

Validity Study

Validation of the Chally Assessment System with a Sample of Sales Representatives

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This study examines the criterion-related validity of the Chally Assessment System for 137 employees of a national advertising sales and ad placement agency, in three different jobs. The Chally Assessment System is a collection of scales designed to predict performance in specific types of sales and managerial jobs. The results showed that the relevant scales of the Chally Assessment significantly predicted sales performance.

Sample

The sample consisted of 137 employees of a national advertising sales and ad placement agency with corporate headquarters in the Midwest. Of the 137, 59% were women, 88% were white (10% African American, 1% Hispanic or Latino/a, and 1% were Asian). The average age was 39.47 ($SD = 9.1$).

The 137 employees were employed in one of three jobs: National Accounts Representative ($n = 32$), Small Business Representative ($n=45$), Large Business Representative ($n = 60$). Although the jobs have major work behaviors in common (i.e. selling yellow page advertising to business), the work behaviors, competencies, and skills that predicted success varied from position to position.

Although many consulting firms do not differentiate the types of sales jobs, the Chally Assessment is designed to take differences in sales jobs into account. For example the characteristics of someone who is good at finding new customers — a “hunter” — are not necessarily the characteristics of a good “farmer” who makes sales by providing exceptional customer service and builds sales through selling additional products to existing customers.

Although the main task of yellow page sales representatives for national accounts is to seek new clients, they must also provide personal attention to potential customers because a national advertiser is highly sought after and has many advertising options that may need to be tailored regionally.

A small business representative requires a strong work ethic and an objective orientation as they must make a large number of calls to find potential customers. Incumbents essentially prospect for orders as there is little discretion regarding pricing and other issues. Because a large company sales representative must be able to tailor their sales pitch to fit the established image of potential customers, they tend to be more effective when motivated by personal success. Thus, to achieve the strongest prediction, the Chally Assessment is designed to reflect the specific requirements of particular jobs (described in detail in Stevens and Cox, 1992).

Location Information

The data for the study were collected via the Internet from employees at one organization located in the Midwest that sells national advertising.

Predictor Information

The predictor used was the Chally Assessment System.

Overview of the Chally Assessment System

The Chally Assessment System measures the underlying traits, temperaments, competencies, and behaviors thought to be related to success on the job. It is a collection of scales that have been developed and refined through factor analytic techniques and validated through a criterion-related approach. A specific profile is generated for each job through a job analysis and empirical validation research. The Chally Assessment consists of a total of 119 scales for a wide variety of jobs (from jobs such as sales, administration, customer service, development, manager, professional staff, engineers, accountant, negotiation, sales manager, skilled, and technical). Twenty-two of the scales are relevant to sales, but data are only presented for the six scales relevant to the particular sales jobs covered in this study.

Assessment profiles are developed that differentiate between high and low performers for a particular job. The Assessment is normed for a particular job on the basis of data from more than 110,000 individuals from various positions, the majority of which are sales or management. The Chally Assessment is computerized, standardized, and administered via the Internet on an individual basis. Paper and pencil administration is also available, but is rarely used.

The scoring is computerized and a score report is sent to appropriate individuals. Score reports can be tailored according to the client's needs and vary from client to client. The assessment results are typically reported as *Recommend Hire*, *Recommend Hire if Concerns are Addressed*, or *Do not Recommend*. These recommendations are based on empirically determined cut scores. Highs and lows on the appropriate scales are also reported. Appropriate training is conducted to ensure that relevant individuals in the client organization are able to interpret the reports. There are no educational background requirements to become certified to interpret the reports. The assessment is used both for personnel selection and developmental purposes. In a developmental situation, a report may also be issued to an individual to provide feedback on relative strengths/weaknesses regarding job competencies.

Development of the Assessment

Through more than 30 years of initial and follow-up research, Chally has developed an assessment with scores that are valid, reliable, and result in small subgroup mean differences. The first component in the assessment is the Motivational Analysis Profile (MAP). The MAP is based on McClelland's three-factor motivational drivers, combined with Herzberg's positive and negative valenced needs. The MAP factors were identified through orthogonal rotation factor analysis. The second component of the assessment is the Self-Descriptive Index

(SDI), which parallels the 16PF and the Guilford Zimmerman Temperament Survey. Originally developed through content analysis, it was also criterion-validated on the same mega samples.

The validation procedure used in the mega-sample was a multiple step procedure. The study began with a job analysis to determine job tasks for the jobs of interest. Subject matter experts provided ratings of job task relevancy on the competencies that were important to job performance. Then, assessment items were matched to each competency. Behaviorally Anchored Rating Scales (BARS) were developed for each competency, and ratings of job performance for the job incumbents were obtained for each competency. These supervisor BARS ratings were used to empirically validate the items that were predictive of job performance. These data were used to ensure that the scales developed were in fact predictive of the competencies, as measured by the BARS ratings. This criterion-related validation approach allowed Chally to empirically establish that the scales and profiles developed from the Chally Assessment System did in fact predict job performance.

After 30 years of maintaining a consistent instrument (collection of items) and building a database of well over 300,000 work incumbents and candidates, Chally has developed a set of work behavior scales which have been consistently shown to predict work behavior. In subsequent refinements of the scales, concern for predictive validity and reliability were seen as more important than fidelity to the original underlying theory upon which the items were originally based. The scales construction was, however, guided by Chally's decades of experience at selecting sales representatives and managers.

Description of the Assessment

To facilitate multiple uses of the same instrument, all items are "non-face valid", thus a prospective test taker cannot discern what items apply to which scales. In addition, most of the items on all the tests are administered to ensure applicants would not be able to determine which items are scored. Thus, although the applicants respond to items that are not scored, this serves to camouflage the items used as well as the validity scale described below. Similar to technology used on the MMPI, Chally has incorporated a validity scale to determine the extent to which a person is being free and candid. Most importantly from a statistical point of view to permit legitimate validation research, the test items are non-ipsative and have minimum range-restrictive effects.

Although the Chally assessments tap the underlying traits, temperaments, competencies, and behaviors related to success on the job, it is certainly not a traditional personality measure. A traditional personality measure typically may be more face-valid but could result in individuals figuring out the correct answer.

The assessment in its entirety consists of four sections. The two sections administered for this study (Self-Descriptive Index, SDI; Motivation Analysis Profile, MAP) are described below. The Self-Descriptive Index (SDI) is comprised of 189 statements requiring a True or False response. Typical SDI items include:

- Starting a conversation and keeping it going does not come naturally to me
- If you don't brag about yourself, nobody else will
- I am inclined to stay focused on my work and not take many breaks

The assessment is not timed but completion usually ranges from 1.25 to 1.75 hours. All individuals get the same items in the same order. The MAP is not relevant to this particular paper, as the data for the scales comprised of MAP items is beyond the scope of this paper and is not reported, therefore it is not described further.

The Chally Assessment is not designed to measure the Big Five personality factors, rather it is designed to tap the traits that are predictive of specific job relevant behaviors. The behaviors that lead to success in one type of sales job are not necessarily the behaviors that lead to success in another type of sales job. Thus, rather than taking a construct oriented approach such as designing the assessment to measure the Big Five personality factors, the assessment was designed with a criterion-related approach, namely tapping the traits that predict sales success for specific jobs. The scales were originally validated on a sample of specific job related behaviors as rated by supervisors, and subsequent research has corroborated the predictive validity of the scales on subsequent samples from a variety of organizations. Only a sample of the scales relevant to sales positions are described within this paper, and none of the scales relevant to managerial performance are relevant to this particular paper.

Scale psychometrics (including means, standard deviations, internal consistencies, and inter-correlations are presented in Table 1. The six scales that are relevant to the current research are described below. The *Seeks New Business* scale taps the degree to which an individual actively networks and takes initiative to attract new customers. The *Personal Attention* scale measures the degree to which an individual is committed to providing individual service with a personal touch works to guarantee supplier loyalty by building long-term relationships. Someone who scores high on the *High Productivity* scale focuses on work objectives and completes work in a timely manner, inspects own work to ensure a quality product or result. The *Driven to Succeed* scale measures the extent to which an individual directs intensity and work ethic towards goal accomplishment. The *Building Credibility* scales measures an individual's ability to tailor their image to fit customer expectations and adapt to different situations with sincerity and realism. The *Driven Top Producer* Scale measures the degree to which an individual is driven toward personal success to enjoy the recognition that accomplishment brings.

Criterion Information

The criteria was based on objective sales measures but also took into account managers estimates of sales performance. Objective sales figures in the form of three years of sales volume in relation to sales goals for each division, as well as net increase in business from advertiser to advertiser were used to identify consistent high performers and consistent low performers. These names were submitted to the division managers for their input in regards to potential moderators, (i.e. variability in regards to potential business in given sales territories). The final result was a rating of *above average*, *average*, or *below average*.

Table 1
Means, standard deviations, reliabilities and intercorrelations of predictors and criteria

Measure	Mean	SD	1	2	3	4	5	6
1. Seeks New Business	8.74	3.16	.65					
2. Personal Attention	2.14	5.31	-.15	.69				
3. High Productivity	.32	.22	.60**	-.18*	.83			
4. Driven to Succeed	.79	.14	-.04	.12	-.40**	.66		
5. Building Credibility	.77	.14	-.02	.23**	-.27**	.43**	.62	
6. Driven Top Producer	.49	.18	.55**	-.04	.39**	.00	.00	.64
Criteria								
National Accounts Representative	-.13	.75	.39*	.31*	.06	.13	-.09	-.14
Small Business Representative	.53	.50	.22	-.15	.32*	.27*	-.16	.16
Large Business Representative	.67	.48	.02	-.04	-.04	.13	.34**	.30**

Note. *p < .05 **p < .01

Validity Information

Job Analysis was conducted to determine the KSAOs that led to success for the jobs. The job analysis results also helped determine which scales from the Chally Assessment System would be used for future selection. The primarily information used to determine which scales were used was an empirical one: stepwise regression. As all scales are administered to all participants stepwise regression was run against the criteria to determine optimal prediction. The job analysis information is used to ensure that the results are theoretically consistent with the empirical results. The empirical and job analysis information agreed on the optimum choice of scales to use. Table 2 presents the correlations of the predictor measures with criterion measures for this concurrent validation study, as well as the multiple regression results.

Test Score Differences

Due to the small number of minorities in the sample, test score differences based on all participants to have taken the Chally Assessment System for a sales position, who were either Caucasian or African-American, which is a sample of 65,657 individuals. Men comprised 69.5% of the sample (45,621) and women comprised 30.5% (20,036). Caucasians comprised 94.1% of the sample (61,795), and African-Americans comprised 5.9% of the sample (3,862).

Table 2
Hierarchical regression predicting the criteria for National Accounts Representative (n=32)

Step	R	R ²	R ² Δ	F Δ
1. Seeks New Business	.39	.15	.15	5.37*
2. Personal Attention	.53 (.31)	.28	.13	5.15*

Note. Zero order correlation of variable entered in second step with criteria is presented in parentheses.

Table 3
Hierarchical regression predicting the criteria for Small Business Representative (n=45)

Step	R	R ²	R ² Δ	F Δ
1. High Productivity	.32	.11	.11	5.05*
2. Driven to Succeed	.49 (.27)	.24	.13	7.49**

Note. Zero order correlation of variable entered in second step with criteria is presented in parentheses.

Table 4
Hierarchical regression predicting the criteria for Large Business Representative (n=60)

Step	R	R ²	R ² Δ	F Δ
1. Building Credibility	.34	.12	.12	7.56**
2. Driven Top Producer	.46 (.30)	.22	.10	7.23**

Note. Zero order correlation of variable entered in second step with criteria is presented in parentheses.

Table 5
Test score differences (Sex)

Scale	Overall			Men		Women		d
	N	M	SD	M	SD	M	SD	
1. Seeks New Business	63,943	8.08	3.08	8.17	3.08	7.88	3.05	0.09
2. Personal Attention	63,882	2.76	5.76	2.61	5.79	3.08	5.70	-0.08
3. High Productivity	63,943	0.21	0.19	0.20	0.18	0.24	0.20	-0.21
4. Driven to Succeed	63,943	0.86	0.13	0.86	0.13	0.85	0.13	0.07
5. Building Credibility	63,862	0.78	0.13	0.78	0.13	0.79	0.12	-0.07
6. Driven Top Producer	63,943	0.45	0.18	0.44	0.18	0.46	0.18	-0.11

Note. $d = (M_{\text{male}} - M_{\text{female}}) / SD_{\text{overall}}$; Only individuals for which complete item data was available are included in the overall results.

Table 6
Test score differences (Race)

Scale	Overall			Caucasian		African-American		d
	N	M	SD	M	SD	M	SD	
1. Seeks New Business	63,943	8.08	3.08	8.13	3.07	7.28	3.01	0.27
2. Personal Attention	63,882	2.76	5.76	2.75	5.77	2.82	5.66	-0.01
3. High Productivity	63,943	0.21	0.19	0.21	0.19	0.19	0.18	0.10
4. Driven to Succeed	63,943	0.86	0.13	0.86	0.13	0.86	0.13	0.00
5. Building Credibility	63,862	0.78	0.13	0.78	0.13	0.81	0.13	-0.23
6. Driven Top Producer	63,943	0.45	0.18	0.45	0.18	0.40	0.15	0.27

Note. $d = (M_{\text{Caucasian}} - M_{\text{African-American}}) / SD_{\text{overall}}$; Only individuals for which complete item data was available are included in the overall results.

References

Stevens, H. & Cox, J. (1991). *The Quadrant Solution*. New York, New York: American Management Association.

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