



Research Report

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Research Author



Herbert J. Kellner, Ph.D., President and CEO of UNITED STATES ONLINE UNIVERSITY and the Institute of Training and Development, holds advanced degrees in Psychology and Communications from both German and American universities.

Dr. Kellner served as a Professor of Communications at Clayton University, established by the faculty of Harvard University, and also Director of Continuing Education Programs throughout Europe for New York University and Pepperdine University.

Dr. Kellner has published numerous articles in training and development journals. He is author of three books, contributing author to the Personnel Encyclopedia, and research author of “Creating Your Future, An Action Guide For A Better Tomorrow” (Co-Authors: Dr. Stephen Covey, Dr. Billy Graham, Art Linkletter, Dr. Betty Youngs, Zig Ziglar, et al.). He designed, produced and delivered more than one hundred video training programs for a variety of organizations, including eight Fortune 100 companies. He developed and produced the only competency-based, video-driven and computer-scored sales assessment program. His Sales Talent Assessment Review program (STAR) is published in five languages and over 200,000 salespeople worldwide have participated.

Dr. Kellner was the recipient of the ASTD Professional Contribution Award and the European Award of Masters for Innovation. He received with Dr. Peter Bosch the German Training Award for his Sales Assessment Program FIT. A panel of highly regarded producers and the editorial staff of the AV Video & Multimedia Producer Magazine have selected him from a large pool of applicants as one of the Top 100 producers. Dr. Kellner has been honored for his excellence in Human Resources Development Research by the International Academy of Sciences of San Marino. He is a past President of the European Trainer Association and a national member of ASTD, the American Society for Training and Development.

His personal interests are in scuba diving and sailing. In 1987, he sailed with his wife and daughter on a 38' sailboat from Germany to California. Five years later, they proudly became American citizens.



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STAR is available in English, German, French, Spanish and Portuguese. The format of STAR is case method. One hundred short video episodes are the centerpiece of the assessment program.

These episodes represent over 75 years of experience in Sales, Management, and Training. Five leading consulting firms, specializing in Training and Organizational Development, generated the video case studies.

The ITD Editorial Board reviewed the episodes and supervised the field studies. The team includes psychologists, marketing experts, researchers, educators and HRD consultants.



Research Partners

STAR was developed from competency studies beginning in 1981. ITD Institute of Training and Development, the European Trainer Pool and the training departments of

- ◆ B.A.T British American Tobacco
- ◆ DuPont
- ◆ 3M
- ◆ Toyota

were interested in identifying the competencies which successful salespeople have in common.

After one year of intensive research, the committee agreed upon twenty competencies.

During the last years, STAR has been the subject of continual experimental study and revision, offering present users an objective, computer-scored, video based, reliable and valid instrument for evaluating sales competencies.

Definition of Validity

Validity is the correctness of a test instrument. It is the guarantee that it measures what it professes to measure. For the test maker, validity is always a difficult and controversial problem. There are many kinds of validity which in itself implies the complexity of the problem.

We distinguish between:

- ☆ Agreement validity
- ☆ Face validity
- ☆ Prediction validity
- ☆ Content validity
- ☆ Construct validity

There are others we will not mention here.

Let us concentrate on the often used Agreement validity. If we take a random sample of n persons taking a test and compare the results with n persons not have taken the test, we have Agreement validity, provided we compared the same characteristics. In the most favorable case both of the measured values should be in agreement. It means the observed frequency distribution of the test values should be equal to the frequency distribution of the criteria values (This would be an ideal case.).

Agreement validity is measured by using Spearman's correlation coefficient calculations.

Field Tests

In 1982, fourteen organizations with a total of 278 salespersons took part in field tests of STAR (Table 1). We thoroughly familiarized 25 sales managers with the 16 competencies and the four factors of sales style flexibility. We asked them to evaluate their salespersons within one week.

All salespersons went through the STAR assessment. After a week, we compared their evaluation profiles with their assessment profiles (Tables 2 and 3).

No.	Industry Groups	Participants
1	Automotive	35
2	Banking	48
3	Chemical	22
4	Educ. Institution	33
5	Electronics	24
6	Insurance	18
7	Manufacturer	86
8	Retail	12

Table 1

Results of the Field Tests					Rank
Evaluation Profile				N = 278	
Profile Areas	25%	50%	75%	100%	
I. Self-Management • Planning • Organizing • Implementing • Controlling				45%	5
				50%	6
				65%	9
				55%	7
II. Communication • Listening • Understanding • Convincing • Achieving				45%	5
				50%	6
				45%	5
				50%	6
III. Working Method • Preserving • Gaining • Improvising • Systematizing				60%	8
				55%	7
				65%	9
				50%	6
IV. Potential • Changing • Learning • Performing • Motivating				45%	5
				55%	7
				50%	6
				45%	5
V. Sales Style Flexibility • Relation-oriented • Goal-oriented • Problem-oriented • Partner-oriented				55%	7
				50%	6
				45%	5
				40%	4
Proficiency Composite				51%	

Table 2

Results of the Field Tests					Rank	Difference D	D ²	
STAR Profile N = 278								
Profile Areas	25%	50%	75%	100%				
I. Self-Management								
• Planning					60%	8	3	9
• Organizing					55%	7	1	1
• Implementing					50%	6	3	9
• Controlling					65%	9	2	4
II. Communication								
• Listening					50%	6	1	1
• Understanding					55%	7	1	1
• Convincing					55%	7	2	4
• Achieving					60%	8	2	4
III. Working Method								
• Preserving					50%	6	2	4
• Gaining					55%	7	0	0
• Improvising					45%	5	4	16
• Systematizing					55%	7	1	1
IV. Potential								
• Changing					55%	7	2	4
• Learning					50%	6	1	1
• Performing					60%	8	2	4
• Motivating					55%	7	3	9
V. Sales Style Flexibility								
• Relation-oriented					65%	9	2	4
• Goal-oriented					55%	7	1	1
• Problem-oriented					60%	8	3	9
• Partner-oriented					50%	6	2	4
Proficiency Composite					56%	Total	90	

$$r = 1 - \frac{6(\sum D^2)}{N(N^2 - 1)} = 1 - \frac{6(90)}{20(20^2 - 1)} = .932$$

Table 3



Results

By ranking the Evaluation Profile (N = 278) as well as the STAR Profile (N = 278), Spearman's rank correlation coefficient could be applied.

$$r = 1 - \frac{6(90)}{7980} = .932$$

This shows an excellent correlation or, in other words, STAR has a very high agreement validity. That means, the competencies measured in STAR relate to performance on the job.

Face Validity

Many of our clients confirm that the video episodes are real. The acting is believable, and the cases are comprehensive.

Predictive Validity

Many of our clients have reported that STAR accurately predicts sales success. A study based on 206 salespeople (Table 4) shows clearly the predictive validity of STAR.

Intercorrelations

N = 206

P	PC Range	Success rate after one year			
		weak	average	good	excellent
19	91 - 100%	-	-	3	16
36	86 - 90%	-	2	13	21
84	81 - 85%	3	5	67	9
67	75 - 80%	7	33	24	3

P = Participants

PC = Proficiency Composite

Table 4

STAR results relate very well to success and customer relations. Salespeople having done very well in STAR, show success in sales and appreciation by the customer. There is an undeniable predictive validity in the STAR program.

Definition of Reliability

Reliability is a measure of the ability of an instrument to perform its intended function under a prescribed set of conditions.

There are three dimensions of reliability:

1. Reliability as a probability
2. Definition of failure
3. Prescribed operating conditions

Reliability also means stability. The stability of test results is necessary in order to rely on the measuring of results. Reliability includes the standardization of testing. Two aspects are important for standardization:

1. General direction for test application.
2. Unit scale for evaluation and judgement of the results.

There are different methods to determine the reliability of a test.

Study 1

Test - Retest

We decided to use the "Test - Retest" method because three of our clients offered us the possibility of administering STAR to several groups twice within six months. The participants did not receive training during this period. Tables 5 and 6 show the results of this study.

Reliability Study 1					Rank
Test				N = 119	
Profile Areas	25%	50%	75%	100%	
I. Self-Management • Planning • Organizing • Implementing • Controlling				65%	9
				60%	8
				60%	8
				50%	6
II. Communication • Listening • Understanding • Convincing • Achieving				55%	7
				65%	9
				60%	8
				65%	9
III. Working Method • Preserving • Gaining • Improvising • Systematizing				55%	7
				60%	8
				55%	7
				65%	9
IV. Potential • Changing • Learning • Performing • Motivating				50%	6
				60%	8
				65%	9
				55%	7
V. Sales Style Flexibility • Relation-oriented • Goal-oriented • Problem-oriented • Partner-oriented				50%	6
				65%	9
				60%	8
				50%	6
Proficiency Composite				58%	

- Time period between administrations: Six months
- Participants: Average salespeople out of three companies

Table 5

Reliability Study 1						Rank	Difference D	D ²	
Retest									
Profile Areas						25%	50%	75%	100%
I. Self-Management	• Planning					70%	10	1	1
	• Organizing					60%	8	0	0
	• Implementing					65%	9	1	1
	• Controlling					60%	8	2	4
II. Communication	• Listening					55%	7	0	0
	• Understanding					70%	10	1	1
	• Convincing					65%	9	1	1
	• Achieving					70%	10	1	1
III. Working Method	• Preserving					60%	8	1	1
	• Gaining					75%	11	3	9
	• Improvising					65%	9	2	4
	• Systematizing					70%	10	1	1
IV. Potential	• Changing					65%	9	3	9
	• Learning					70%	10	2	4
	• Performing					70%	10	1	1
	• Motivating					65%	9	2	4
V. Sales Style Flexibility	• Relation-oriented					55%	7	1	1
	• Goal-oriented					70%	10	1	1
	• Problem-oriented					75%	11	3	9
	• Partner-oriented					50%	6	0	0
Proficiency Composite							65%	Total	53

$$r = 1 - \frac{6(\sum D^2)}{N(N^2 - 1)} = 1 - \frac{6(53)}{7980} = .96$$

Table 6

Study 2

Pre-Training vs Post-Training

We worked with some organizations for a long period. This allowed us the opportunity to focus on training using the whole spectrum of competencies. We used STAR to measure the initial conduct of the participants. After the training period, which was in most cases a year later, we repeated STAR and compared the results.

There were 386 participants from 24 companies involved in the pre-training measuring. During the one year training period we conducted five two-day seminars. For post-training measuring, we had 381 participants, since five changed employers.

We compared the results of the pre-training and the post-training with the "International Standard". This standard includes profiles of more than 3,000 salespersons from 54 organizations. All had at least one year of training.

The results (Tables 7 - 9) of this study show that STAR reliably measures sales competencies and factors of the sales style proved to be important to sales success.

Reliability Study 2					Rank	Difference D	D ²			
Pre-Training Profile										
Profile Areas					25%	50%	75%	100%		
I. Self-Management	• Planning				55%	7	5	25		
	• Organizing				50%	6	7	49		
	• Implementing				55%	7	4	16		
	• Controlling				60%	8	4	16		
II. Communication	• Listening				45%	5	6	36		
	• Understanding				55%	7	6	36		
	• Convincing				60%	8	4	16		
	• Achieving				55%	7	6	36		
III. Working Method	• Preserving				50%	6	6	36		
	• Gaining				60%	8	5	25		
	• Improvising				55%	7	4	16		
	• Systematizing				50%	6	8	48		
IV. Potential	• Changing				45%	5	8	64		
	• Learning				55%	7	8	64		
	• Performing				50%	6	5	25		
	• Motivating				50%	6	6	36		
V. Sales Style Flexibility	• Relation-oriented				45%	5	7	49		
	• Goal-oriented				50%	6	8	64		
	• Problem-oriented				55%	7	5	25		
	• Partner-oriented				40%	4	9	81		
Proficiency Composite								52%	Total	763

Pre-Training vs International Standard $r = 1 - \frac{6(\sum D^2)}{N(N^2 - 1)} = 1 - \frac{6(763^2)}{20(20^2 - 1)} = .426$

Table 7

Reliability Study 2						Rank	Difference D	D ²
Post-Training Profile N = 381								
Profile Areas	25%	50%	75%	100%				
I. Self-Management • Planning • Organizing • Implementing • Controlling					85%	13	1	1
					75%	11	2	4
					80%	12	1	1
					90%	14	2	4
II. Communication • Listening • Understanding • Convincing • Achieving					70%	10	1	1
					80%	12	1	1
					85%	13	1	1
					80%	12	1	1
III. Working Method • Preserving • Gaining • Improvising • Systematizing					75%	11	1	1
					85%	13	0	0
					70%	10	1	1
					90%	14	0	0
IV. Potential • Changing • Learning • Performing • Motivating					70%	10	3	9
					80%	12	3	9
					85%	13	2	4
					90%	14	2	4
V. Sales Style Flexibility • Relation-oriented • Goal-oriented • Problem-oriented • Partner-oriented					75%	11	1	1
					95%	15	1	1
					80%	12	0	0
					85%	13	0	0
Proficiency Composite					81%	Total	44	

Post-Training vs International Standard $r = 1 - \frac{6(\sum D^2)}{N(N^2 - 1)} = 1 - \frac{6(44)}{7980} = .97$

Table 8

Reliability Study 2					Rank
International Standard				N = 3,015	
Profile Areas	25%	50%	75%	100%	
I. Self-Management • Planning • Organizing • Implementing • Controlling				80%	12
				85%	13
				75%	11
				80%	12
II. Communication • Listening • Understanding • Convincing • Achieving				75%	11
				85%	13
				80%	12
				85%	13
III. Working Method • Preserving • Gaining • Improvising • Systematizing				80%	12
				85%	13
				75%	11
				90%	14
IV. Potential • Changing • Learning • Performing • Motivating				85%	13
				95%	15
				75%	11
				80%	12
V. Sales Style Flexibility • Relation-oriented • Goal-oriented • Problem-oriented • Partner-oriented				80%	12
				90%	14
				80%	12
				85%	13
Proficiency Composite				82%	

Table 9

Industry Averages

Total N = 102,314

	5,133	6,572	3,604	7,321	2,416	8,237	7,148	4,264	32,587	2,729	8,953	2,814	3,798	2,113	4,625
Automotive															
Banking															
Beverage															
Chemical															
Communication															
Education															
Electronics															
Insurance															
Manufacturer															
Real estate															
Retail															
Services															
Tourism															
Transportation															
Sales Manager															

Profile Areas

I. Self-Management															
• Planning	70	70	55	60	65	55	70	60	55	55	50	55	55	55	70
• Organizing	60	60	50	60	60	70	60	55	50	65	50	50	65	60	65
• Implementing	65	55	55	55	65	70	70	55	50	65	55	65	55	50	60
• Controlling	60	65	45	50	55	65	75	60	65	70	60	50	60	55	75
II. Communication															
• Listening	45	65	45	50	55	60	55	45	50	55	45	55	50	45	60
• Understanding	60	50	50	55	50	65	65	55	55	60	50	60	50	50	60
• Convincing	65	55	50	60	65	65	60	60	55	60	45	50	60	50	70
• Achieving	65	55	55	65	65	55	65	50	60	75	50	50	50	40	60
III. Working Method															
• Preserving	65	65	55	65	70	70	65	65	65	45	55	65	55	50	65
• Gaining	55	55	40	60	65	55	65	45	55	70	45	55	45	30	60
• Improvising	50	45	60	65	60	65	70	50	70	60	45	45	50	45	70
• Systematizing	60	55	55	60	55	60	65	50	60	60	50	50	55	50	60
IV. Potential															
• Changing	60	50	50	55	60	75	65	55	55	60	40	50	50	45	70
• Learning	60	45	50	65	65	70	60	50	65	65	45	55	45	40	65
• Performing	50	60	55	60	65	60	70	60	60	75	45	60	50	40	65
• Motivating	55	55	50	60	55	65	60	50	45	70	35	50	35	30	60
V. Sales Style Flexibility															
• Relation-oriented	65	55	55	60	55	70	55	60	55	65	50	60	55	50	65
• Goal-oriented	70	60	65	60	65	65	70	55	60	70	45	60	60	45	70
• Problem-oriented	50	45	45	65	60	70	60	55	65	60	40	55	50	40	65
• Partner-oriented	55	55	50	60	60	60	60	45	50	55	40	60	55	40	60
Proficiency Composite	59	56	52	60	61	65	64	54	57	63	47	55	53	46	65



International Average

N = 102,314

Profile Areas	25%	50%	75%	100%
I. Self-Management <ul style="list-style-type: none"> ● Planning ● Organizing ● Implementing ● Controlling 				
II. Communication <ul style="list-style-type: none"> ● Listening ● Understanding ● Convincing ● Achieving 				
III. Working Method <ul style="list-style-type: none"> ● Preserving ● Gaining ● Improvising ● Systematizing 				
IV. Potential <ul style="list-style-type: none"> ● Changing ● Learning ● Performing ● Motivating 				
V. Sales Style Flexibility <ul style="list-style-type: none"> ● Relation-oriented ● Goal-oriented ● Problem-oriented ● Partner-oriented 				
Proficiency Composite				



International Standard

N = 3,015

Profile Areas	25%	50%	75%	100%
I. Self-Management <ul style="list-style-type: none"> ● Planning ● Organizing ● Implementing ● Controlling 				
II. Communication <ul style="list-style-type: none"> ● Listening ● Understanding ● Convincing ● Achieving 				
III. Working Method <ul style="list-style-type: none"> ● Preserving ● Gaining ● Improvising ● Systematizing 				
IV. Potential <ul style="list-style-type: none"> ● Changing ● Learning ● Performing ● Motivating 				
V. Sales Style Flexibility <ul style="list-style-type: none"> ● Relation-oriented ● Goal-oriented ● Problem-oriented ● Partner-oriented 				
Proficiency Composite				