An International Study of the Reliability and Validity of Leadership/Impact (L/I)™

Janet L. Szumal, Ph.D.
Human Synergistics/Center for Applied Research, Inc.

Contents

Introduction

This report presents the results of reliability and validity analyses carried out on client Leadership/Impact (L/I)[1] data from Human Synergistics (HS) offices located in the United States, Australia, Canada, the Netherlands, New Zealand, and the United Kingdom.[2] The Self-Reports of 4,950 leaders from around the world along with the descriptions by 32,470 others enabled us to examine the inventory's psychometric properties as well as compare its reliability and validity across different countries. The data also provided an opportunity to generate a new set of norms for L/I. While the new norms are not substantially different from the original (which were based on approximately 500 leaders), recipients of feedback can now compare their results to a larger and more diverse sample.

The number of cases provided by each of the HS offices is summarized in the table below. The data are based on the English version of the inventory, except for the data from the Netherlands office (where the Dutch translation was exclusively used) and the U.S. offices (where some Dutch, Swedish, and German translations were used for multinational clients). Since only a few cases were available from the Netherlands, their data were included only in the analyses conducted on the total sample.

Table 1
Number of Cases Provided by HS Offices

Office Location	Self-Report	Description by Others
United States	3,964	26,414
Australia	401	2,690
Canada	286	1,571
Netherlands	10	49
New Zealand	190	1,033
United Kingdom	99	713
Total	4950	32,470

Over two-thirds of the leaders in the total sample were middle- or higher-level managers, had been in their current position for at least a year, were 36 years of age or older, and held a bachelor's degree or higher. Seventy percent of the 4,950 leaders were male. Most of those who described the leaders either were direct reports or reported to someone below the leader (58 percent), had contact with the leader at least once a week (91 percent), and had known the leader for at least one year (78 percent).

It is important to keep in mind that, while most of the data processed by the different HS offices were collected in their home countries, the data from at least some—if not all—of the offices (particularly those in the U.S.) also included the results of leaders from other

1. Cooke, Robert A. (1996). *Leadership Impact*. Arlington Heights, IL: Human Synergistics/Center for Applied Research.
2. Earlier reports on the reliability and validity of L/I appear in Leslie, Jean Brittain and Fleenor, John W. *Feedback to Managers, 3rd edition* (Greensboro, NC: Center for Creative Leadership, 1998) and Szumal, Janet L. *L/I Facilitator's Guide* (Arlington Heights, IL: Human Synergistics/Center for Applied Research, 2000).

countries. Therefore, the findings reported for specific HS locations cannot be interpreted as a "pure" reflection of the leadership tendencies within the countries in which they are located. Nevertheless, they can provide some insights in to how the L/I items are interpreted in different countries and in organizations headquartered in those countries. Since most of the data were collected in Anglo countries characterized by similar societal values[3], it is expected that the results from one country to the next will be more similar than different. More importantly, the data should demonstrate that, across countries, L/I provides reliable and valid measures of the overall strategies used by leaders, their impact, and their effectiveness.

3. See Geert Hofstede's work on organizational and societal values described in *Culture's Consequences* (Newbury Park, CA: Sage, 1980) and research by Simcha Ronen and Oded Shankar on countries clusters in Clustering countries on attitudinal dimensions: A review and synthesis, *Academy of Management Review* (vol. 10, no. 3., 1985)

Overview of L/I

L/I is a 360° feedback tool designed to provide executives, managers and others in leadership positions with information regarding their impact on others, as well as the strategies and techniques that account for their impact. As such, L/I is intended for use in self-development, leadership development, culture change, and organizational development initiatives and programs.

More specifically, L/I provides participants with information regarding their:

- *Leadership Strategies*, in terms of the extent to which they act in Prescriptive versus Restrictive ways;
- *Impact on Others*, in terms of the extent to which they motivate those around them to behave in Constructive versus defensive ways; and
- *Effectiveness* along personal and organizational leadership criteria.

Feedback is based on information collected using two forms of the L/I inventory. The Description by Others form is completed by approximately eight people selected by the participant to describe his or her leadership strategies, impact on others, and overall effectiveness. The Self-Report is completed by participants to identify their perceptions of the leadership strategies they employ and the impact that they would ideally like to have on the behavior of others.

Leadership Strategies

Sixty of the items included in L/I are designed to measure the extent to which the leader relies on Prescriptive versus Restrictive strategies in carrying out leadership responsibilities in 10 "domains." These domains vary in terms of their personal, interpersonal, and organizational focus. Personal domains include Envisioning and Role Modeling. Interpersonal domains include Mentoring, Stimulating Thinking, Referring, Monitoring, and Providing Feedback. Organizational domains include Reinforcing, Influencing, and Creating a Setting.

For each of the 10 domains, 3 items measure the extent to which activities are carried out Prescriptively and 3 items measure the extent to which activities are carried out Restrictively. Prescriptive strategies are those that guide or direct the activities and behaviors of others toward goals, opportunities, and methods. Restrictive strategies are those which constrain or prohibit activities and behaviors.[4] The items that measure these strategies appear in both the Description by Others and Self-Report forms so that the leader to compare his or her self perceptions to the descriptions by others.

4. Cooke, Robert A. (1997). *Leadership/Impact Confidential Feedback Report*. Arlington Heights, IL: Human Synergistics/Center for Applied Research.

Feedback on strategies is intended to help participants understand how their approaches to leadership shape the impact they have on others. While most leaders use a combination of Prescriptive and Restrictive strategies, the theory behind L/I posits that Prescriptive approaches are generally more functional and promote Constructive behavior on the part of others. Restrictive strategies are posited to have a neutral to increasingly Defensive impact as one moves from the personal to the interpersonal and organizational domains.

Impact on Others

Ninety-six of the items included in L/I are designed to measure the impact of leaders along 2 dimensions. The first dimension distinguishes between *task-* versus *people-oriented* behaviors. The second dimension distinguishes between behaviors associated with *higher-order needs for growth and satisfaction* versus *lower-order security needs*. These dimensions, based on the cultural styles measured by the Organizational Culture Inventory,[5] define the 3 general types of impact and the 12 specific behavioral styles that leaders may encourage or promote. Thus,

- Leaders who have a *Constructive impact* motivate others to relate to people and approach tasks in ways that will help them to personally meet their higher-order needs for growth and satisfaction (includes Achievement, Self-Actualizing, Humanistic-Encouraging, and Affiliative behavioral styles).
- Leaders who have a *Passive/Defensive impact* encourage others to interact with the people around them in self-protective ways that will not threaten their own security (includes Approval, Conventional, Dependent, and Avoidance styles).
- Leaders who have an *Aggressive/Defensive impact* drive others to approach tasks in forceful ways that will protect their own status and security (includes Oppositional, Power, Competitive, and Perfectionistic styles).

The Description by Others form measures the extent to which the leader currently promotes each of these 12 behavioral styles (i.e., the leader's *current impact*). The Self-Report form assesses the extent to which the leader would ideally like to promote these behaviors on the part of others (i.e., the leader's *ideal impact*). Results on the differences between current and ideal impact highlight areas for change and improvement.

Most participants will describe their ideal impact as Constructive. This is expected since the theory underlying L/I posits that a Constructive impact is appropriate for most leaders. Although differences do exist between countries, Constructive behaviors generally are consistent with the cultural values (e.g., independence and equal opportunity) and higher-order needs (e.g., achievement and self-actualization) reported by members of organizations within the U.S., Australia, Canada, New Zealand, U.K., Western Europe, and a number of other countries. Given their consistency with those

5. Cooke, Robert A. and Lafferty, J. Clayton. (1989). *Organizational Culture Inventory*. Plymouth, MI: Human Synergistics.

needs and values, the Constructive behaviors have far greater motivational potential and are more effective (e.g., in terms of promoting individual well-being, performance, and high quality interpersonal relations) than defensive impact styles.

Effectiveness

Thirteen items are included in the Description by Others form to measure 3 areas of leadership effectiveness: organizational effectiveness, personal effectiveness, and balance. Feedback from these items is intended to encourage participants to use the L/I strategy and impact results for identifying ways of improving and maximizing their future effectiveness.

Internal Consistency

The internal consistency of the L/I strategies, impact, and effectiveness scales was examined using Cronbach's alpha. This statistic can be interpreted as the average covariance among the items within the scale. Generally speaking, alpha coefficients above .60 are desirable and provide support for combining the responses to the relevant items into a single scale score.

Strategies

The overall measures of Prescriptive and Restrictive strategies demonstrate high levels of internal consistency for both the Description by Others (Table 2) and Self-Report (Table 3) versions of the inventory. For the total sample, the alpha coefficients for the Description by Others overall strategy scales are .96 and .90 for the Prescriptive and Restrictive scales, respectively, and range from .88 to .96 when the data are stratified by HS office location. For the Self-Reports, the coefficients for the total sample are .92 and .85 for the overall Prescriptive and Restrictive scales, respectively, and range from .77 to .93 for the different HS offices.

The alphas for specific strategy domains are lower than those for the overall scales. This is to be expected since these subscales include only 3 items each and alpha coefficients automatically decrease as the number of items per scale decrease. The coefficients range

Table 2
Internal Consistency: Strategy Scales (Description by Others)

	Total Sample[a]	By HSI Location				
		US	Australia	Canada	New Zealand	United Kingdom
Overall Prescriptive	.96	.96	.96	.95	.96	.95
Envisioning: Defining	.72	.72	.76	.70	.75	.74
Role Modeling: Exemplifying	.83	.83	.80	.82	.83	.84
Mentoring: Active	.68	.68	.66	.67	.69	.70
Stimulating Thinking: Lateral	.83	.83	.81	.82	.84	.81
Referring: Positive Referents	.61	.61	.62	.64	.63	.54
Monitoring: By Excellence	.69	.69	.66	.66	.71	.69
Providing Feedback: Positive	.87	.86	.87	.86	.88	.86
Reinforcing: Reward	.80	.80	.80	.79	.80	.75
Influencing: Reciprocal	.69	.69	.72	.62	.53	.70
Creating a Setting: Facilitating	.80	.81	.76	.79	.80	.79
Overall Restrictive	.90	.90	.88	.88	.89	.89
Envisioning: Delimiting	.58	.57	.64	.51	.62	.58
Role Modeling: Circumscribing	.52	.52	.51	.48	.48	.55
Mentoring: Passive	.58	.59	.48	.57	.53	.63
Stimulating Thinking: Vertical	.51	.52	.47	.51	.47	.51
Referring: Negative Referents	.79	.79	.72	.73	.77	.81
Monitoring: By Exception	.53	.55	.36	.48	.50	.51
Providing Feedback: Negative	.64	.64	.64	.62	.57	.66
Reinforcing: Punishment	.73	.72	.76	.70	.73	.72
Influencing: Unilateral	.69	.70	.66	.66	.62	.65
Creating a Setting: Constraining	.54	.54	.56	.50	.60	.57
n	29403-32049	23941-26864	2452-2673	1454-1563	839-1019	670-707

[a]Includes 49 Description by Others from the Netherlands.

Table 3
Internal Consistency: Strategy Scales (Self-Report)

	Total Sample[a]	By HSI Location				
		US	Australia	Canada	New Zealand	United Kingdom
Overall Prescriptive	.92	.92	.93	.93	.93	.92
Envisioning: Defining	.64	.63	.73	.68	.67	.64
Role Modeling: Exemplifying	.72	.72	.64	.71	.73	.72
Mentoring: Active	.50	.50	.37	.52	.66	.60
Stimulating Thinking: Lateral	.73	.72	.76	.77	.82	.64
Referring: Positive Referents	.60	.59	.68	.61	.62	.47
Monitoring: By Excellence	.49	.48	.49	.55	.58	.48
Providing Feedback: Positive	.81	.80	.87	.80	.78	.85
Reinforcing: Reward	.71	.70	.79	.73	.72	.61
Influencing: Reciprocal	.60	.58	.79	.51	.30	.55
Creating a Setting: Facilitating	.64	.65	.41	.74	.71	.64
Overall Restrictive	.85	.86	.77	.81	.83	.86
Envisioning: Delimiting	.59	.58	.73	.48	.53	.62
Role Modeling: Circumscribing	.45	.46	.36	.45	.45	.58
Mentoring: Passive	.49	.50	.40	.44	.43	.63
Stimulating Thinking: Vertical	.42	.43	.46	.20	.33	.20
Referring: Negative Referents	.67	.69	.64	.51	.57	.69
Monitoring: By Exception	.39	.44	-.11	.25	.15	.58
Providing Feedback: Negative	.50	.49	.56	.49	.45	.15
Reinforcing: Punishment	.64	.63	.69	.53	.64	.65
Influencing: Unilateral	.55	.56	.54	.50	.54	.53
Creating a Setting: Constraining	.46	.45	.44	.46	.54	.52
n	4670 - 4932	3734-3950	374-400	274-286	183-190	95-99

[a]Includes 10 Self-Reports from the Netherlands.

from .51 (for Stimulating Thinking: Vertical) to .87 (for Providing Feedback: Positive) for the total sample of Description by Others, with an average alpha=.68. For the total sample of Self-Reports, the levels of internal consistency range from .39 (for Monitoring: By Exception) to .81 (for Providing Feedback: Positive), with an average alpha=.58.

The reliability of the strategy subscales for each of the HS locations tends to be fairly consistent across sub-samples, particularly for the Description by Others strategy measures and the Self-Report measures of Prescriptive strategies. For both forms of the inventory, Providing Feedback: Positive demonstrates the highest level of internal consistency with all sub-samples except the Self-Reports for New Zealand (where the coefficient for Stimulating Thinking: Lateral is greater). With respect to Restrictive strategies, the results for the different sub-samples tend to vary for the Monitoring: By Exception subscale (both Description by Others and Self-Report) and the Self-Report measures of Stimulating Thinking: Vertical and Providing Feedback: Negative. These differences could be due to the way in which certain items are viewed in particular countries. Nevertheless, the results suggest that the majority of strategy items tend to be viewed similarly across countries.

In summary, these findings demonstrate that, across countries, the overall Prescriptive and Restrictive scores for both forms of the inventory are reliable and meaningful, with the Description by Others somewhat more stable than the Self-Reports. The internal consistency of the strategy subscales is lower than that for the overall scales, but this was anticipated since alpha coefficients tend to be low when relatively few items per scale are used. Three non-redundant items are used to measure each specific strategy domain; thus, it would be difficult to attain high estimates of internal consistency using

Cronbach's alpha. Nevertheless, the alphas for the specific domains are presented here for reference purposes and should be considered in the context of more stable reliability coefficients such as those that focus on interrater consistency.

Impact

The internal consistency results for the L/I impact scales are presented in Table 4. The current impact scales (which are based on the Description by Others form of the survey) show acceptable levels of internal consistency with alpha coefficients ranging from .76 (for Power) to .91 (for Affiliative) for the total sample. When the data are stratified by HS office, all of the by-location reliability coefficients are also above .70 and tend to be fairly similar across sub-samples.

The internal consistency of the ideal impact scales (which are based on Self-Report) is somewhat lower than that of the current impact scales, but still within an acceptable range. For the total sample, the alpha coefficients range from .62 (for Dependent and Avoidance) to .82 (for Humanistic-Encouraging). The data from the U.S. and Australian offices demonstrate acceptable levels of internal consistency for all 12 ideal impact scales, while the reliability results for each of the remaining offices are satisfactory for at least 10 of the 12 scales (with the lowest alphas just below .60).

Taken together, these results provide evidence of the stability of the impact scales across countries and particularly with respect to the measures of current impact.

Table 4
Internal Consistency: Impact Scales

	Total Sample[a]	By HSI Office Location				
		US	Australia	Canada	New Zealand	United Kingdom
Current Impact (Description by Others)						
(1) Humanistic-Encouraging	.89	.89	.90	.89	.88	.88
(2) Affiliative	.91	.91	.90	.90	.89	.88
(3) Approval	.83	.83	.84	.80	.85	.87
(4) Conventional	.79	.79	.81	.79	.83	.83
(5) Dependent	.77	.77	.77	.73	.76	.80
(6) Avoidance	.83	.83	.82	.80	.81	.84
(7) Oppositional	.84	.84	.82	.79	.78	.84
(8) Power	.76	.76	.79	.78	.77	.83
(9) Competitive	.89	.88	.89	.86	.87	.92
(10) Perfectionistic	.77	.77	.78	.74	.72	.77
(11) Achievement	.86	.86	.86	.85	.87	.85
(12) Self-Actualizing	.87	.87	.86	.86	.86	.84
n	31396-31924	25545-26042	2570-2626	1526-1548	929-972	694-703
Ideal Impact (Self-Report)						
(1) Humanistic-Encouraging	.82	.82	.82	.81	.80	.83
(2) Affiliative	.80	.80	.78	.75	.72	.72
(3) Approval	.72	.72	.70	.69	.74	.66
(4) Conventional	.70	.70	.74	.71	.75	.70
(5) Dependent	.62	.63	.60	.61	.57	.74
(6) Avoidance	.62	.62	.60	.63	.56	.57
(7) Oppositional	.65	.65	.69	.59	.62	.59
(8) Power	.64	.62	.69	.70	.70	.76
(9) Competitive	.66	.66	.68	.59	.67	.67
(10) Perfectionistic	.71	.71	.76	.69	.62	.70
(11) Achievement	.72	.73	.72	.75	.66	.69
(12) Self-Actualizing	.76	.77	.75	.77	.75	.61
n	4878 - 4923	3905-3949	390-396	280-286	186-190	96-99

[a]Includes 49 Description by Others and 10 Self-Reports from the Netherlands.

Effectiveness

All 3 effectiveness scales demonstrate acceptable levels of internal consistency for the total sample as well as for the individual offices (see Table 5). All of the reliability coefficients are above .70 for the total sample and above .60 for the office sub-samples. Although the L/I Feedback Report does not present scale scores for leadership effectiveness (and instead focuses only on the item-level scores), these results support the use of such scores, particularly for the organizational and personal effectiveness measures.

Table 5
Internal Consistency: Effectiveness Scales

	Total Sample[a]	By HSI Location				
		US	Australia	Canada	New Zealand	United Kingdom
Organizational Effectiveness	.87	.87	.86	.85	.86	.87
Personal Effectiveness	.71	.71	.67	.72	.65	.68
Balance	.72	.72	.73	.67	.72	.74
n	31054-31285	25185-25393	2656-2668	1519-1522	984-998	664

[a]Includes 43 Description by Others from the Netherlands.

Interrater Reliability

Interrater reliability, or the consistency between the reports of different raters who described the same leader, was examined using oneway analysis of variance (ANOVA) with the leader being described as the independent variable and the L/I scales as the dependent variables. Significant *F*-values provide evidence of interrater reliability and indicate that the variance in the reports of those who described different leaders is appreciably greater than the variance in the reports of those who described the same leader. Eta^2 statistics provide an estimate of the percent of variance explained in the L/I scale scores by the leader being described by respondents.

Strategies

The ANOVA results provide strong support for the interrater reliability of all of the strategy scales. The *F* statistics for the total sample, as well as for the U.S., Australia, and New Zealand data, are all significant at $p<.001$ (see Table 6). For the Canada and U.K. offices, the *F* statistics for all but one strategy scale are significant at $p<.001$ (for both countries, the statistics for Role Modeling: Circumscribing are significant at $p<.01$).

The eta^2 statistics for the total sample are .38 and .40 for overall Prescriptive and Restrictive strategies, respectively, and range from .25 to .38 for the specific strategy domains with an average eta^2=.34. For the different HS locations, the eta^2 statistics for the overall strategy scales range from .34 to .46. The average eta^2 for the specific strategy domains range from .30 (for the U.K.) to .37 (for Australia).

Table 6
Interrater Reliability: Strategy Scales

	Total Sample[a]			United States		
	F	Significance	eta^2	*F*	Significance	eta^2
Overall Prescriptive	3.22	***	.38	3.10	***	.37
Envisioning: Defining	2.97	***	.35	2.96	***	.35
Role Modeling: Exemplifying	3.30	***	.37	3.26	***	.37
Mentoring: Active	2.46	***	.31	2.45	***	.31
Stimulating Thinking: Lateral	2.93	***	.35	2.77	***	.33
Referring: Positive Referents	2.80	***	.34	2.77	***	.33
Monitoring: By Excellence	2.41	***	.30	2.33	***	.29
Providing Feedback: Positive	3.02	***	.35	2.87	***	.34
Reinforcing: Reward	2.87	***	.35	2.77	***	.34
Influencing: Reciprocal	3.26	***	.37	3.14	***	.36
Creating a Setting: Facilitating	2.96	***	.35	2.87	***	.34
Overall Restrictive	3.29	***	.40	3.42	***	.40
Envisioning: Delimiting	2.92	***	.35	2.95	***	.35
Role Modeling: Circumscribing	1.74	***	.25	1.78	***	.25
Mentoring: Passive	2.23	***	.29	2.31	***	.30
Stimulating Thinking: Vertical	2.25	***	.29	2.26	***	.29
Referring: Negative Referents	2.98	***	.35	3.01	***	.35
Monitoring: By Exception	2.99	***	.35	3.16	***	.37
Providing Feedback: Negative	3.39	***	.38	3.41	***	.38
Reinforcing: Punishment	3.13	***	.37	3.06	***	.36
Influencing: Unilateral	2.84	***	.35	2.92	***	.35
Creating a Setting: Constraining	2.93	***	.35	3.02	***	.36
n	29403-32049			23941-26864		

Table continued on next page

Table 6 *continued*
Interrater Reliability: Strategy Scales

	Australia			Canada		
	F	Significance	eta^2	*F*	Significance	eta^2
Overall Prescriptive	4.46	***	.46	2.61	***	.38
Envisioning: Defining	3.28	***	.37	2.50	***	.36
Role Modeling: Exemplifying	3.89	***	.41	2.59	***	.37
Mentoring: Active	2.42	***	.30	1.90	***	.30
Stimulating Thinking: Lateral	4.23	***	.43	2.67	***	.38
Referring: Positive Referents	3.60	***	.39	2.27	***	.34
Monitoring: By Excellence	3.30	***	.37	1.90	***	.30
Providing Feedback: Positive	4.91	***	.47	2.24	***	.33
Reinforcing: Reward	4.19	***	.43	2.32	***	.34
Influencing: Reciprocal	4.91	***	.47	2.04	***	.32
Creating a Setting: Facilitating	3.65	***	.39	2.59	***	.37
Overall Restrictive	2.93	***	.36	2.09	***	.34
Envisioning: Delimiting	3.98	***	.41	1.82	***	.29
Role Modeling: Circumscribing	1.65	***	.23	1.25	**	.22
Mentoring: Passive	1.89	***	.25	1.81	***	.29
Stimulating Thinking: Vertical	2.54	***	.31	1.97	***	.31
Referring: Negative Referents	3.20	***	.36	1.63	***	.27
Monitoring: By Exception	2.34	***	.30	1.87	***	.30
Providing Feedback: Negative	3.50	***	.38	2.72	***	.38
Reinforcing: Punishment	4.29	***	.44	1.72	***	.28
Influencing: Unilateral	2.52	***	.31	1.98	***	.31
Creating a Setting: Constraining	2.86	***	.34	2.06	***	.32
n	2452-2673			1454-1563		

	New Zealand			United Kingdom		
	F	Significance	eta^2	*F*	Significance	eta^2
Overall Prescriptive	2.68	***	.42	3.04	***	.34
Envisioning: Defining	2.35	***	.35	4.06	***	.40
Role Modeling: Exemplifying	2.98	***	.41	3.40	***	.35
Mentoring: Active	1.87	***	.30	2.45	***	.28
Stimulating Thinking: Lateral	3.05	***	.41	3.25	***	.35
Referring: Positive Referents	2.95	***	.41	1.95	***	.24
Monitoring: By Excellence	1.82	***	.30	2.21	***	.26
Providing Feedback: Positive	2.45	***	.36	2.17	***	.26
Reinforcing: Reward	2.37	***	.35	2.21	***	.27
Influencing: Reciprocal	2.11	***	.33	3.19	***	.34
Creating a Setting: Facilitating	2.66	***	.38	2.97	***	.33
Overall Restrictive	2.25	***	.40	3.26	***	.36
Envisioning: Delimiting	2.00	***	.32	2.62	***	.30
Role Modeling: Circumscribing	1.46	***	.26	1.55	**	.20
Mentoring: Passive	1.77	***	.29	2.16	***	.26
Stimulating Thinking: Vertical	1.81	***	.30	2.15	***	.26
Referring: Negative Referents	2.24	***	.34	2.78	***	.31
Monitoring: By Exception	2.16	***	.34	2.16	***	.26
Providing Feedback: Negative	2.69	***	.38	3.69	***	.38
Reinforcing: Punishment	2.21	***	.34	3.62	***	.37
Influencing: Unilateral	1.72	***	.29	3.01	***	.33
Creating a Setting: Constraining	2.41	***	.36	2.55	***	.29
n	839-1019			670-707		

[a]Includes 49 Description by Others from the Netherlands.
*p <.05. **p <.01. ***p <.001.

Impact

As shown in Table 7, the *F* statistics for all of the impact scales are significant at $p<.001$ for both the total sample and the HS location sub-samples. For the total sample, the eta^2 statistics range from .30 (for Approval) to .38 (for Affiliative and Power) with an average $eta^2=.35$. The by-location eta^2 statistics range from .26 to .44, with the data from New Zealand demonstrating the highest average levels of interrater reliability (average $eta^2=.40$) and Canada demonstrating the lowest (average $eta^2=.33$). Overall, these results provide strong support for the interrater reliability of the impact scales, as well as the computation and use of composite results based on the aggregated Description by Others.

Table 7
Interrater Reliability: Impact Scales

	Total Sample[a]			**United States**		
	F	Significance	eta^2	*F*	Significance	eta^2
(1) Humanistic-Encouraging	2.99	***	.36	2.96	***	.35
(2) Affiliative	3.39	***	.38	3.37	***	.38
(3) Approval	2.29	***	.30	2.23	***	.29
(4) Conventional	2.85	***	.35	2.78	***	.34
(5) Dependent	2.37	***	.31	2.37	***	.30
(6) Avoidance	2.39	***	.31	2.33	***	.30
(7) Oppositional	3.04	***	.36	3.02	***	.35
(8) Power	3.25	***	.38	3.28	***	.38
(9) Competitive	2.80	***	.34	2.75	***	.33
(10) Perfectionistic	3.21	***	.37	3.25	***	.37
(11) Achievement	2.80	***	.34	2.77	***	.33
(12) Self-Actualizing	2.78	***	.34	2.73	***	.33
n	31396-31924			25545-26042		
	Australia			**Canada**		
	F	Significance	eta^2	*F*	Significance	eta^2
(1) Humanistic-Encouraging	3.29	***	.38	2.68	***	.38
(2) Affiliative	3.61	***	.40	2.67	***	.38
(3) Approval	2.39	***	.30	1.58	***	.26
(4) Conventional	3.37	***	.38	2.25	***	.34
(5) Dependent	2.39	***	.30	1.86	***	.30
(6) Avoidance	2.61	***	.32	1.78	***	.29
(7) Oppositional	2.96	***	.35	2.33	***	.35
(8) Power	3.12	***	.37	2.63	***	.35
(9) Competitive	2.56	***	.32	1.74	***	.29
(10) Perfectionistic	3.16	***	.36	2.35	***	.35
(11) Achievement	3.03	***	.36	2.29	***	.34
(12) Self-Actualizing	3.11	***	.36	2.51	***	.36
n	2570-2626			1526-1548		
	New Zealand			**United Kingdom**		
	F	Significance	eta^2	*F*	Significance	eta^2
(1) Humanistic-Encouraging	2.09	***	.34	3.04	***	.33
(2) Affiliative	2.80	***	.41	4.19	***	.41
(3) Approval	2.84	***	.42	3.41	***	.36
(4) Conventional	3.80	***	.49	3.36	***	.35
(5) Dependent	2.32	***	.36	2.48	***	.29
(6) Avoidance	2.85	***	.41	3.54	***	.37
(7) Oppositional	2.40	***	.38	4.69	***	.43
(8) Power	2.37	***	.37	4.84	***	.44
(9) Competitive	2.99	***	.43	4.62	***	.43
(10) Perfectionistic	2.77	***	.40	3.98	***	.39
(11) Achievement	2.59	***	.39	3.07	***	.33
(12) Self-Actualizing	2.44	***	.38	2.82	***	.31
n	929-972			694-703		

[a]Includes 49 Description by Others from the Netherlands.
*p <.05. **p <.01. ***p <.001.

Effectiveness

All three of the effectiveness scales also demonstrate reasonable levels of interrater reliability. The *F* statistics for the total sample, as well as for each of the HS offices, are significant at p<.001 (see Table 8). The eta^2 statistics for the total sample range from .30 (for Balance) to .37 (for organizational effectiveness). For the individual HS office locations, they range from .30 to .43.

Table 8
Interrater Reliability: Effectiveness Scales

	Total Sample[a]			**United States**		
	F	Significance	eta^2	*F*	Significance	eta^2
Organizational Effectiveness	3.13	***	.37	3.11	***	.37
Personal Effectiveness	2.93	***	.35	2.90	***	.35
Balance	2.31	***	.30	2.30	***	.30
n	31054-31285			25185-25393		
	Australia			**Canada**		
	F	Significance	eta^2	*F*	Significance	eta^2
Organizational Effectiveness	3.66	***	.39	2.84	***	.40
Personal Effectiveness	3.38	***	.37	2.57	***	.37
Balance	2.45	***	.30	1.95	***	.31
n	2656-2668			1519-1522		
	New Zealand			**United Kingdom**		
	F	Significance	eta^2	*F*	Significance	eta^2
Organizational Effectiveness	2.78	***	.40	4.10	***	.42
Personal Effectiveness	2.04	***	.33	4.40	***	.43
Balance	2.68	***	.39	2.77	***	.32
n	984-998			664		

[a]Includes 43 Description by Others from the Netherlands.
*p <.05. **p <.01. ***p <.001.

Construct Validity

Construct validity refers to the extent to which a survey measures certain psychological or theoretical constructs or traits.[6] Construct validity is often demonstrated by showing that different measures of the same construct empirically converge (i.e., convergent validity) while measures of different constructs can be empirically differentiated (i.e., discriminant validity).[7] Thus, the convergent-discriminant validity of the 20 strategy and 12 impact scales was examined using principle components analysis with varimax rotation. Both the Self-Report and Description by Others data were analyzed for the total sample, but only the Description by Others were used for the stratified analyses since several of the HS offices did not have enough Self-Reports to produce stable results. The factor scores after rotation are particularly important for evaluating the construct validity of the L/I scales. Convergent validity is demonstrated when scales assumed to belong to a single factor all have loadings above .40 on the same factor. Discriminant validity is demonstrated when the same scales have loadings less than .40 but greater than -.40 on the other factors.

Eigenvalues before rotation and the percent of variance explained after rotation are also reported. The *eigenvalues* indicate the total amount of variance in all of the scales explained by each factor. Factors with eigenvalues greater than 1.0 are usually extracted or retained (because they imply that the factor accounts for more variance than that of just one scale). However, when the purpose of the analysis is to confirm an existing conceptual framework (as is the case here), the number of factors extracted from the data can be forced to equal the number of factors in the conceptual framework, regardless of their eigenvalues. The *percent of variance explained* indicates the percent of variance in all of the scales explained by the retained factors after rotation. The higher the percent, the more variance accounted for in the scales by each of the final factors.

Strategies

The 20 specific strategy sub-scales are presumed to measure 2 forms of leadership: Prescriptive and Restrictive. Thus, for all of the principle components analyses carried out on strategies, a 2-factor solution was imposed. For the total sample (Table 9), 2 factors explain a total of 58.6% of the variance in the Description by Others strategy data and 47.88% of the variance in the Self-Report data. For both the Description by Others and Self-Reports, the loadings for all of the Prescriptive sub-scales are above .40 on the first factor (supporting their convergent validity) and below .40 on the second factor (supporting their discriminant validity). Similarly, all of the Restrictive sub-scales have loadings above .40 on the second factor and below.40 on the first factor, with only one exception. Envisioning: Delimiting as measured by Self-Report shows a loading of .55 on the Restrictive factor and .40 on the Prescriptive factor. Since the higher loading is on the Restrictive factor, this finding does not pose a great threat to its discriminant validity.

6. Anastasi, Anne. (1988). *Psychological testing*, 6th edition. New York: Macmillan.
7. Kerlinger, Fred N. (1986). *Foundations of behavioral research*, 3rd edition. Fort Worth: Holt, Rinehart, and Winston.

Table 9
Factor Structure: Strategy Scales (Total Sample)

	Description by Others (n=29,403)[a]		Self-Report (n=4,670)[b]	
	Factor 1	Factor 2	Factor 1	Factor 2
Envisioning: Defining	**.78**	.03	**.65**	.13
Role Modeling: Exemplifying	**.79**	-.21	**.67**	-.02
Mentoring: Active	**.80**	-.03	**.63**	.19
Stimulating Thinking: Lateral	**.82**	-.19	**.79**	-.13
Referring: Positive Referents	**.64**	.24	**.64**	.22
Monitoring: By Excellence	**.84**	-.12	**.76**	.00
Providing Feedback: Positive	**.83**	-.17	**.80**	.09
Reinforcing: Reward	**.85**	-.11	**.82**	.00
Influencing: Reciprocal	**.75**	-.29	**.70**	-.14
Creating a Setting: Facilitating	**.86**	-.23	**.81**	-.10
Envisioning: Delimiting	.37	**.62**	.40	**.55**
Role Modeling: Circumscribing	.36	**.43**	.26	**.41**
Mentoring: Passive	-.22	**.54**	-.08	**.47**
Stimulating Thinking: Vertical	-.09	**.51**	-.14	**.54**
Referring: Negative Referents	-.19	**.73**	-.13	**.69**
Monitoring: By Exception	.10	**.75**	.13	**.69**
Providing Feedback: Negative	-.06	**.79**	.07	**.70**
Reinforcing: Punishment	-.18	**.73**	-.15	**.64**
Influencing: Unilateral	-.29	**.74**	-.16	**.70**
Creating a Setting: Constraining	-.17	**.73**	-.04	**.66**
Eigenvalues	7.53	4.19	5.68	3.90
% variance explained	34.71	23.89	28.37	19.51

[a]Includes 49 Description by Others from the Netherlands.
[b]Includes 10 Self-Reports from the Netherlands.

The by-location results are reported in Table 10. All of the strategy sub-scales load properly on to the correct factor, supporting their convergent validity. A "dual loading" (loading above .40 or below -.40 on more than one factor) occurs in the results for a few offices but in all cases the highest loadings are all on the correct factor. Thus, both the total sample and the stratified analyses provide evidence that the strategy sub-scales measure Prescriptive and Restrictive approaches to leadership.

Table 10
Factor Structure: Strategy Scales (By HS Office)[a]

	United States (n=23,941)		Australia (n=2,452)		Canada (n=1,454)	
	Factor 1	Factor 2	Factor 1	Factor 2	Factor 1	Factor 2
Envisioning: Defining	**.79**	.03	**.72**	.02	**.79**	.03
Role Modeling: Exemplifying	**.79**	-.21	**.78**	-.20	**.76**	-.18
Mentoring: Active	**.81**	-.03	**.77**	-.05	**.82**	-.02
Stimulating Thinking: Lateral	**.82**	-.20	**.83**	-.17	**.83**	-.16
Referring: Positive Referents	**.64**	.25	**.70**	.19	**.64**	.27
Monitoring: By Excellence	**.85**	-.12	**.87**	-.12	**.83**	-.09
Providing Feedback: Positive	**.84**	-.17	**.85**	-.14	**.83**	-.12
Reinforcing: Reward	**.85**	-.11	**.87**	-.12	**.86**	-.08
Influencing: Reciprocal	**.75**	-.30	**.76**	-.22	**.76**	-.19
Creating a Setting: Facilitating	**.86**	-.23	**.87**	-.19	**.86**	-.19
Envisioning: Delimiting	.37	**.62**	.46	**.56**	.30	**.64**
Role Modeling: Circumscribing	.38	**.43**	.20	**.42**	.29	**.46**
Mentoring: Passive	-.22	**.54**	-.24	**.55**	-.12	**.51**
Stimulating Thinking: Vertical	-.08	**.52**	-.15	**.48**	-.14	**.49**
Referring: Negative Referents	-.18	**.73**	-.25	**.70**	-.17	**.69**
Monitoring: By Exception	.09	**.76**	.11	**.71**	.10	**.73**
Providing Feedback: Negative	-.07	**.79**	.04	**.76**	-.08	**.76**
Reinforcing: Punishment	-.17	**.74**	-.34	**.63**	-.15	**.74**
Influencing: Unilateral	-.29	**.75**	-.25	**.73**	-.32	**.72**
Creating a Setting: Constraining	-.16	**.73**	-.16	**.75**	-.16	**.72**
Eigenvalues	7.54	4.25	7.57	3.81	7.18	4.14
% variance explained	34.69	24.25	35.36	21.51	33.95	22.62

Table continued on next page

Table 10 *continued*
Factor Structure: Strategy Scales (By HS Office)[a]

	New Zealand (n=839)		United Kingdom (n=670)	
	Factor 1	Factor 2	Factor 1	Factor 2
Envisioning: Defining	**.83**	.02	**.79**	.03
Role Modeling: Exemplifying	**.77**	-.24	**.78**	-.20
Mentoring: Active	**.80**	.04	**.77**	-.09
Stimulating Thinking: Lateral	**.84**	-.14	**.79**	-.15
Referring: Positive Referents	**.66**	.24	**.65**	.25
Monitoring: By Excellence	**.86**	-.07	**.83**	-.13
Providing Feedback: Positive	**.84**	-.11	**.79**	-.19
Reinforcing: Reward	**.84**	-.04	**.81**	-.10
Influencing: Reciprocal	**.73**	-.25	**.73**	-.35
Creating a Setting: Facilitating	**.85**	-.22	**.84**	-.26
Envisioning: Delimiting	.44	**.62**	.36	**.65**
Role Modeling: Circumscribing	.33	**.39**	.40	**.42**
Mentoring: Passive	-.24	**.50**	-.30	**.59**
Stimulating Thinking: Vertical	-.01	**.52**	-.14	**.41**
Referring: Negative Referents	-.13	**.72**	-.20	**.71**
Monitoring: By Exception	.15	**.73**	.23	**.67**
Providing Feedback: Negative	.03	**.78**	-.05	**.77**
Reinforcing: Punishment	-.24	**.72**	-.15	**.74**
Influencing: Unilateral	-.30	**.70**	-.30	**.73**
Creating a Setting: Constraining	-.20	**.73**	-.32	**.64**
Eigenvalues	7.30	4.28	7.41	3.87
% variance explained	35.22	22.68	33.89	22.52

[a]Based on Description by Others.

Impact

L/I is designed to assess the impact of leaders along 3 distinct dimensions: Constructive, Passive/Defensive, and Aggressive/Defensive. As shown in Table 11, 81.41% of the variance in the 12 impact scales (as measured by the Description by Others form) is explained by 3 factors with eigenvalues greater than 1.0. These factors correspond to 3 dimensions of impact targeted by the survey. For the Self-Report form, a 3-factor solution was imposed that, in turn, accounts for a total of 71.87% of the variance in the

Table 11
Factor Structure: Impact Scales (Total Sample)

	Current Impact *(Description by Others; n=31,396)*[a]			Ideal Impact *(Self-Report; n=4,878)*[b]		
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
(1) Humanistic-Encouraging	**.90**	-.25	-.12	**.89**	-.16	-.10
(2) Affiliative	**.87**	-.36	-.06	**.87**	-.18	-.03
(3) Approval	-.20	.35	**.78**	-.17	.45	**.66**
(4) Conventional	-.15	.34	**.80**	-.12	.37	**.76**
(5) Dependent	-.16	.21	**.86**	-.07	.19	**.83**
(6) Avoidance	-.39	.41	**.70**	-.29	.36	**.67**
(7) Oppositional	-.32	**.77**	.32	-.20	**.79**	.19
(8) Power	-.01	**.87**	.19	.05	**.76**	.24
(9) Competitive	-.28	**.72**	.40	-.11	**.74**	.31
(10) Perfectionistic	-.04	**.76**	.39	-.16	**.73**	.36
(11) Achievement	**.89**	.07	-.28	**.86**	.00	-.18
(12) Self-Actualizing	**.90**	-.03	-.26	**.86**	-.06	-.19
Eigenvalues	6.53	2.22	1.02	5.38	2.39	0.86
% variance explained	29.84	25.89	25.68	26.96	23.59	21.32

[a]Includes 49 Description by Others from the Netherlands.
[b]Includes 10 Self-Reports from the Netherlands.

ideal impact scales after rotation. For both sets of data, all of the scales show their highest loadings on the correct factor, supporting their convergent validity. Two of the current impact scales (Avoidance and Competitive) and one ideal scale (Approval) have loadings above .40 on more than one factor; however, in all 3 cases, the highest loadings are on the correct factors. Thus, the results provide strong support for the convergent validity of the impact scales as well as fairly strong support for their discriminant validity.

Table 12 shows the results for each of the HS office locations. For this set of analyses, the number of factors was not forced because the unconstrained results provided some interesting insights as to the way impact styles are interpreted or viewed in different countries. Data from the U.S. and the U.K. each reduce to 3 factors with eigenvalues greater than 1.0. For both locations, all of the highest loadings are on the correct factor, supporting the convergent validity of the scales as measures of Constructive, Passive/Defensive, and Aggressive/Defensive impact.

The Description by Others data from Australia, Canada, and New Zealand each reduce to 2 factors with eigenvalues greater than 1.0.[8] For all 3 locations, the Passive/Defensive and Aggressive/Defensive scales have their highest loadings all on the first factor and the Constructive scales all have their highest loadings on the second factor, supporting the distinction between defensive versus Constructive impact styles. The 2-factor solution suggests that, in these countries, generalized defensive impact profiles (i.e., profiles with great extensions along both Passive and Aggressive styles) probably occur with greater frequency than in the U.S. and U.K. Whether this reflects a difference in the impact of leaders or differences in the perception (or reports) of impact by people in different countries may be a question worthy of further exploration (e.g., by using observation techniques or interviews to gather information on impact).

8. When a 3-factor solution was forced, the data from each of these HS offices showed their highest loadings on the correct factor.

Table 12
Factor Structure: Impact Scales (By HS Office)[a]

	United States (n=25,545)			Australia (n=2,570)		
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	
(1) Humanistic-Encouraging	**.90**	-.12	-.25	-.26	**.88**	
(2) Affiliative	**.87**	-.06	-.36	-.31	**.83**	
(3) Approval	-.19	**.78**	.35	**.78**	-.30	
(4) Conventional	-.15	**.80**	.34	**.77**	-.22	
(5) Dependent	-.16	**.86**	.20	**.71**	-.28	
(6) Avoidance	-.39	**.70**	.41	**.76**	-.44	
(7) Oppositional	-.32	.32	**.77**	**.82**	-.23	
(8) Power	.00	.19	**.87**	**.81**	-.05	
(9) Competitive	-.29	.40	**.72**	**.83**	-.24	
(10) Perfectionistic	-.04	.40	**.76**	**.84**	-.04	
(11) Achievement	**.89**	-.28	.08	-.13	**.92**	
(12) Self-Actualizing	**.90**	-.25	-.03	-.16	**.92**	
Eigenvalues	6.51	2.23	1.03	6.72	2.14	
% variance explained	29.93	25.74	25.70	43.21	30.58	

	Canada (n=1,526)			New Zealand (n=929)		
	Factor 1	Factor 2		Factor 1	Factor 2	Factor 3
(1) Humanistic-Encouraging	-.25	**.89**		-.21	**.87**	
(2) Affiliative	-.24	**.86**		-.28	**.84**	
(3) Approval	**.78**	-.23		**.80**	-.31	
(4) Conventional	**.80**	-.19		**.78**	-.28	
(5) Dependent	**.73**	-.20		**.76**	-.29	
(6) Avoidance	**.76**	-.41		**.77**	-.45	
(7) Oppositional	**.76**	-.24		**.80**	-.23	
(8) Power	**.77**	.02		**.79**	-.01	
(9) Competitive	**.79**	-.22		**.82**	-.24	
(10) Perfectionistic	**.82**	-.03		**.84**	.02	
(11) Achievement	-.08	**.92**		-.12	**.91**	
(12) Self-Actualizing	-.16	**.91**		-.18	**.91**	
Eigenvalues	6.22	2.37		6.64	2.24	
% variance explained	41.45	30.12		43.35	30.69	

	United Kingdom (n=694)		
	Factor 1	Factor 2	Factor 3
(1) Humanistic-Encouraging	**.87**	-.33	-.10
(2) Affiliative	**.85**	-.39	-.08
(3) Approval	-.26	.36	**.80**
(4) Conventional	-.21	.33	**.79**
(5) Dependent	-.20	.29	**.84**
(6) Avoidance	-.41	.46	**.68**
(7) Oppositional	-.31	**.78**	.32
(8) Power	-.11	**.88**	.20
(9) Competitive	-.30	**.73**	.41
(10) Perfectionistic	-.02	**.79**	.33
(11) Achievement	**.83**	.05	-.43
(12) Self-Actualizing	**.83**	-.02	-.37
Eigenvalues	7.03	1.81	1.05
% variance explained	28.11	27.70	26.60

[a]Based on Description by Others.

Criterion-Related Validity

Criterion-related validity refers to a scale's effectiveness in predicting performance along measures of other constructs or outcomes.[9] The criterion-related validity of the L/I scales was examined using Pearson correlation coefficients as estimates of the degree of association between the measures of strategy and impact, impact and leadership effectiveness, and impact and personal success. Specifically, both the Description by Others and the Self-Reports of leadership strategies were correlated with current impact, as described by others. Current impact was then correlated with the L/I effectiveness measures. To examine the relationship between impact and personal success, the current impact styles were correlated with the leaders' current salaries and salary increases (i.e., current salary not explained by salary 8 years ago).

The theoretical framework underlying L/I posits that Prescriptive strategies have a Constructive impact on others, while Restrictive strategies have a neutral to increasingly defensive impact as one moves from the personal (i.e., envisioning and role modeling) to the interpersonal and organizational domains (e.g., mentoring and influencing). Although leaders with a highly Constructive impact periodically exhibit Restrictive strategies, their Restrictive tendencies are not as strong as their Prescriptive tendencies. Thus, positive correlations between Prescriptive strategies and Constructive impact styles and zero (or non-significant) to positive correlations between Restrictive strategies and the defensive impact styles would provide evidence of the criterion-related validity of these scales. In turn, a Constructive impact helps leaders and those around them to be more effective and accomplish more. A defensive impact interferes with the effectiveness of leaders, as well as the performance of those with whom they work or interact. Positive correlations between the measures of Constructive impact and leadership effectiveness and negative correlations between the defensive impact measures and leadership effectiveness would demonstrate the validity of these relationships.

Whereas the impact measures were not intended to directly predict personal success, research on the Life Styles Inventory (LSI)[10] indicates that managers who exhibit either Constructive or Aggressive/Defensive styles tend to earn relatively high salaries and/or hold higher-level positions while managers who exhibit Passive/Defensive styles tend to report low salaries and hold lower-level positions. These findings suggest that leaders who promote either Constructive or Aggressive/Defensive behaviors on the part of others likely will report relatively high salaries and salary increases whereas leaders who have a Passive/Defensive impact will probably report relatively low salaries and salary increases. Significant correlations that are consistent with these predictions would provide support for the relationship between impact styles and personal success of leaders.

9. Kerlinger, Fred N. (1986). Foundations of behavioral research, 3rd edition. Fort Worth: Holt, Rinehart, and Winston.
10. Human Synergistics. (1989). *Life Styles Inventory Leader's Guide.* Plymouth, MI: Human Synergistics.

Strategies

The correlations between strategies and current impact based on the total sample are presented in Table 13. Consistent with the theoretical framework underlying L/I, overall Prescriptive strategies (as measured by Description by Others) are positively related to a Constructive impact and, to a lesser extent, negatively related to the defensive impact styles. Similarly, overall Restrictive strategies (as described by others) are positively related to both Passive/Defensive and Aggressive/Defensive impacts and, to a lesser extent, negatively related to a Constructive impact. When the relative use of Prescriptive over Restrictive strategies is considered, a Prescriptive emphasis is positively related to a Constructive impact and negatively related to the defensive impact styles.

With respect to specific strategy domains, 9 of the 10 Prescriptive strategies, as described by others, are related to the current impact measures in the manner predicted. The only exception is a small, but significant, positive correlation between Referring: Positive Referents and Aggressive/Defensive impact. This finding seems plausible, since talking about others' successes and effectiveness can either provide members with role models (i.e., Constructive impact) or promote competition among peers (i.e., Aggressive/ Defensive impact), depending on the broader context in which the stories are told. On the Restrictive side, all of the strategies are positively related to defensive impacts and all but two of the strategies (Envisioning: Delimiting and Role Modeling: Circumscribing) are negatively related to a Constructive impact. Envisioning and role modeling are more personal types of activities and therefore expected to have a neutral impact when carried out Restrictively. The correlations here suggest that their impact may be more positive than neutral. However, the correlations between Prescriptive emphasis and impact indicate that the greater the use of Prescriptive strategies over Restrictive strategies—in *any* of the domains—the greater the Constructive impact. These results are consistent with predictions and support the criterion-related validity of the Description by Others' strategy measures.

The magnitude of the correlations between Self-Reports of strategies and others' descriptions of current impact (right half of Table 13) are smaller than those for the Description by Others strategy measures (left half of Table 13). This is expected since it's the way that leaders come across to others (rather than the way that they intend to or believe they come across) that has a direct impact on others' reactions and behavior. Nevertheless, most of the correlations are significant and consistent with predictions. Both overall and specific Prescriptive strategies are positively related to a Constructive impact and negatively related to a Passive/Defensive impact with only one exception (Mentoring: Active and Passive/Defensive impact). The correlations between Prescriptive strategies and Aggressive/Defensive impact vary with half in the predicted (negative) direction and the other half either positive or not significant. On the Restrictive side, all of the correlations between self-perceptions of strategies and Aggressive/Defensive impact are consistent with predictions and most of the correlations with the Constructive and Passive/Defensive impacts are significant and in the expected direction. In general, those leaders who perceive themselves as greatly emphasizing Prescriptive over Restrictive strategies tend to have a more Constructive (and less defensive) impact than those who do not see themselves as emphasizing Prescriptive strategies to the same degree.

Table 13
Correlations between Leadership Strategies and Current Impact (Total Sample)[a]

	Others' Descriptions of Strategies and Impact[b]			Self-Reports of Strategies and Others' Descriptions of Impact[c]		
Leadership Strategies	Constructive	Passive/ Defensive	Aggressive/ Defensive	Constructive	Passive/ Defensive	Aggressive/ Defensive
Overall Prescriptive	.89***	-.51***	-.38***	.21***	-.07***	.00
Envisioning: Defining	.72***	-.42***	-.13***	.15***	-.05***	.12***
Role Modeling: Exemplifying	.81***	-.54***	-.47***	.14***	-.06***	-.06***
Mentoring: Active	.75***	-.32***	-.31***	.11***	.05**	.02
Stimulating Thinking: Lateral	.82***	-.58***	-.31***	.15***	-.09***	.04**
Referring: Positive Referents	.50***	-.15***	.05**	.17***	-.03*	.06***
Monitoring: By Excellence	.78***	-.43***	-.38***	.13***	-.03**	-.04*
Providing Feedback: Positive	.71***	-.40***	-.38***	.13***	-.04**	-.05**
Reinforcing: Reward	.76***	-.42***	-.29***	.17***	-.05**	.03*
Influencing: Reciprocal	.73***	-.44***	-.53***	.16***	-.10***	-.13***
Creating a Setting: Facilitating	.87***	-.55***	-.44***	.21***	-.09***	-.03*
Overall Restrictive	-.32***	.55***	.79***	-.06***	.15***	.26***
Envisioning: Delimiting	.07***	.08***	.41***	.01	.02	.14***
Role Modeling: Circumscribing	.25***	.05***	.18***	.05***	.05**	.08***
Mentoring: Passive	-.28***	.35***	.59***	-.01	.02	.14***
Stimulating Thinking: Vertical	-.27***	.54***	.32***	-.07***	.15***	.08***
Referring: Negative Referents	-.34***	.47***	.70***	-.05***	.11***	.21***
Monitoring: By Exception	-.15***	.45***	.58***	-.05**	.16***	.20***
Providing Feedback: Negative	-.30***	.36***	.71***	-.05***	.06***	.23***
Reinforcing: Punishment	-.27***	.42***	.68***	.00	.08***	.20***
Influencing: Unilateral	-.50***	.56***	.74***	-.12***	.13***	.18***
Creating a Setting: Constraining	-.40***	.65***	.60***	-.09***	.21***	.13***
Prescriptive Emphasis[d]	.81***	-.67***	-.72***	.20***	-.15***	-.18***
Envisioning	.59***	-.44***	-.47***	.11***	-.06***	-.03
Role Modeling	.57***	-.53***	-.56***	.05***	-.08***	-.12***
Mentoring	.65***	-.42***	-.56***	.08***	.02	-.09***
Stimulating Thinking	.69***	-.66***	-.37***	.14***	-.15***	-.02
Referring	.65***	-.48***	-.52***	.17***	-.10***	-.11***
Monitoring	.63***	-.62***	-.68***	.13***	-.15***	-.19***
Providing Feedback	.68***	-.50***	-.71***	.13***	-.07***	-.19***
Reinforcing	.66***	-.54***	-.62***	.11***	-.09***	-.13***
Influencing	.71***	-.57***	-.72***	.18***	-.14***	-.20***
Creating a Setting	.80***	-.72***	-.63***	.20***	-.20***	-.11***
		4945<n<4949			4602<n<4931	

[a]Includes data from the Netherlands.
[b]Strategies and current impact based on the aggregated Description by Others.
[c]Strategies based on Self-Report and current impact based on the aggregated Description by others.
[d]Prescriptive emphasis equals Prescriptive strategies minus Restrictive strategies.
*p <.05. **p <.01. ***p <.001.

The correlations between overall strategies and impact for each of the HS office locations are presented in Table 14. For all locations, others' descriptions of leadership strategies are significantly correlated with impact in the manner expected. While the correlation results based on the descriptions by others are consistent across sub-samples, the relationship between self-reports of strategies and the leaders' current impact varies. For the U.S. and U.K., self-perceptions of both Prescriptive and Restrictive strategies are correlated with impact in the manner expected. For Australia, self-reports of Restrictive strategies are significantly correlated with impact, while for Canada self-reports of Prescriptive strategies are significantly related to impact. In general, self-perceptions of a Prescriptive emphasis are positively related to having a Constructive impact, except for New Zealand, where self-reports only of Prescriptive strategies are significantly (positively) correlated with a Constructive impact.

Table 14
Correlations between Leadership Strategies and Current Impact (By HS Office)

	Others' Descriptions of Strategies and Impact[a]			Self-Reports of Strategies and Others' Descriptions of Impact[b]		
Leadership Strategies	Constructive	Passive/ Defensive	Aggressive/ Defensive	Constructive	Passive/ Defensive	Aggressive/ Defensive
United States (3680≤*n*≤3963)						
Overall Prescriptive	.90***	-.50***	-.37***	.21***	-.07***	.01
Overall Restrictive	-.30***	.55***	.78***	-.05**	.15***	.27***
Prescriptive Emphasis[c]	.81***	-.68***	-.72***	.19***	-.16***	-.19***
Australia (367≤*n*≤401)						
Overall Prescriptive	.74***	-.50***	-.37***	.07	.03	.04
Overall Restrictive	-.36***	.58***	.83***	-.12*	.19***	.28***
Prescriptive Emphasis[c]	.74***	-.66***	-.68***	.12*	-.08	-.12*
Canada (271<*n*<286)						
Overall Prescriptive	.91***	-.50***	-.39***	.28***	-.15*	-.01
Overall Restrictive	-.36***	.50***	.77***	-.04	.02	.05
Prescriptive Emphasis[c]	.85***	-.62***	-.69***	.24***	-.11	-.03
New Zealand (182≤*n*≤190)						
Overall Prescriptive	.91***	-.63***	-.41***	.20**	-.11	.03
Overall Restrictive	-.32***	.55***	.74***	.05	-.01	.12
Prescriptive Emphasis[c]	.85***	-.76***	-.69***	.12	-.06	-.05
United Kingdom (95≤*n*≤99)						
Overall Prescriptive	.94***	-.68***	-.47***	.25*	-.21*	-.06
Overall Restrictive	-.42***	.50***	.83***	-.21*	.37***	.47***
Prescriptive Emphasis[c]	.87***	-.74***	-.77***	.35***	-.41***	-.34***

[a]Strategies and current impact based on the aggregated Description by Others.
[b]Strategies based on Self-Report and current impact based on the aggregated Description by others.
[c]Prescriptive emphasis equals Prescriptive strategies minus Restrictive strategies.
*p<.05. **p<.01. ***p<.001.

Overall, these results provide strong support for the criterion-related validity of the Description by Others strategy measures for both the total and stratified samples. As expected, the results for Self-Report strategy measures are not as strong as the Description by Others; nevertheless, most of the Self-Report strategy scales are related to current impact in the manner as predicted.

Impact

The correlation results between current impact and outcomes (i.e., leadership effectiveness and personal success) are presented in Table 15. For both the total sample and each of the individual HS office locations, a Constructive impact is positively associated with the leaders' organizational effectiveness, personal effectiveness, and balance[11], whereas Passive/Defensive and Aggressive/Defensive impacts are negatively associated with these outcomes.

In terms of personal success, the analyses conducted on the total sample indicate leaders who promote either Constructive (particularly Achievement and Self-Actualizing) or Aggressive/Defensive styles receive higher salaries and salary increases over time than leaders who do not promote these styles. Passive/Defensive impact styles (particularly Conventional and Dependent) are negatively associated with these measures of personal success. The results for the U.S. are similar to the total sample, while the results for the

11. Balance was computed as a straight scale using the least negative endpoint for each item as the high score.

Table 15
Correlations between Current Impact and Outcomes

	Effectiveness[a]			Personal Success[b]	
Current Impact[a]	Organizational Effectiveness	Personal Effectiveness	Balance	Current Salary	Salary Increase
Total Sample:[c]					
Constructive	.82***	.72***	.62***	.07***	.06**
Humanistic-Encouraging	.76***	.68***	.59***	.00	.00
Affiliative	.75***	.72***	.56***	-.01	.01
Achievement	.73***	.60***	.55***	.20***	.16***
Self-Actualizing	.78***	.65***	.57***	.08***	.07***
Passive/Defensive	-.67***	-.55***	-.51***	-.08***	-.11***
Approval	-.49***	-.42***	-.48***	.03	-.01
Conventional	-.59***	-.45***	-.40***	-.16***	-.17***
Dependent	-.61***	-.49***	-.39***	-.14***	-.15***
Avoidance	-.70***	-.62***	-.54***	.00	-.05**
Aggressive/Defensive	-.50***	-.53***	-.43***	.21***	.13***
Oppositional	-.56***	-.58***	-.43***	.15***	.09***
Power	-.33***	-.37***	-.30***	.26***	.17***
Competitive	-.48***	-.48***	-.53***	.14***	.09***
Perfectionistic	-.41***	-.43***	-.29***	.19***	.12***
		$4893 \le n \le 4938$			$2931 \le n \le 3313$

	Effectiveness[a]			Personal Success[b]	
Current Impact[a]	Organizational Effectiveness	Personal Effectiveness	Balance	Current Salary	Salary Increase
By HS Office:					
United States					
Constructive	.82***	.72***	.62***	.07***	.06**
Passive/Defensive	-.66***	-.55***	-.49***	-.08***	-.11***
Aggressive/Defensive	-.50***	-.52***	-.42***	.21***	.13***
		$3908 \le n \le 3952$			$2692 \le n \le 3054$
Australia					
Constructive	.85***	.76***	.58***	n/a	n/a
Passive/Defensive	-.72***	-.60***	-.57***	n/a	n/a
Aggressive/Defensive	-.53***	-.56***	-.45***	n/a	n/a
	$n = 401$				
Canada					
Constructive	.79***	.66***	.52***	.03	-.07
Passive/Defensive	-.59***	-.46***	-.46***	-.15*	-.11
Aggressive/Defensive	-.48***	-.47***	-.42***	.01	.06
		$n = 286$			$215 \le n \le 232$
New Zealand					
Constructive	.81***	.64***	.64***	n/a	n/a
Passive/Defensive	-.73***	-.61***	-.63***	n/a	n/a
Aggressive/Defensive	-.48***	-.51***	-.51***	n/a	n/a
		$n = 190$			
United Kingdom					
Constructive	.84***	.75***	.65***	.03	.17
Passive/Defensive	-.81***	-.69***	-.71***	.13	.07
Aggressive/Defensive	-.59***	-.65***	-.56***	.51*	.25
		$n = 99$			$19 \le n \le 22$

[a] Current impact and effectiveness based on the aggregated Description by Others.
[b] Current salary based on Self-Report. Increase in salary reflects current salary not explained by salary 8 years ago. Salary data not available for Australia and New Zealand offices.
[c] Includes data from the Netherlands.
*$p < .05$. **$p < .01$. ***$p < .001$.

two other HS offices for which salary data were available show fewer significant relationships between impact and personal success. For the Canadian office, only the Passive/Defensive impact styles are significantly (negatively) related to current salary. For the U.K., it is the Aggressive/Defensive styles that are significantly (positively) related to current salary; however, this is based on a very small sample ($n \leq 22$).

Taken together, the correlations provide evidence of the criterion-related validity of the L/I impact measures, particularly with respect to leadership effectiveness. The impact measures also relate to personal success in the manner expected, even though L/I was not designed for this purpose. Leaders who are both effective and successful are those who have a Constructive impact on others in their organizations. Leaders who are both ineffective and unsuccessful tend to be those who have a Passive/Defensive impact. Leaders who have an Aggressive/Defensive impact tend to be less effective, but more personally successful, than leaders who do not have this type of impact on others.

The results for the individual HS office locations indicate that the relationships among impact styles and measures of effectiveness are consistent across countries. The results regarding the impact styles and measures of personal success indicate that these relationships may vary depending on the country, but additional international data are needed before more definitive statements can be made.

Conclusions

The findings presented here provide evidence for the reliability and validity of the L/I measures based on the self-reports and descriptions by others of 4,950 leaders from around the world. While the majority of the data was collected in the U.S., the stratified analyses suggest that, in general, the psychometric qualities of the measures are maintained across different countries.

More specifically, the internal consistency and inter-rater reliability of the measures are acceptable and fairly consistent across countries, supporting the computation of the scale scores and the use of composite results based on the descriptions by others. In terms of validity, the distinction between Prescriptive and Restrictive leadership strategies appears to be internationally relevant, as is their impact on the behavior of others. The descriptions by others of the leaders' impact suggest that some variance may occur between countries in terms of distinguishing between three (Constructive, Passive/Defensive, and Aggressive/ Defensive) versus two (Constructive and defensive) general types of impact styles; however, both typologies are consistent with the conceptual framework underlying the impact measures and therefore support their construct validity on an international basis. The hypothesized relationships between the strategies and impact measures, as well as between the impact and effectiveness measures, are supported by the Description by Others data from all countries. Some differences appear to exist between countries in terms of the relationship between self-perceptions of strategies and the leader's current impact as described by others; however, this finding reinforces the importance of the L/I feedback from others in understanding the effects of one's leadership. In addition, the results provided some preliminary evidence that the impact measures may also be associated with the personal success of leaders around the world, although the nature and magnitude of these relationships may vary. In general, Prescriptive strategies promote Constructive impact styles that, in turn, are positively associated with leadership effectiveness and personal success. Restrictive strategies promote both Passive/Defensive and Aggressive/ Defensive impacts. In turn, Passive/Defensive impact styles are negatively associated with effectiveness and success, while Aggressive/Defensive impact styles are negatively associated with effectiveness but positively associated with success, at least in certain countries.

While the findings presented here are consistent with predictions and previous research, the results regarding the criterion-related validity of the Aggressive/Defensive styles are particularly interesting. Leaders who promote Aggressive/Defensive behaviors often defend their approaches on the basis that such styles have contributed to their own personal success and the gains—typically short-term—that their organizations have achieved. The findings presented here do not necessarily dispute this argument. Instead, the L/I data demonstrate that such leaders typically hurt both themselves and their organizations over the long-term. The recent demise of an increasing number of organizations run by executives who created Aggressive/Defensive cultures provide powerful examples of some of the highly detrimental effects of such styles. While these examples are largely from the U.S., the correlations presented here suggest that the

problem could be more widespread. When leaders promote Aggressive/Defensive behaviors they encourage others to do *whatever it will take* to *look* good and meet goals and deadlines. And, according to the leaders' self reports, they obtain compliance by talking about and severely punishing those who fail as well as boasting about and rewarding those who appear to succeed. But cutting corners and looking good are not the same as creating something that is of value and that will endure long after the leader is gone. That's why, regardless of organization type or geographical location, L/I data from around the world show that the leaders who create truly effective organizations are those who have a Constructive rather than Aggressive/Defensive impact.