as "Green". The criterion rating item for 2014 total sales revenue was converted into a dichotomous variable by splitting the score at the 50th percentile. Those employees in the study being evaluated as above the 50th percentile on total revenue achievement were categorized as a sales leader. Figure 3 summarizes the frequencies of sales leaders for each of the 5 Drive quintile scores. As demonstrated by the frequencies, employees that scored in the Green range on Drive were almost twice as likely to be identified as a sales leader as compared to employees in the Red range.

Figure 3: Sales Leader Frequencies by Drive Quintile Scores



The Hunter composite predictor scale raw score was correlated with a composite criterion variable created using a combination (i.e., average) of the performance rating survey items evaluating the employee's capability to develop new business leads and close new customer accounts. The result was a statistically significant, strong, positive correlation (.45; $p < .01$).

The Farmer composite predictor scale raw score was correlated with a composite criterion variable created using a combination (i.e., average) of the performance rating survey items evaluating the employee's capability to grow customer accounts and follow up with clients. The result was a borderline practically significant, moderate, positive correlation (.11; $p < .16$). The members of the SalesDrive team were not surprised by this moderate finding. Based on their knowledge of and experience with the participating client organizations, the SalesDrive team characterized the research sample as containing a majority of hunter sales employees and a small minority of farmer sales employees.

SCORING AND TRANSFORMATION OF RAW SCORES

The 7 primary assessment raw scale scores were transformed into standardized 1-5 quintile scores. This was done in order to make the assessment results more easily and accurately interpreted. This transformation was necessary given that each of the raw scale ranges and measures of central tendency were not equally aligned. The sample of 223 sales employees completing the behavioral assessment were categorized into five equal groups based on their raw scores. The raw score breakpoints for these five groups were used to convert raw scores into the 1-5 quintile scores.

To create the Drive composite predictor score calculation, regression analyses were conducted using raw scores for Need for Achievement, Competiveness, and Optimism as the independent variables and the Overall Performance rating from the performance rating survey as the dependent variable. The results provided each of the assessment scales with a beta weight to be used in the equation for calculating the Drive raw score.

Similar to the 7 primary scale scores, the Drive raw score was converted into standard 1-5 quintile scores using the study sample data for the 223 participants.

To create the Hunter composite predictor score calculation, the quintile scores for Drive, Confidence, and Persuasion were added. To create the Farmer composite predictor score calculation, the quintile

scores for Drive, Relationship, and Organization were added. Similar to the 7 primary scale scores, the Hunter and Farmer scores were converted into standard 1-5 quintile scores using the study sample data for the 223 participants.

NORMATIVE INFORMATION

Measures of Central Tendency

The frequencies of the quintile scores for the 7 primary scales and the Hunter and Farmer scales were approximately evenly distributed. The frequencies for the Drive quintile score resembled a bell curve distribution. See Tables 10 and 11 for measures of central tendency and frequency distributions for each scale.

Table 10: Mean Quintile Scale Scores

Scale	Mean Score
Need for Achievement	3.15
Competitiveness	3.16
Optimism	3.18
Confidence	3.19
Persuasion	3.21
Relationship	3.14
Organization	3.20
Drive	3.03
Hunter	3.23
Farmer	3.30

Table 11: Frequency Distributions of Research Participant Scale Quintile Scores

Scale	1	2	3	4	5
Need for Achievement	17.90%	19.00%	16.60%	23.80%	22.90%
Competitiveness	16.60%	22.40%	13.90%	22.90%	24.20%
Optimism	18.80%	16.60%	19.30%	18.40%	26.90%
Confidence	14.30%	25.10%	12.10%	23.30%	25.10%
Persuasion	14.80%	18.40%	22.40%	19.70%	24.70%
Relationship	19.30%	14.80%	16.10%	26.00%	23.80%
Organization	17.90%	17.00%	20.60%	21.50%	22.90%
Drive	14.00%	21.00%	31.00%	20.00%	15.00%
Hunter	14.30%	22.00%	13.50%	26.60%	23.80%
Farmer	9.40%	19.30%	26.00%	22.00%	23.00%

Adverse Impact Analysis

The behavioral assessment is not intended to be used as a pass/fail measure for candidates of SalesDrive client organizations. Rather, the behavioral assessment scores factor into overall candidate selection decisions along with various other data points including behavioral interviews and reference checks. Nevertheless, it was prudent as part of the data analysis to simulate pass rates on the Drive score and evaluate the potential for adverse impact using the sample of 223 sales employees. The Drive score is the closest measure to an overall evaluation of the tester's assessment results and potential for sales success.

For the purposes of simulating pass rates, the Drive quintile score was categorized as fail = 1 to 2 and pass = 3 to 5. The demographics included in the analyses were Gender, Age, and Ethnicity. In order to achieve appropriate sample sizes for the ethnicity analysis, all non-White groups were combined into an aggregate group. The Four-Fifths rule was applied to evaluate the potential for adverse impact. This rule states that the selection ratio of any protected group must be at least 80% of the majority group. As shown in Table 12, the simulated Drive pass rates are fully compliant to EEOC standards.

Table 12: CVA Simulated Pass Rates and Four-Fifths Analyses

Demographic	Groups	Passed	Total	Four-Fifths Ratio
Gender	Male	118	172	56.3%/68.6% = .82
	Female	27	48	
Age	39 or younger	68	94	59.1%/72.3% = .82
	40 or older	55	93	
Ethnicity	White	122	186	65.7%/65.6% = 1.00
	Non-White	23	35	

SUMMARY

The results of the validity analysis provide support for DriveTest behavioral assessment to support candidate selection and employee development activities for jobs similar to the role described for O*NET code 41-4012.00. The convergent validity results confirm that the assessment scales are measuring the intended constructs. The criterion-related validity results confirmed two important outcomes. First, the assessment scales are accurately predicting sales behaviors according to supervisor observations. Secondly, the employees scoring in the Green range on Drive were almost twice as likely to be considered sales leaders in comparison to employees scoring in the Red range.

Taking all these validity findings together, the research supports the assumptions that the assessment is accurately measuring the content domain behaviors and that performance of these behaviors results in successful execution of sales responsibilities.

The SalesDrive behavioral assessment is a powerful measure of sales success for both candidate selection and employee development. However, the assessment should be used in conjunction with other pre-employment instruments (e.g., application, resume, interviews, background checks, etc.) in a consistent manner in order to fully evaluate candidates and make compensatory employment decisions. There are many factors that should be considered when evaluating a candidate independent of the test results.

It is important that any selection process be consistent across all candidates. SalesDrive client organizations must be advised to use the assessment results in combination with interview results and other relevant, job-related data to make a compensatory employment decision. The assessment, interview, and other selection activities are merely individual pieces of an overall puzzle for predicting future candidate performance and making a hiring decision. It is up to the discretion of SalesDrive client organizations adopting the behavioral assessment to determine how the compensatory hiring decision will be made. However, any decisions made should be well documented with supporting evidence.

FURTHER EVALUATION OF RAW SCORE TRANSFORMATION

After 309 candidates completed the assessment, the normative conversion rules were re-evaluated using previously obtained DriveTest scale score distributions from 13,595 candidates who had completed a previous version of the DriveTest based on the OPQ-32r. Individuals in this group were from the following industries: Information Technology, Manufacturing, Commercial and Residential Real Estate, Insurance, Financial Services, Transportation, Staffing and Recruiting, Automotive, Construction, Consumer Goods, Telecommunications, Commercial Cleaning, Business Services, Distribution, Education, Hospitality, Security, Engineering, Media, Printing, Publishing, Training, Parking Services, Environmental Services, Management Consulting, Event Services, Food Production, and Agribusiness.

The 7 primary assessment raw scale scores and the Drive score were transformed into standardized 1-5 quintile scores with score distributions similar to those observed in the original sample of 13,595 candidates.

NORMATIVE INFORMATION

Measures of Central Tendency

The frequencies of the quintile scores for the 7 primary scales and the Drive scale scores resembled a bell curve distribution. See Tables 13 and 14 for measures of central tendency and frequency distributions for each scale.

Table 13: Mean Quintile Scale Scores

Scale	Mean Score
Need for Achievement	3.34
Competitiveness	3.67
Optimism	3.10
Confidence	3.13
Persuasion	3.26
Relationship	3.30
Organization	3.11
Drive	3.15

Table 14: Frequency Distributions of Candidate Scale Quintile Scores

Scale	1	2	3	4	5
Need for Achievement	.04%	12.30%	41.10%	31.72%	11.00%
Competitiveness	.02%	9.06%	28.49%	40.01%	20.39%
Optimism	6.15%	18.77%	41.42%	26.21%	7.44%
Confidence	2.91%	11.00%	58.58%	25.57%	1.94%
Persuasion	2.27%	10.36%	49.84%	34.63%	2.91%
Relationship	1.00%	8.10%	55.66%	31.39%	4.21%
Organization	1.94%	18.12%	49.51%	27.51%	2.91%
Drive	5.83%	16.50%	46.29%	19.74%	11.65%

Adverse Impact Analysis

A second adverse impact analysis was conducted using a sample of 1275 individuals who completed the assessment between July 1, 2015 and January 18, 2016. The Drive score is the closest measure to an overall evaluation of the tester's assessment results and potential for sales success.

For the purposes of simulating pass rates, the Drive quintile score was again categorized as fail = 1 to 2 and pass = 3 to 5. The demographics included in the analyses were Gender, Age, and Ethnicity. In order to achieve appropriate sample sizes for the ethnicity analysis, all non-White groups were combined into an aggregate group. The Four-Fifths rule was applied to evaluate the potential for adverse impact. This rule states that the selection ratio of any protected group must be at least 80% of the majority group. As shown in Table 15, the simulated Drive pass rates are fully compliant to EEOC standards.

Table 15: DriveTest Pass Rates and Four-Fifths Analyses

Demographic	Groups	Passed	Total	Four-Fifths Ratio
Gender	Male	717	940	68.9%/76.3% = .90
	Female	228	331	
Age	39 or younger	447	550	65.5%/81.3% = .81
	40 or older	306	467	
Ethnicity	White	742	1001	75.6%/74.1% = 1.02
	Non-White	198	262	

REFERENCES

O*NET Summary Report for Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products 41-4012.00 (<http://www.onetonline.org/link/summary/41-4012.00>).

Society for Industrial and Organizational Psychology (2003). *Principles for the validation and use of personnel selection procedures* (4th ed.). College Park, MD.

Uniform Guidelines on Employee Selection Procedures, 43 Federal Register (August 25, 1978).

APPENDIX A: Performance Rating Survey

Employee Rating Form

Introduction

You will be providing performance ratings on one of your employees across various behaviors. This information will be used to establish the effectiveness of a new behavioral questionnaire that SalesDrive is developing for use in evaluating future sales employees.

Remember

The employee you will be rating is better at some things than at others. It is important that your ratings reflect this. When making your ratings, try to use the entire scale. Avoid consistently giving only low, average, or high ratings for all behaviors. Remember that all employees will have both strengths and weaknesses.

When making a rating, you should consider each behavior separately from other behaviors

When making your ratings, you will be comparing your employee to other employees at your company in the same job with similar experience. For example, if the employee you are rating has been on the job for 2 years, you should rate this employee relative to other employees with 2 years of experience in that job.

Confidentiality

The ratings you provide here are for research purposes only No one at your company will see your individual ratings. Your ratings will not affect your job or your employee's job in any way. The success of this research depends on you providing honest ratings of your employee's performance.

APPENDIX A: Performance Rating Survey (cont.)

Employee Rating Form

Demographics

Please enter your First and Last Name:

How long have you held a position supervising sales employees?:

Please enter the First and Last Name of the employee you are rating in THIS form:

How long have you supervised THIS employee?:

APPENDIX A: Performance Rating Survey (cont.)**Employee Rating Form****Instructions**

You will be rating your employee using a five-point scale. For each behavior, rate the employee's effectiveness compared to other employees at similar experience levels in the same job using the following rating scale:

Weak (bottom 20%) = Far less effective than others

Fair (next 20%) = Less effective than others

Good (middle 20%) = About as effective as others

Strong (next 20%) = More effective than others

Best (top 20%) = Far more effective than others

NA (Not Applicable) = Not enough information to rate accurately

On the next page you will begin assigning ratings for this employee.

APPENDIX A: Performance Rating Survey (cont.)

Employee Rating Form

Overall Performance and Sales

The employee you will be rating is better at some things than at others. It is important that your ratings reflect this. When making your ratings, try to use the entire scale. Avoid consistently giving only low, average, or high ratings for all behaviors. Remember that all employees will have both strengths and weaknesses.

Compared to other employees with similar levels of experience, how would you rate this employee's **OVERALL JOB PERFORMANCE?**

	Weak (bottom 20%)	Fair (next 20%)	Good (middle 20%)	Strong (next 20%)	Best (top 20%)	NA (Not Applicable)
Overall Performance	☐	☐	☐	☐	☐	☐

Rate this employee's annual sales achievements for 2014 compared to other employees with similar experience.

	Weak (bottom 20%)	Fair (next 20%)	Good (middle 20%)	Strong (next 20%)	Best (top 20%)	NA (Not Applicable)
Total sales revenue for the year.	☐	☐	☐	☐	☐	☐
Achievement of established sales goals.	☐	☐	☐	☐	☐	☐
Development of new business leads.	☐	☐	☐	☐	☐	☐
Closing new customer accounts.	☐	☐	☐	☐	☐	☐
Retention of customer accounts.	☐	☐	☐	☐	☐	☐
Growth of customer accounts.	☐	☐	☐	☐	☐	☐

APPENDIX A: Performance Rating Survey (cont.)

Employee Rating Form

Behavior Ratings (Part 1 of 2)

The employee you will be rating is better at some things than at others. It is important that your ratings reflect this. When making your ratings, try to use the entire scale. Avoid consistently giving only low, average, or high ratings for all behaviors. Remember that all employees will have both strengths and weaknesses.

Rate this employee's relative effectiveness compared to other employees with similar experience.

	Weak (bottom 20%)	Fair (next 20%)	Good (middle 20%)	Strong (next 20%)	Best (top 20%)	NA (Not Applicable)
Displays a high need for achievement.	☐	☐	☐	☐	☐	☐
Sets demanding personal goals at work.	☐	☐	☐	☐	☐	☐
Consistently delivers results.	☐	☐	☐	☐	☐	☐
Displays high career ambition.	☐	☐	☐	☐	☐	☐
Thrives on winning and competition.	☐	☐	☐	☐	☐	☐
Is determined to be the best.	☐	☐	☐	☐	☐	☐
Displays an optimistic future outlook.	☐	☐	☐	☐	☐	☐
Remains resilient in the face of rejection.	☐	☐	☐	☐	☐	☐
Displays self-confidence.	☐	☐	☐	☐	☐	☐
Can handle criticism from others.	☐	☐	☐	☐	☐	☐
Freely expresses opinions and concerns.	☐	☐	☐	☐	☐	☐
Talks about his/her achievements and strengths.	☐	☐	☐	☐	☐	☐

APPENDIX A: Performance Rating Survey (cont.)

Employee Rating Form

Behavior Ratings (Part 2 of 2)

The employee you will be rating is better at some things than at others. It is important that your ratings reflect this. When making your ratings, try to use the entire scale. Avoid consistently giving only low, average, or high ratings for all behaviors. Remember that all employees will have both strengths and weaknesses.

Rate this employee's relative effectiveness compared to other employees with similar experience.

	Weak (bottom 20%)	Fair (next 20%)	Good (middle 20%)	Strong (next 20%)	Best (top 20%)	NA (Not Applicable)
Persuades and influences clients' viewpoints.	☐	☐	☐	☐	☐	☐
Enjoys selling and negotiating.	☐	☐	☐	☐	☐	☐
Takes customer needs into account.	☐	☐	☐	☐	☐	☐
Takes charge of situations.	☐	☐	☐	☐	☐	☐
Stays calm under pressure.	☐	☐	☐	☐	☐	☐
Enjoys working with people.	☐	☐	☐	☐	☐	☐
Easily establishes rapport with prospects.	☐	☐	☐	☐	☐	☐
Easily maintains relationships with customers.	☐	☐	☐	☐	☐	☐
Expresses emotions clearly and appropriately.	☐	☐	☐	☐	☐	☐
Demonstrates attention to detail.	☐	☐	☐	☐	☐	☐
Works in an organized manner.	☐	☐	☐	☐	☐	☐
Follows up with clients.	☐	☐	☐	☐	☐	☐
Is prepared to do repetitive work.	☐	☐	☐	☐	☐	☐

APPENDIX A: Performance Rating Survey (cont.)

Employee Rating Form

Thank You

You have completed the rating form for THIS employee.

If you have additional employees to rate, you may launch a new rating form for your NEXT employee by clicking the NEW RATING FORM button at the bottom of the screen.

Please refer to the email you received on March 2nd for a list of all employees to be rated. A rating form should be completed for each employee on that list. You do not have to complete all rating forms for all employees in a single session.

If you have completed a rating form for all employees on your list, you may close your browser.

Thank you again for your assistance!