*a*cumen®

WorkStyles™

Technical Report on
Methods and Validity

human
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INTERNATIONAL

About Human Synergistics

Since 1970, we have developed and provided high-quality assessments and simulations for individuals, leaders, teams, and organizations to actualize their potential. While we're probably best known for our Desert Survival Situation™ and Organizational Culture Inventory® (the world's most widely used culture survey), our impact transcends that reputation. Our emphasis on measuring the relationship between human behaviors and performance has allowed us to help millions of individuals achieve self-knowledge and to help thousands of organizations understand their operating cultures and relationship to outcomes such as profitability, employee satisfaction, quality of service, and teamwork.

We proudly serve both the business and academic communities, including clients in the public, private, and not-for-profit organizations, human resource and organizational development professionals, internal and external consultants, and educational institutions. Our staff's commitment to providing the highest quality products and services has enabled us to establish long-term relationships with our clients and to build our business based primarily on referrals and our reputation.

Acknowledgements

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Foreword

This document provides detailed information about the development, psychometric properties, and method of reporting results of **ACUMEN Leadership Work***Styles* and **ACUMEN Team Work***Styles*. In the spirit of the Standards for Educational and Psychological Testing published by the American Psychological Association in 1985, this report is intended to inform the user about the Work*Styles* instrument.

In an effort to increase readability, this document has an emphasis on narrative interpretation, with tables and basic statistics to support conclusions. Contact Human Synergistics/Acumen Inc. if you have further questions about our research methods.

1. Purpose of WorkStyles

ACUMEN Work*Styles* is a development instrument based on the Life Styles Inventory and distributed by Human Synergistics, Inc. The Work*Styles* assessment is intended for use as a feedback tool for stimulating and guiding individual development. It measures attitudes and thinking styles that affect leadership and team member effectiveness. Work*Styles* feedback provides leaders and team members with valuable insight into how their habitual motivational styles influence their working styles. **ACUMEN Leadership Work***Styles*™ compares the assessment results to managerial norms and provides feedback about how an individual's motivational styles play out in a managerial and leadership role. **ACUMEN Team Work***Styles*™ compares the assessment results to individual contributor (non-managerial) norms and provides feedback about an individual's working style in relation to individual task accomplishments and team contributions.

Participants complete self-assessments and request ratings from co-workers in the company. Ratings are collected by means of web-based or paper-and-pencil questionnaires. The assessment data is processed to provide meaningful, personalized feedback. The overall results are presented in a graphic profile display (called a circumplex) accompanied by a narrative report describing the productive and counterproductive aspects found in that profile. The report describes these productive and counterproductive aspects in the context of either leadership or team member activities and tasks.

The purpose of ACUMEN Work*Styles* reports is to provide developmental feedback to the participating individuals. The Work*Styles* **self-assessment** provides information from the participant's self-perceptions; this information produces a **Self Report.** The Work*Styles* **co-worker feedback assessment** provides information about the participant from the perceptions of *at least* four others; a **Feedback Report** gives the participant feedback from co-workers, and requires that the self-assessment instrument also be used for comparative purposes. A group of participants' self- and co-worker assessment information can be compiled in a **Composite Report**, to provide a sense of the styles typical within a particular group.

2. Instrument Background

The assessment component of ACUMEN Work*Styles* is derived from a long line of research on how needs, attitudes, and personal orientations influence human behavior in general and on-the-job effectiveness in particular. Some of this research dealt with the development of theories of personality, as represented by the work of Freedman, Leary, Ossorio, and Coffey (1951), Leary (1957), and Rogers (1961). Other research explored human needs and motivation, as represented by the work of Maslow (1954) and McClelland (1961). Still other research examined leadership and management behavior, as described by Stogdill (1963).

In particular, Acumen International based the Work*Styles* assessment instruments on conceptual and empirical research into a circumplex or configurational model of personal orientations developed by Human Synergistics International (Lafferty, 1973; Cooke and Lafferty, 1981). While other circumplex models have been developed (Wiggins 1979; Conte and Plutchik 1981), Work*Styles* is most directly based on Lafferty's adaptation of personality concepts for application in business environments. Human Synergistics published his work as *Level I: Life Styles Inventory, Self Description* (Lafferty, 1973) and *Level II: Life Styles Inventory, Description by Others* (Lafferty, 1976). Human Synergistics has used the Life Styles Inventories since 1973 with strong acceptance of their usefulness in management and training development.

Work*Styles* is an updated version of ACUMEN, which was Acumen's first adaptation of the *Life Styles Inventories* (see Warren and Gratzinger, 1990). Beginning in 1984, Acumen and Human Synergistics extensively analyzed and re-standardized the *Life Styles Inventories* to produce the assessment tools and leadership development paradigms used in ACUMEN. The *Level I* and *Level II Life Styles Inventories* had very good internal scale reliability and rich databases of thousands of individual records, including demographic and organizational data, stressful life events and symptom of strain data, and effectiveness ratings. Acumen's adaptation of the instrument built on the "inherited" validity of the scales and was designed to maximize the positive psychometric properties the scales offered. As a consequence of both revising the instruments and using computer technology, the ACUMEN instruments were somewhat different from the *Life Styles Inventories*. One difference was that ACUMEN had 10 items per scale, whereas the *Life Styles Inventories* had 20. The process of reducing the number of items by 50% led to improved within-scale reliability. Other minor differences involved the renaming of certain scales; for example Avoidance was renamed Apprehension. The most important contribution of ACUMEN, however, lay in the development of a personality type system to provide rich and insightful interpretations of an individual's profile.

Acumen released several versions of ACUMEN, differing in terms of the intended audience, report contents, and the technology used to gather data and produce reports:

VERSION	YEAR	CHARACTERISTICS
ACUMEN Insight for Managers	1985	Management self-assessment
ACUMEN Group Feedback	1987	Management multirater assessment
ACUMEN Educational Version	1988	Student self-assessment
COCKPIT 2000	1989	Flight crew multirater assessment
ACUMEN Report Writer	1992	Management self-and-feedback report writer

Work*Styles* is a successor to the ACUMEN instruments. In 1993, Acumen released the first version of Work*Styles*, created for salespeople and initially called Sales ACUMEN (see Hudy and Guest, September 1993). Also in 1993, Acumen released the second version of Work*Styles*, created for individual contributors and team members (see Hudy and Guest, December 1993). The main differences between Work*Styles* and ACUMEN are:

- Work*Styles* uses a five-point response scale ("*Not at all*" through "*To a great extent,*" whereas ACUMEN used the 3-point response scale from the *Lifestyles Inventories* ("*Essentially unlike this person*" through "*Like this person most of the time*").

- Work*Styles* has fewer assessment items than ACUMEN (94 versus 120, respectively), resulting from a strategy aimed at reducing the number of items while maintaining a specified level of within-scale consistency.

- Work*Styles* uses some new items, which were not in the original ACUMEN or *Life Styles Inventories* (partly because the language in some of the older items was becoming dated).

- Work*Styles* uses the same item set for both self-ratings and ratings by co-workers, whereas ACUMEN used slightly different item sets for the two types of ratings.

In April 2004, Acumen International, the publisher of Work*Styles*, entered into an exclusive licensing agreement with Human Synergistics International, their original partner in creating the ACUMEN instruments. The agreement reunited after 20 years ACUMEN Work*Styles* with the instrument on which it is based, the *Life Styles Inventory*, and other Human Synergistics products including the *Organizational Culture Inventory* (Cooke and Lafferty, 1987). This reunion permitted the updating of Acumen Work*Styles* and its re-alignment with *Life Styles Inventory* circumplex, which had been modified and improved over the ensuing two decades.

In January 2007, Human Synergistics released Acumen Work*Styles* 2007, which fulfills our goal of integrating the updated circumplex into Work*Styles'* typology and highly personalized reports. In addition, the Work*Styles* 2007 reports utilize the latest technologies resulting in improved online assessment management and report processing structures.
With respect to the circumplex, changes for Acumen Work*Styles* 2007 include:

Style (Scale) Names:
- Humanistic-Helpful *changed to* Humanistic-Encouraging
- Affiliation *changed to* Affiliative
- Dependence *changed to* Dependent
- Apprehension *changed to* Avoidance*****
- Competition *changed to* Competitive
- Perfectionism *changed to* Perfectionistic
- Self-Actualization *changed to* Self-Actualizing

*While most of the changes are grammatical, Apprehension was changed back to Avoidance to render the scale name more behavioral. In psychological sciences, Apprehension is defined as anxiety or a state of strain. While Apprehension and Avoidance are strongly related and might be described in similar ways, the behavioral style of Avoidance leads to the state of Apprehension (and possibly *vice versa*). Given that WorkStyles measures styles rather than states, the scale name was changed to make it consistent with the other 11 scale names.

Orientations:

The outer ring of the circumplex identifies four personal Orientations along two underlying dimensions.
- Satisfaction *versus* Security Needs
- People *versus* Task Orientation

Factor (Groups of Styles) Names:

The styles fall into three Factors or Groupings and are renamed.
- Satisfaction-Orientation *changed to* Constructive Styles
- People-Security *changed to* Passive/Defensive Styles
- Task-Security *changed to* Aggressive/Defensive Styles

Scale Grouping Colors:

Two of three scale grouping colors are changed to align with the Human Synergistics circumplex.
- Constructive Styles – Green *changed to* Blue
- Passive/Defensive Styles – Yellow *changed to* Green
- Aggressive/Defensive Styles – Red is unchanged

Concentric Circles:

The Work*Styles* profile previously included four concentric circles (25th, 50th, 75th, and 100th percentiles). Two circles were added to make it consistent with other Human Synergistics profiles.
- Added 10% concentric circle
- Added 90% concentric circle

In addition to the changes in the circumplex, some new features were added to Work*Styles* 2007 reports:
- Self vs. Feedback Profile – provides single page convenience for the comparing of self-perceptions and co-worker feedback.
- Multiple-Boss breakouts – multiple boss breakouts are presented and labeled with the boss' names. Also, only breakout profiles for which valid data are available are shown; no blank circumplexes are presented.
- Improved PDF quality – all graphics and profiles are refined and generate higher quality color results.

For comparison, below are both the former and newer WorkStyles circumplexes:

WorkStyles
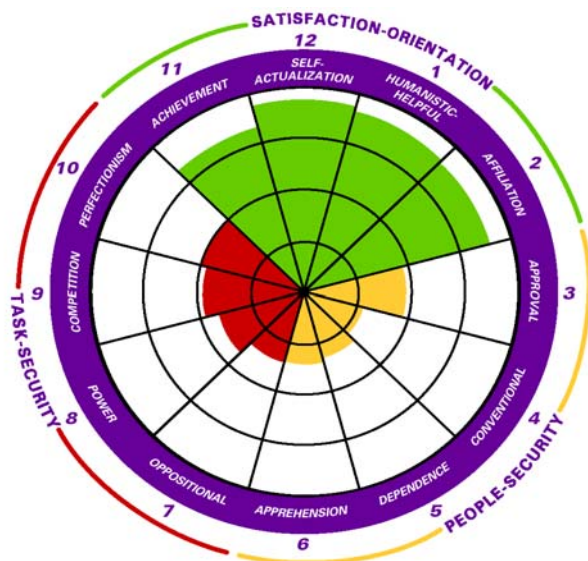
WorkStyles 2007
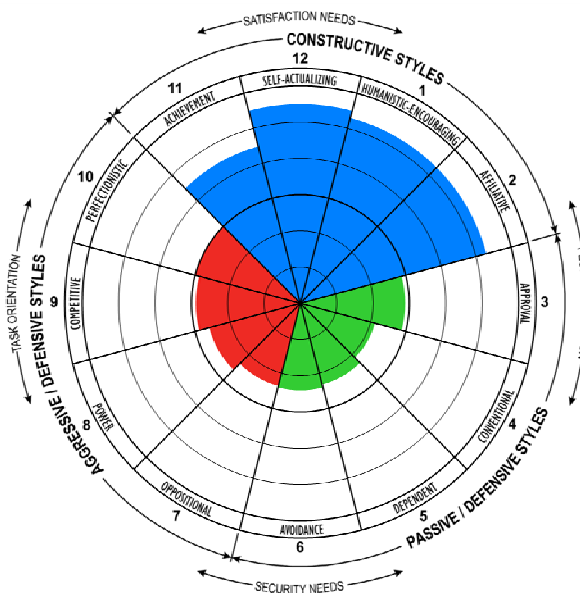
The Acumen Work*Styles* 2007 release successfully integrates the Human Synergistics' circumplex while maintaining the instrument's sound statistical foundation, rich underlying typology structure, and highly personalized feedback. These features provide our clients a broader and unified diagnostic product line—focusing on groups and organizations as well as individuals.

Since the introduction of the first ACUMEN program, Insight for Managers, the ACUMEN and Work*Styles* instruments have been widely used by internal and external assessment and business consultants, with very positive feedback indicating strong validity. Over 500,000 managers and other professionals have used one or more of the ACUMEN programs and this number is expected to increase significantly with the new release of Work*Styles*.

3. Instrument Development

The Work*Styles* instrument is founded on ACUMEN, which in turn was an adaptation of the *Life Style Inventory* (Levels I and II) for computer application. As previously noted, the *Life Styles Inventory* measured a well-developed circumplex model of thinking styles. It had good internal reliability of the scales and a database of 8000 individual records with demographic and organizational data.

From Life Styles Inventory to ACUMEN

The goals of the original ACUMEN adaptation in 1984-1985 were to create a computerized self-assessment tool by reducing the number of items in the Life Styles Inventory; improving the homogeneity within scales; restandardizing with new, updated managerial norms; and developing a typology of thinking styles for use in interpreting and reporting results. For that purpose, the ACUMEN Self-Assessment standardization sample consisted of 1,000 managers randomly selected from a larger sample of 5,000 respondents who had used *Level I: Life Styles Inventory* in 1979. The managers were from large organizations, including manufacturing, public utilities, government agencies, and public accounting firms. To create the ACUMEN instrument, Acumen winnowed items from the *Level I: Life Styles Inventory* on the basis of within-scale cluster analysis, factor analysis, and internal consistency reliability coefficients. Correlations were computed between each item and all 12 scales to identify the items that performed most effectively from a convergent/discriminant validity perspective. This process identified the 10 items in each scale with the most discriminating power and intensity. The 12 scales were themselves examined using cluster analysis to determine which scales could be grouped together. The resulting 6 clusters were used to form the basis of the personality typology system used in reporting results.

The goals of the ACUMEN Group Feedback adaptation in 1987 were similar to those of the first ACUMEN adaptation, but for computerized multirater assessment instead of self-assessment. The ACUMEN Group Feedback standardization sample consisted of 556 managers who had been rated by 2,922 knowledgeable others (using *Level II: Life Styles Inventory*) in 1983 and 1984. The data included not just ratings of thinking styles, but also independent ratings of managerial effectiveness for the purpose of examining the "Effective Manager" profile. Acumen used the same types of statistical analyses for the data for the ACUMEN Group Feedback adaptation as were used for the Self-Assessment adaptation: cluster analyses, factor analyses, within-scale reliability analyses, and item-scale convergent/discriminant correlational analyses. In addition, because interrater reliability is a vital concern in multirater instruments, Acumen used analysis of variance and intraclass correlations to examine the amount of agreement among the raters who assessed each Group Feedback participant.

From ACUMEN to Work*Styles*

The primary goals of the 1993 Work*Styles* adaptation were to move to a five-point response scalar and to update the wording of several assessment items, while still measuring the same 12 thinking styles.

As noted above, the ACUMEN instruments were composed of a subset of the items in the *Life Styles Inventory, Level I*, which dates back more to the early 1970s and beyond. A few of these items used colloquialisms, which were no longer current. For that reason, Acumen elected to add new items to the existing 120 ACUMEN items, where each new item was crafted to complement an existing scale. The intent was to improve the overall readability of the items and improve the internal consistency of the scales, while preserving the conceptual meaning of each scale and the relationships among scales. Therefore, the first version of the ACUMEN Work*Styles* instrument contained a total of 179 items measuring aspects of thinking styles.

Also, ACUMEN still utilized the *Life Styles Inventory's* three-point response scale ("*Essentially unlike you*," "*Like you quite often*," and "*Like you most of the time*"), which many people found disquieting because it felt unbalanced—the middle of the three response alternatives did not feel like the midpoint of the scale. Therefore, Acumen adopted a five-point scale for Work*Styles*. Participants were instructed to rate how well the following words or phrases described them using a response scale anchored by "*Not at all*" at the low end, "*Somewhat*" at the midpoint, and "*To a great extent*" at the high end.

The use of the new response scalar and the new items required the collection of a new instrument standardization sample. Data for this sample were collected between 1993 and 1996 from participants working in over 150 organizations located primarily within the continental U.S. The organizations represent a wide variety of industries, including banking, cable TV, insurance, military, pharmaceuticals, public education, publishing, retail groceries, semiconductor, software, state government, telecommunications, transportation, and utilities. Each of the 2,501 participants completed a self-assessment and collected feedback ratings from at least four co-workers; a total of 14,370 co-workers provided feedback ratings. For most of the participants, the instrument contained 179 items to assess thinking style and an additional 9 items (presented only to co-workers) to rate on-the-job effectiveness.

The participants in the instrument standardization sample represented a reasonably diverse population. Based on their responses to demographic questions, about 62% were male and about 38% were female. While 21% were younger than 30 years old and 23% were 45 or older, more than half (56%) were between the ages of 30 and 45. About 80% were white, and the remainder were minorities. Almost two-thirds (63%) had graduated from college with a degree; one out of five (20% of the total) had earned a master's or doctorate degree. A large majority (68%) had more than 10

years of work experience; only half (49%) had been in their current job 2 years or less. The Statistical Appendix to this report contains details of the demographic composition of this sample.

After Acumen collected data for the WorkStyles instrument standardization sample, the first statistical procedure was to create 12 scale scores, using all 179 items. Items, which had been used in previous versions of ACUMEN, were included in the same scales in which they had been included previously. Each of the 59 new items was included in the scale for which it had been intended. The results of this process were 12 a priori scales measuring thinking styles.

The second step was to review the a priori scales for internal consistency. One item at a time, we removed items, which failed to add to a scale's internal consistency (measured by the alpha coefficient). The explicit goal was to reduce the number of items in each scale while still retaining an internal consistency coefficient of at least .80 in the ratings by co-workers. The result was a set of 12 scales which each had fewer items than the corresponding a priori scale. These final scales (comprised of a total reduced set of 94 items) range in length from 7 to 9 items per scale. Acumen examined the correlations among these scales to confirm that the scales continued to fit the original circumplex model.

Normative Samples

Following statistical analysis of the instrument properties, Acumen created two normative samples from the total set of 2,501 participants who had used the instrument. The first sample was composed exclusively of leaders and managers. The second sample was composed of team members—individual contributors who were not managers. These two samples form the bases for the normative comparisons in **Leadership WorkStyles** and **Team WorkStyles**, respectively.

Leadership Sample

Acumen drew the leadership normative sample from the larger sample of data used for assessing the WorkStyles instrument. The data were collected between 1993 and 1996 from managers located primarily within the continental U.S. They came from over 70 organizations in a wide variety of industries, including banking, insurance, pharmaceuticals, public education, publishing, retail groceries, semiconductor, software, telecommunications, transportation, and utilities. Each of the 444 managers had a self-assessment and feedback ratings from at least four co-workers; a total of 3046 co-workers provided feedback ratings for the managers.

The leadership/managerial sample represented a somewhat less diverse population than the total standardization sample, but that reflects the nature of the managerial population at large. Based on the managers' responses to demographic questions, about 74% were male and about 26% were female. Almost two-thirds (about 64%) were between the ages of 30 and 45. About 86% were white, and the remainder were minorities. Just over three-fourths (about 77%) had graduated from college with a

degree; more than a third (about 37% of the total) had earned a master's or doctorate degree. The vast majority (about 84%) had more than 10 years of work experience, although only about 30% had been in their current job more than 5 years. The Statistical Appendix to this report includes details of the demographic composition of this leadership/managerial sample.

Team Sample

The team member (non-managerial) normative sample also was a subset of the total instrument standardization sample. Acumen collected the data between 1993 and 1996, from more than 150 companies mostly located in the U.S. Participants worked in a wide variety of industries, including banking, cable TV, insurance, military, pharmaceuticals, public education, publishing, retail groceries, semiconductor, software, state government, telecommunications, transportation, and utilities. Each of the 2,057 participants had a self-assessment and at least four assessments by co-workers. There were a total of 11,324 assessments by co-workers.

As would be expected, the team sample represents a more diverse population than the leadership/managerial sample. About 60% of the team sample was male and about 40% female (the comparable percentages were 74% male and 26% female in the leadership/managerial sample). A quarter (25%) of the participants in the team sample were less than 30 years old, while about a fifth (21%) were 45 years or older. Members of minority racial/ethnic groups comprised 22% of the team sample (compared to 14% in the leadership/managerial sample). Team members tended to have less formal education than managers: only 60% had completed a college degree, and only about one out of six (17% of the total) had earned a master's or doctorate. Still, almost two-thirds (65%) had more than 10 years of work experience. More details about these and other demographic characteristics of the team sample can be found in the Statistical Appendix.

4. Instrument Content

ACUMEN Work*Styles* measures 12 different thinking styles, as outlined in **Table 1**. Each style is measured by several **items**, which are combined into a **scale**.

- An **item** describes a specific characteristic or behavior that is indicative of the thinking style being measured. For example, "*Enjoys teaching others*" and "*Patient with people*" are two items characteristic of the Humanistic-Encouraging style. The items used to measure a particular style are combined to create a scale.

- Each **scale** is a measure of a specific style. The score for the scale is based on the average rating of the items that are characteristic of that style. For example, the Humanistic-Encouraging scale consists of 7 items.

The 12 scales are placed in a specific order (see **Table 1**), such that the characteristics and behaviors represented by one scale are similar to, or work with, the scales, which immediately precede or follow it. In the Work*Styles* circumplicial model, scale location is proportionate to correlations between scales. That is, neighboring scales on the circumplex have higher intercorrelations than more distant scales.

- For example, Self-Actualizing behavior frequently occurs in conjunction with Humanistic-Encouraging behavior. Therefore, when the 12 scales are presented as a circumplex, as in **Figure 1**, Self-Actualizing appears next to Humanistic-Encouraging, indicating the nature of the relationship between the two scales.

A circumplex, illustrated in **Figure 1**, provides the most useful way to communicate scale scores. Conveniently, the 12-scale circumplex is visually similar to a clock face, which helps reinforce the concept that the instrument is based on a circular theoretical model in which scales next to each other are more similar while scales opposite each other are more different.

Elements of a circumplex include four concentric circles, 12 segments, and shaded scale score areas.

- The concentric circles represent the 10th, 25th, 50th, 75th, 90th, and 100th. The 12 wedge-shaped segments correspond to the 12 scales.

- The score on any scale is shown by extending a shaded area out from the center of the circumplex. The longer the extension, the higher the percentile score. The percentile score is calculated by converting the raw score on the scale to a percentile score in relation to the norms established in the appropriate standardization sample (either managers or individual contributors). So, for example, the 1 o'clock Humanistic-Encouraging scale in **Figure 1** shows a percentile score of about 85, meaning the score for this person is as high or higher than 85 percent of the people in the norm sample.

In addition to the items that measure the 12 thinking styles, the Work*Styles* instrument asks for a small amount of additional information. Participants completing a self-assessment are asked to describe themselves by answering a few demographic questions. (Acumen uses this demographic information for research purposes, such as norm sampling; a participant's responses have no direct effect on his or her report of results.) People completing a co-worker assessment provide an indication of their relationship to the participant they are rating (supervisor, peer, direct report, etc.) and answer a few questions about the participant's on-the-job effectiveness (used for validation research). Co-workers also have the opportunity to type in observations or comments for the participant's use in planning his or her professional development.

Table 1:
Description of the 12 ACUMEN Work*Styles*

Thinking and Behavioral Styles

1. **Humanistic-Encouraging.** Measures your inclination to see the best in others, to encourage their growth and development, and to be patient and supportive.

2. **Affiliative.** Measures the degree to which you exhibit friendly, sociable, and outgoing behaviors.

3. **Approval.** Measures the extent to which you seek others' approval and support in order to feel secure and worthwhile as a person.

4. **Conventional.** Measures your inclination to conform, follow the rules, and meet the expectations of those in authority.

5. **Dependent.** Measures your tendency to be compliant, passive, and reliant on others.

6. **Avoidance.** Measures the extent to which your actions suggest self-doubt, apprehension, and a preference to avoid difficult situations.

7. **Oppositional.** Measures your tendency to take a critical, questioning, and somewhat cynical attitude.

8. **Power.** Measures the extent to which you come across as authoritarian and controlling.

9. **Competitive.** Measures the extent to which you portray self-centeredness and a need to win and to be seen as the best.

10. **Perfectionistic.** Measures your tendencies to seek perfection and to base your self-worth on your assessment of your own performance.

11. **Achievement.** Measures the extent to which you set challenging goals, work to achieve those goals, and have a positive impact on events around you.

12. **Self-Actualizing.** Measures the extent to which you demonstrate self-esteem, an interest in self-development, and a drive to learn about and experience life to the fullest extent.

Figure 1.
Example of ACUMEN Work*Styles* Graphic Profile

The Work*Styles* Scales

1. Humanistic-Encouraging
supportive, motivates others, patient

2. Affiliative
friendly, warm, trusting

3. Approval
needs approval from others, forgiving, overly generous

4. Conventional
conforming, reliable, restrained

5. Dependent
a follower, deferential, submissive

6. Avoidance
apprehensive, self-doubting, tense

7. Oppositional
questioning, negative, critical

8. Power
authoritarian, controlling, easily angered

9. Competitive
boastful, self-centered, needs to win

10. Perfectionistic
demanding, results-oriented, driven

11. Achievement
enjoys challenges, strives for excellence, decisive

12. Self-Actualizing
enthusiastic, creative, confident

5. Statistical Characteristics

Descriptive Statistics

Work*Styles* assessment items are scored on a five-point scale, anchored by "*Not at all*" at the low end, "*Somewhat*" at the midpoint, and "*To a great extent*" at the high end. Descriptive statistics about the 12 scales are expressed in terms of the mean response per item, so the possible range is from 1 to 5. Because the managerial and individual contributor populations differ significantly from each other, Acumen analyzed them separately in order to create comparative norms.

Leadership Norms

Descriptive statistics from the leadership/managerial sample are presented in **Table 2**. As seen in **Figure 2**, the more socially desirable scales (such as Humanistic-Encouraging or Affiliative) generally have higher means, and the less socially desirable scales (such as Oppositional or Power) have lower means. This is to be expected; humans live in social groups where socially desirable behaviors are reinforced and become more frequent, while socially undesirable behaviors are penalized and become less frequent. Most people learn to express themselves in positively valued ways and to suppress impulses, which are likely to be viewed as unsociable. Furthermore, open and direct criticism of other people tends to create social friction, which is undesirable ("If you can't say something nice, don't say anything at all."). Therefore, ratings are very likely to be higher for socially desirable versus undesirable characteristics, primarily because the desirable behaviors may genuinely occur more frequently but also partly because raters may be somewhat disposed toward putting a positive slant on their feedback.

In comparing the typical leader self-rating to the typical rating by a co-worker, the most striking observation is that there is **not** a consistent tendency for self-perceptions to be more favorable than co-worker perceptions. Bear in mind that on some scales (specifically 11, 12, 1 and 2), a **high** score is desirable, but on other scales (3 through 10) a **low** score is desirable. In comparing self- to co-worker ratings, we looked for differences of at least .10 raw score units, enough to be considered statistically significantly different ($p < .01$, based on exact t-tests) given the size of the sample and the magnitude of the standard deviations.

- With this frame of reference, self-ratings differ substantially from co-worker ratings on six of the 12 scales: Humanistic-Encouraging, Approval, Avoidance, Oppositional, Perfectionistic, and Achievement.

- Of these six scales, the self-ratings are more favorable on Humanistic-Encouraging and Achievement, but less favorable on Approval, Avoidance, Oppositional, and Perfectionistic.

- The biggest difference by far is on Humanistic-Encouraging, where leaders' self-ratings average 4.02 while ratings by co-workers average just 3.73. Leaders have a rather rosy view of their own helpfulness and patience toward others, a view not entirely shared by their co-workers.

- Across all 12 scales, leaders' self-ratings could not be described as having a consistent overall pattern of being more favorable than the ratings by co-workers.

Table 2:
Descriptive Statistics for the Leadership Work*Styles* Normative Sample

Scale	Self-Assessments (N = 444)		Co-Worker Assessments (N = 444⌐)	
	Mean	SD	Mean	SD
1. Humanistic-Encouraging	4.02	.57	3.73	.50
2. Affiliative	3.95	.61	3.86	.53
3. Approval	2.72	.70	2.55	.39
4. Conventional	2.17	.57	2.25	.41
5. Dependent	2.14	.55	2.05	.38
6. Avoidance	2.02	.71	1.85	.46
7. Oppositional	2.17	.55	2.04	.44
8. Power	2.17	.68	2.11	.57
9. Competitive	2.40	.69	2.44	.50
10. Perfectionistic	2.97	.67	2.85	.43
11. Achievement	4.06	.53	3.92	.40
12. Self-Actualizing	3.79	.56	3.73	.42

⌐ Note that there were 3,046 co-worker ratings for those 444 participants, with 4 to 28 co-worker ratings per participant. Co-worker ratings were first averaged within each focal participant, so the descriptive statistics reported here reflect the "mean co-worker ratings" for the 444 participants.

Figure 2.
Average Ratings in Leadership Norm Sample
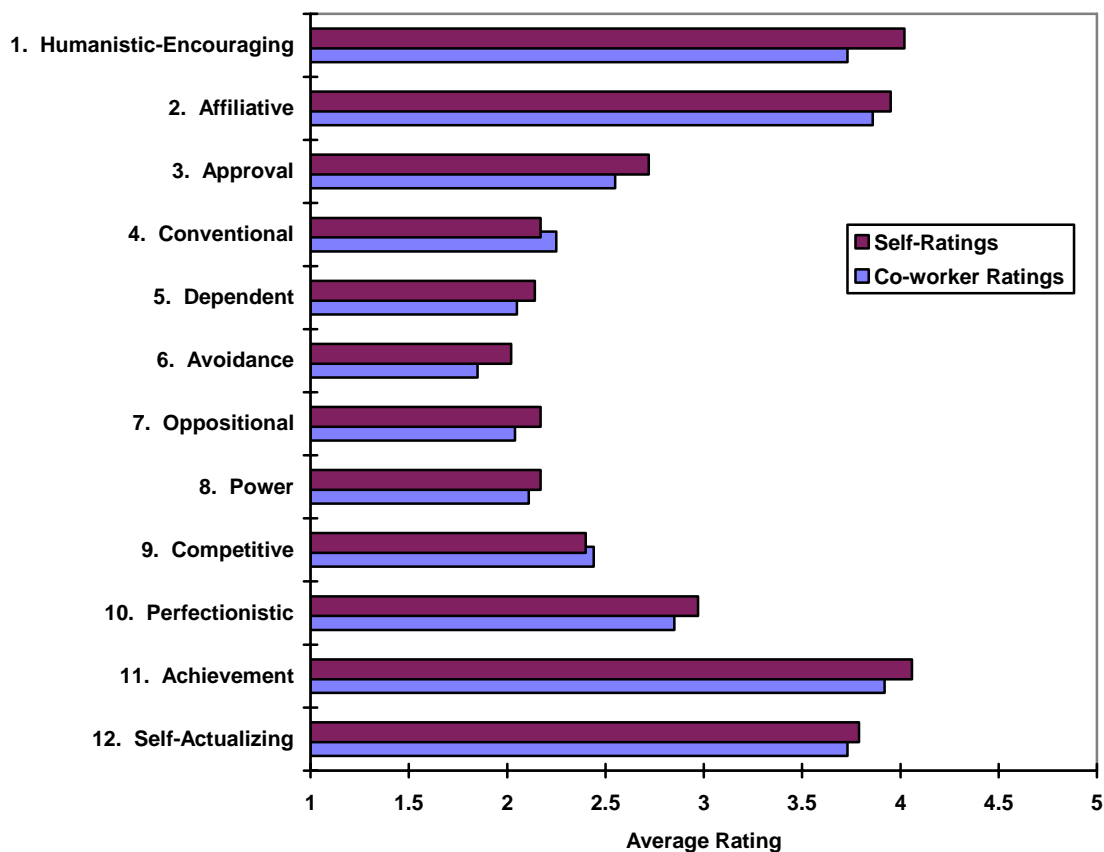
Team Norms

Descriptive statistics from the team (individual contributor) sample, presented in **Table 3** and illustrated in **Figure 3**, show again that the more socially desirable scales (such as Humanistic-Encouraging) have higher means, and the less socially desirable scales (such as Oppositional) have lower means.

As with leaders, there is not a consistent tendency for team members' self-perceptions to be more favorable than the co-worker perceptions. Remember that a high score is desirable on scales 11, 12, 1, and 2, but a low score is generally desirable on scales 3 through 10. We looked for a difference of at least .10 raw score units between the self- and co-worker ratings, a difference considered statistically significant ($p < .01$, based on exact t-tests) given the large sample and the size of the standard deviations.

- Team members' self-ratings differ substantially from co-worker ratings on eight of the 12 scales: Humanistic-Encouraging, Approval, Avoidance, Oppositional, Power, Perfectionistic, Achievement, and Self-Actualizing (the same six scales that differ in the managerial sample, plus Power and Self-Actualizing.).

- Of these eight scales, the self-ratings are more favorable on three (Humanistic-Encouraging, Achievement, And Self-Actualizing) but less favorable on five (Approval, Avoidance, Oppositional, Power, and Perfectionistic).

- The biggest differences are on Humanistic-Encouraging, Perfectionistic, and Achievement, where the self-ratings average more than 0.20 raw score units higher than the co-worker ratings.

- In general, self-raters give themselves higher ratings—regardless of whether "higher" is more desirable or less desirable. Self-raters have a more dramatic, expressive view of themselves, and take stronger positions in saying "Yes, this characteristic is a lot like me."

Table 3:
Descriptive Statistics for the Team Work*Styles* Normative Sample

Scale	Self-Assessments (N = 2057)		Co-Worker Assessments (N = 2057▱)	
	Mean	SD	Mean	SD
1. Humanistic-Encouraging	3.98	.58	3.75	.50
2. Affiliative	3.99	.60	3.92	.53
3. Approval	2.78	.73	2.64	.42
4. Conventional	2.38	.60	2.41	.42
5. Dependent	2.27	.60	2.21	.46
6. Avoidance	2.09	.72	1.92	.48
7. Oppositional	2.16	.59	2.01	.50
8. Power	2.04	.70	1.94	.60
9. Competitive	2.31	.68	2.27	.55
10. Perfectionistic	3.01	.65	2.79	.45
11. Achievement	3.94	.57	3.72	.47
12. Self-Actualizing	3.72	.57	3.61	.45

▱ Note that there were 11,324 co-worker ratings for those 2,057 participants, with 4 to 21 co-worker ratings per participant. Co-worker ratings were first averaged within each focal participant, so the descriptive statistics reported here reflect the "mean co-worker ratings" for the 2,057 participants.

**Figure 3.
Average Ratings in Team Norm Sample**
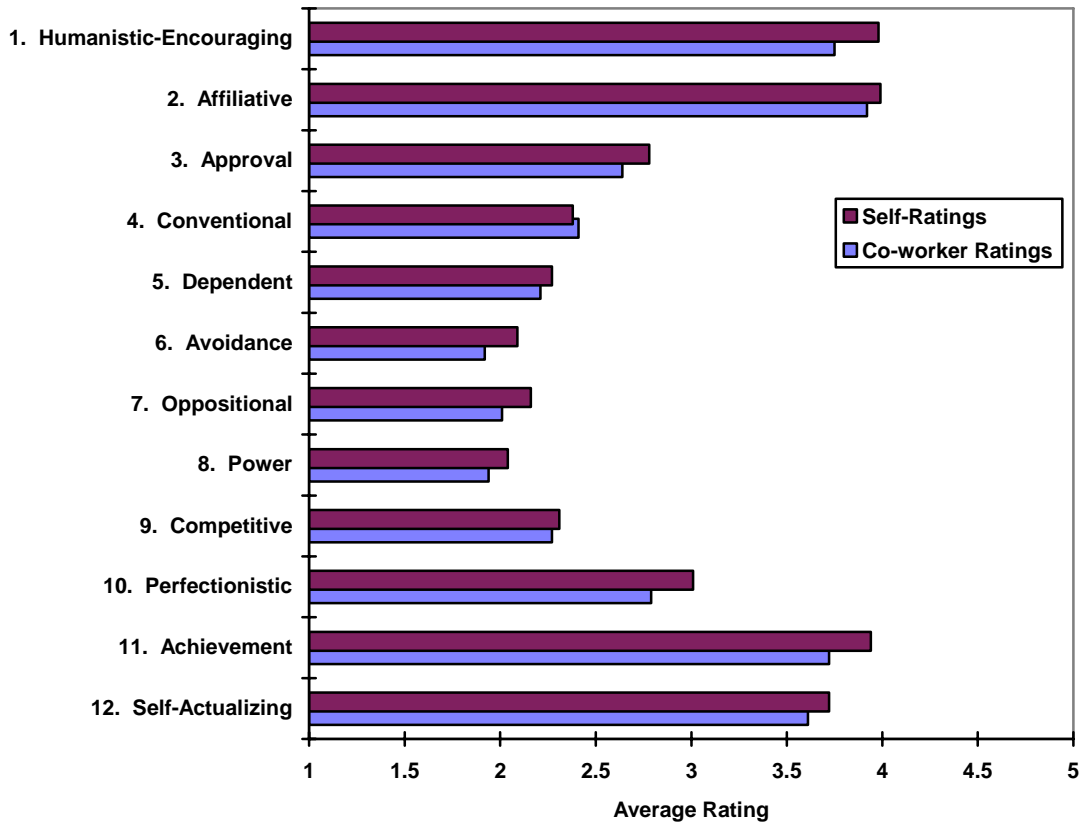
Differences Between Leadership and Team Norms

A comparison of **Tables 2 and 3** reveals some differences between leaders and individual contributors (team members). Applying t-tests (with a criterion of $p < .01$) to the co-worker ratings, we found that:

- leaders are rated significantly **lower** than individual contributor team players on Approval, Conventional, and Dependent. This cluster of scales deals essentially with external locus of control.

- leaders are rated significantly **higher** than individual contributor team players on Power, Competitive, Achievement, and Self-Actualizing. These scales collectively deal with task orientations, especially personal dominance and the pursuit of measurable results. The largest difference is on Achievement.

The self-ratings essentially show the same pattern of differences, although the differences are generally not as large and only four of them are statistically significant (for Conventional, Dependent, Power, and Achievement).

Overall, these findings raise a "chicken-or-egg" question: are people more likely to be placed in the leadership/managerial role if they have more emphasis on achievement of results, greater internal locus of control, and stronger drives for personal dominance? Or does the leadership/managerial role itself induce people to place more emphasis on results, display greater internal locus of control, and show greater awareness of power/dominance issues? The answer is not obvious.

Correlations Between Self- and Co-Worker Ratings

The relationships between self-ratings and co-worker ratings were examined using the full instrument development sample of 2,501 participants. In an ideal world, correlations between self-ratings and co-worker ratings would be very close to 1.00; each person would perceive him/herself in exactly the same way his or her co-workers do. In such a world, assessment ratings from co-workers would be unnecessary, because participants would already be very self-aware. Clearly, we do not live in that ideal world, because the actual correlations between self-ratings and co-worker ratings range between .29 and .44 (see **Table 4** and **Figure 4**). Correlations of this magnitude mean there is a low-to-moderate level of agreement between the two sources. While many people have fairly accurate self-perceptions, a substantial minority describe themselves very differently from the way their co-workers do.

For example, we examined the differences between self and co-worker ratings on the Humanistic-Encouraging scale, using the percentile scores for the purpose of illustration.

- About 27% of the self-ratings are within 10 percentile points (plus or minus) of the corresponding co-worker ratings on this single scale; this 27% can be considered self-aware, and they are likely not surprised by the feedback from their co-workers.

- However, about 15% of the self-ratings are at least 50 percentile points away from the corresponding co-worker ratings. That 15% is split roughly half-and-half: slightly more than half of that 15% rate themselves dramatically higher than did their co-workers, while slightly less than half of that 15% rate themselves dramatically lower. Overall, this 15% has no inkling of how they are perceived by co-workers, so the feedback, at least on the Humanistic-Encouraging scale, comes as a great surprise. For just over half of that 15%, the surprise can be more like a shock, because the co-workers' ratings are dramatically lower than the self-ratings.

Table 4:
Correlations between ACUMEN Work*Styles* Self and Co-worker Ratings

	Scale	Magnitude of Correlation (N = 2,501)
1.	Humanistic Helpful	.34
2.	Affiliative	.38
3.	Approval	.30
4.	Conventional	.42
5.	Dependent	.38
6.	Avoidance	.33
7.	Oppositional	.29
8.	Power	.44
9.	Competitive	.40
10.	Perfectionistic	.32
11.	Achievement	.37
12.	Self-Actualizing	.34

Figure 4.
Correlations between ACUMEN WorkStyles Self and Co-worker Ratings

Correlation Coefficient
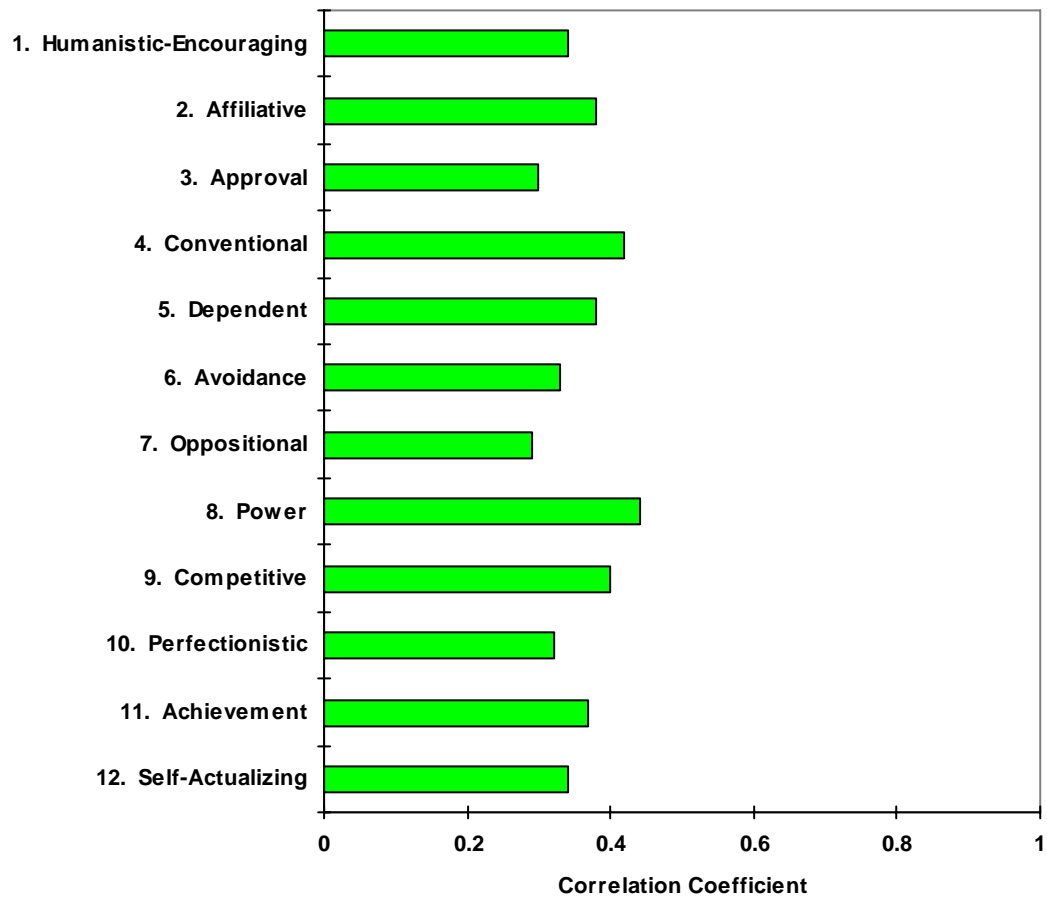
Correlations Among Scales

The correlations among the WorkStyles scales reveal the pattern of the circumplex (see **Table 5**). That is, scales near each other tend to correlate more highly than scales placed farther apart (bearing in mind that scale 12 "wraps around" to be next to scale 1). This pattern can be clearly seen by examining diagonal regions in a correlation matrix. The correlations tend to be relatively high near the same-scale diagonal (filled with "1.00"s) and to be relatively high near the bottom left-hand corner, but relatively low (even negative) in the broad zone in between.

Table 5:
Correlations Among the ACUMEN WorkStyles Scales

Scale	Scale											
---	1	2	3	4	5	6	7	8	9	10	11	12
Self-Assessment (N = 2,501)												
1. Humanistic-Encouraging	1.00											
2. Affiliative	.65	1.00										
3. Approval	.06	.11	1.00									
4. Conventional	-.11	-.04	.47	1.00								
5. Dependent	-.11	-.09	.50	.71	1.00							
6. Avoidance	-.27	-.26	.48	.46	.62	1.00						
7. Oppositional	-.37	-.36	.30	.17	.27	.51	1.00					
8. Power	-.33	-.37	.14	-.07	-.02	.23	.62	1.00				
9. Competitive	-.15	-.10	.30	.04	.03	.17	.46	.63	1.00			
10. Perfectionistic	.08	.06	.31	.07	.09	.21	.31	.33	.47	1.00		
11. Achievement	.42	.36	-.09	-.37	-.40	-.35	-.13	.08	.22	.37	1.00	
12. Self-Actualizing	.48	.55	-.09	-.38	-.38	-.43	-.20	.03	.18	.21	.68	1.00
Co-Worker Feedback (N = 14,370) 🗁												
1. Humanistic-Encouraging	1.00											
2. Affiliative	.80	1.00										
3. Approval	-.03	.02	1.00									
4. Conventional	-.15	-.09	.52	1.00								
5. Dependent	-.14	-.08	.54	.75	1.00							
6. Avoidance	-.38	-.38	.50	.49	.60	1.00						
7. Oppositional	-.57	-.62	.26	.18	.18	.53	1.00					
8. Power	-.54	-.62	.15	.00	-.04	.35	.77	1.00				
9. Competitive	-.38	-.42	.33	.03	-.01	.28	.66	.78	1.00			
10. Perfectionistic	-.02	-.13	.27	.02	-.01	.20	.36	.44	.53	1.00		
11. Achievement	.48	.38	-.13	-.42	-.47	-.40	-.22	-.03	.11	.40	1.00	
12. Self-Actualizing	.65	.65	-.11	-.43	-.42	-.49	-.40	-.23	-.06	.15	.73	1.00

🗁 Note that there were 14,370 co-worker ratings for the 2,501 participants, with 4 to 28 co-worker ratings per participant.

Scale Factor Structure

The rotated factor structure provides another way of understanding the pattern of relationships among the scales (see **Table 6**). Factor analysis looks for correlations between, and common elements underlying and driving, different scales or styles. Using principal components analysis followed by varimax rotation, essentially the same three factors or groupings emerge for the Work*Styles* scales as for the ACUMEN: Insights for Managers scales. As would be expected, these factors parallel those identified for the *Life Styles Inventory* (see Cooke, Rousseau, and Lafferty, 1987). The three factors together explain 71.0% of the variance in the Work*Styles* self-assessment scale scores, and 78.4% of the variance in the co-worker scale scores. The content of these factors reflect the distinctions between satisfaction *versus* security and people *versus* task orientations and correspond to the Passive/Defensive, Aggressive/Defensive, and Constructive styles identified for other measurement instruments based on the Human Synergistics Circumplex (see **Figure 5**.)

The **Passive/Defensive** factor consists of the Approval, Conventional, Dependent, and Avoidance scales. High scores in these areas indicate needs for the approval and acceptance by others in the workplace in order to feel secure and worthwhile; self-worth is determined by others. Conceptually, this factor represents self-protecting thinking and behavior that promote the fulfillment of *security* needs through interaction with *people*. High scores in the Passive/Defensive factor indicate strong conformity needs and a preference to follow rather than lead. This factor is related to external locus of control, marked by passive avoidance as a defensive strategy.

The **Aggressive/Defensive** factor consists of the Oppositional, Power, Competitive, and Perfectionistic scales, and reflects self-promoting thinking and behavior used to maintain one's status/position and fulfill *security* needs through *task*-related activities. Self-worth is determined by accomplishments. These styles are based on aggressiveness as a defensive strategy and, as such, tend to be associated with what is commonly called "Type A" behavior. While certain aspects of these styles can promote performance (at least along certain dimensions and over the short term), strong Aggressive/Defensive tendencies can lead to symptoms of strain and indicate a need to reevaluate one's approach to work, people, and life.

The **Constructive** factor consists of the Achievement, Self-Actualizing, Humanistic-Encouraging, and Affiliative scales. This factor characterizes self-enhancing thinking and behavior that contribute to one's level of satisfaction, ability to develop effective work relationships, and proficiency at accomplishing tasks. The Constructive styles are related to an internal locus of control, a concern for growth and development, and positive strategies for addressing people and tasks. High scores in these areas indicate a well-balanced person who enjoys both tasks and people—someone who is goal-oriented and confident yet patient and cooperative.

Table 6:
Rotated Factor Structure of ACUMEN WorkStyles Scales[1]

Scale	Communality	Factor 1	Factor 2	Factor 3
Self-Assessment (N = 2,501)				
1. Humanistic-Encouraging	.70	.00	**.81**	-.22
2. Affiliative	.75	.07	**.84**	-.22
3. Approval	.66	**.73**	.17	.31
4. Conventional	.71	**.83**	-.10	-.07
5. Dependent	.78	**.87**	-.13	-.01
6. Avoidance	.68	**.71**	-.31	.28
7. Oppositional	.69	.27	-.37	**.69**
8. Power	.77	-.09	-.28	**.83**
9. Competitive	.70	.05	.05	**.83**
10. Perfectionistic	.59	.19	.33	**.67**
11. Achievement	.73	-.40	**.67**	.34
12. Self-Actualizing	.76	-.39	**.75**	.22
% Variance explained		24.4	23.8	22.9
Co-Worker Assessment (N = 14,370)				
1. Humanistic-Encouraging	.81	-.02	**.84**	-.33
2. Affiliative	.84	.05	**.81**	-.43
3. Approval	.73	**.78**	.16	.31
4. Conventional	.74	**.84**	-.17	-.06
5. Dependent	.83	**.89**	-.19	-.10
6. Avoidance	.69	**.67**	-.37	.31
7. Oppositional	.79	.18	-.47	**.73**
8. Power	.85	-.04	-.37	**.84**
9. Competitive	.80	.06	-.11	**.89**
10. Perfectionistic	.69	.11	.31	**.76**
11. Achievement	.80	-.38	**.75**	.30
12. Self-Actualizing	.83	-.32	**.85**	.03
% Variance explained		23.9	27.8	26.7
Factor Label		**Aggressive/ Defensive**	**Constructive**	**Passive/ Defensive**

🖾 Principle components factor analysis with varimax rotation.

Figure 5:
The Three Factors Underlying ACUMEN Work*Styles* Scales
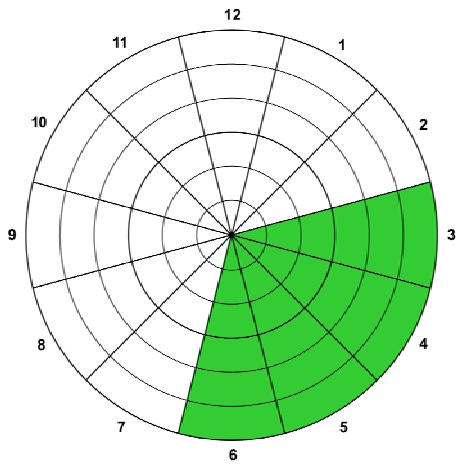
Passive/Defensive. The Approval (3), Conventional (4), Dependent (5), and Avoidance (6) scales represent self-protecting thinking and behavior that promote the fulfillment of *security* needs through interaction with *people*.
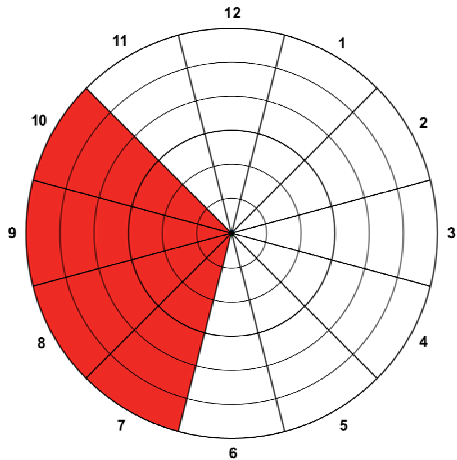
Aggressive/Defensive. The Oppositional (7), Power (8), Competitive (9), and Perfectionistic (10) scales reflect self-promoting thinking and behavior used to maintain one's status/position and fulfill *security* needs through *task*-related activities.
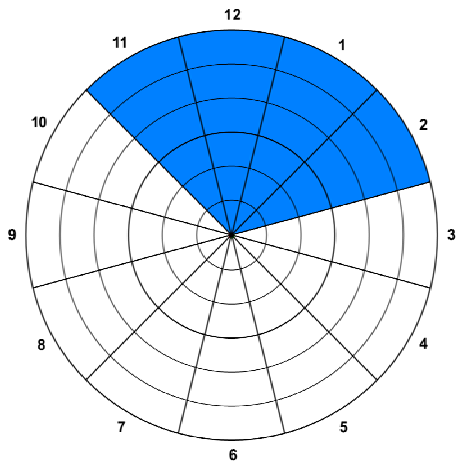
Constructive. The Achievement (11), Self-Actualizing (12), Humanistic-Encouraging (1), and Affiliative (2) scales characterize self-enhancing thinking and behavior that contribute to one's level of *satisfaction*, ability to develop healthy relationships and work effectively with *people*, and proficiency at accomplishing *tasks*.

6. Reliability

Reliability is an important characteristic of any measuring tool. If items within a scale do not all measure the same thing, then you cannot rely on the overall scale score (the average of the different items); the addition or subtraction of one item might make a huge difference, if one of them measures something different from the others. Also, if raters describe you in very different ways, you cannot rely on the overall score (the weighted average of scores from the different raters); your overall score would depend less on your true characteristics, and more on whom you chose to rate you.

Across-Item Consistency Within a Scale

You might ask, why bother with a scale composed of multiple questions? Why not ask just one direct question? The reasons have to do with levels of abstraction, limitations of language, and the differences between observations and inferences.

People observe numerous instances and examples of specific behaviors from which they infer more abstract impressions about personality, motivations, and skills. The words used to describe the more abstract impressions tend to have somewhat different meanings from one person to the next. For example, when you ask people to articulate the difference between "anxious" and "worried," they will reach agreement more quickly if they refer to concrete examples of behaviors and situations rather than trying to describe the difference in abstract terms.

The basic idea behind using multiple items is that each item taps into a specific aspect of the more general domain in question, and, if the items are selected well, the sum of the specific aspects begins to describe the full range of the domain. Psychologists have consistently found that for abstract characteristics like "personality" or "mental ability" or various complex "skills," single-item measures are less useful than multiple-item measures. The key, however, is to use items which tap into different aspects of the same domain. This is the issue of a scale's internal consistency.

For assessments like ACUMEN Work*Styles*, it is critical that all the items in a scale measure the same thing. For this reason, Acumen performed internal consistency analyses on data from the instrument development sample of 2,501 individuals rated by themselves and by 14,370 co-workers.

Acumen assessed across-item consistency using Cronbach's *alpha* coefficient. The results show that all of the scales have an acceptable degree of internal consistency (see **Table 7** and **Figure 6**). The *alpha* coefficients range from 0.78 to 0.87 for the self-assessment scales, and from 0.81 to 0.92 for the co-worker assessment scales. This demonstrates good scale reliability. The *alpha* coefficients of the ACUMEN Work*Styles* scales are comparable to those of their predecessors in the ACUMEN for Managers Self-Assessment instrument. Note that the scales have different numbers of items, as shown in Table 7. The criteria for adding an item to a scale or deleting an item was based largely upon the

item's contribution to internal consistency rather than on a desire to have a specific number of items in a scale.

The size of these internal consistency coefficients—roughly between .80 and .90—tells a useful story. For example, when most people examine the results of the individual items within a scale, they will see a very consistent pattern; few people will see a pattern of high ratings on some items but low ratings on other items in the same scale. A practical implication of this is that useful development activities can broadly address the general concept embodied by the scale, rather than being tightly focused only on specific behaviors measured by individual items in the scale. This can be the difference between trying to change your attitude versus trying to change a handful of specific ways you express your attitude: both approaches can be useful, but you do not necessarily get to the former by way of the latter.

- Larger internal consistency coefficients would suggest the instrument could be shorter (and therefore faster to use) without sacrificing much in the way of instrument reliability. Smaller internal consistency coefficients would suggest the scale is somewhat unclear about what it is measuring, implying that a participant would have more difficulty determining exactly what kind of developmental activities would be best.

Table 7:
Across-Item Consistency of the ACUMEN Work*Styles* Scales

Scale	Number of Items	Self-Assessment🗁 Alpha Coefficient	Co-Worker Assessment🗎 Alpha Coefficient
1. Humanistic-Encouraging	7	.82	.90
2. Affiliative	7	.87	.92
3. Approval	7	.82	.81
4. Conventional	9	.81	.83
5. Dependent	8	.78	.83
6. Avoidance	7	.87	.88
7. Oppositional	8	.78	.88
8. Power	7	.84	.90
9. Competitive	9	.82	.88
10. Perfectionistic	9	.79	.81
11. Achievement	8	.83	.88
12. Self-Actualizing	8	.81	.86
Total number of items	94		

🗁 N = 2,500   🗎 N = 14,370

Figure 6.
Across-Item Consistency of the ACUMEN Work*Styles* Scales
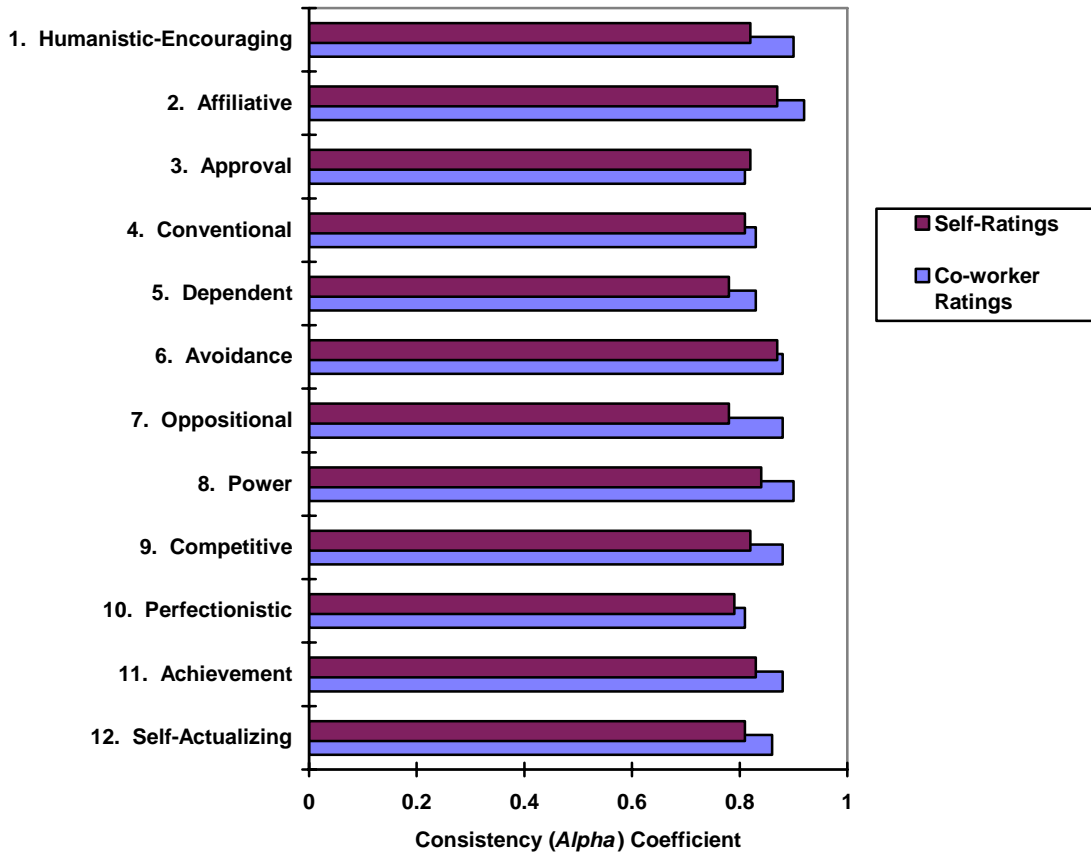
Across-Observer Consistency

Feedback from co-workers can be exceptionally valuable precisely because self-perceptions can be grossly inaccurate. For that reason, it is important to know the degree of reliability across co-worker observers. Do co-workers typically share the same perceptions, or does it make a huge difference in the assessment results depending on whom the individual selects to give feedback ratings?

For this reason, Acumen examined across-observer consistency for co-worker assessments scale by scale to determine the intraclass correlations (see **Table 8** and **Figure 7**). The results, ranging from 0.58 to 0.77, indicate that different raters have a moderately high amount of agreement among themselves when describing a target individual. These data are comparable to previous ACUMEN instruments.

- Substantially larger intraclass correlation coefficients (exceeding 0.90) would mean that a multirater instrument was not needed: a single rater could provide sufficiently accurate information. Substantially smaller coefficients (near 0.20, say) would mean that each rater has such a different perception that it would not make sense to average them together: the instrument might actually tell us less about the person being rated and more about the values and situation of the person doing the rating.

The overall level of agreement among all raters touches on an interesting question, one that might be reflected in the breakout of ratings from different categories of raters: are there systematic differences in ratings from bosses, peers, and direct reports? The answer is yes (see **Table 9**). The results shown in Table 9 are from a sample of 464 Work*Styles* participants who were rated by at least one direct report, at least one boss, and at least one peer.

Table 8:
Across-Observer Consistency of the ACUMEN Work*Styles* Scales

Scale	Intraclass Correlation🗁
1. Humanistic-Encouraging	.69
2. Affiliative	.75
3. Approval	.58
4. Conventional	.69
5. Dependent	.71
6. Avoidance	.69
7. Oppositional	.70
8. Power	.77
9. Competitive	.75
10. Perfectionistic	.69
11. Achievement	.73
12. Self-Actualizing	.70

🗁 This is the intraclass reliability coefficient R_k for the aggregated scores based on a mean of 5.75 raters per participant, where there are at least 4 ratings per participant. There were 2,501 participants and 14,370 raters.

Figure 7.
Across-Observer Consistency of the ACUMEN Work*Styles* Scales

Horizontal bar chart showing Intraclass Correlation values for 12 scales:

1. Humanistic-Encouraging
2. Affiliative
3. Approval
4. Conventional
5. Dependent
6. Avoidance
7. Oppositional
8. Power
9. Competitive
10. Perfectionistic
11. Achievement
12. Self-Actualizing

X-axis: Intraclass Correlation (0 to 1)
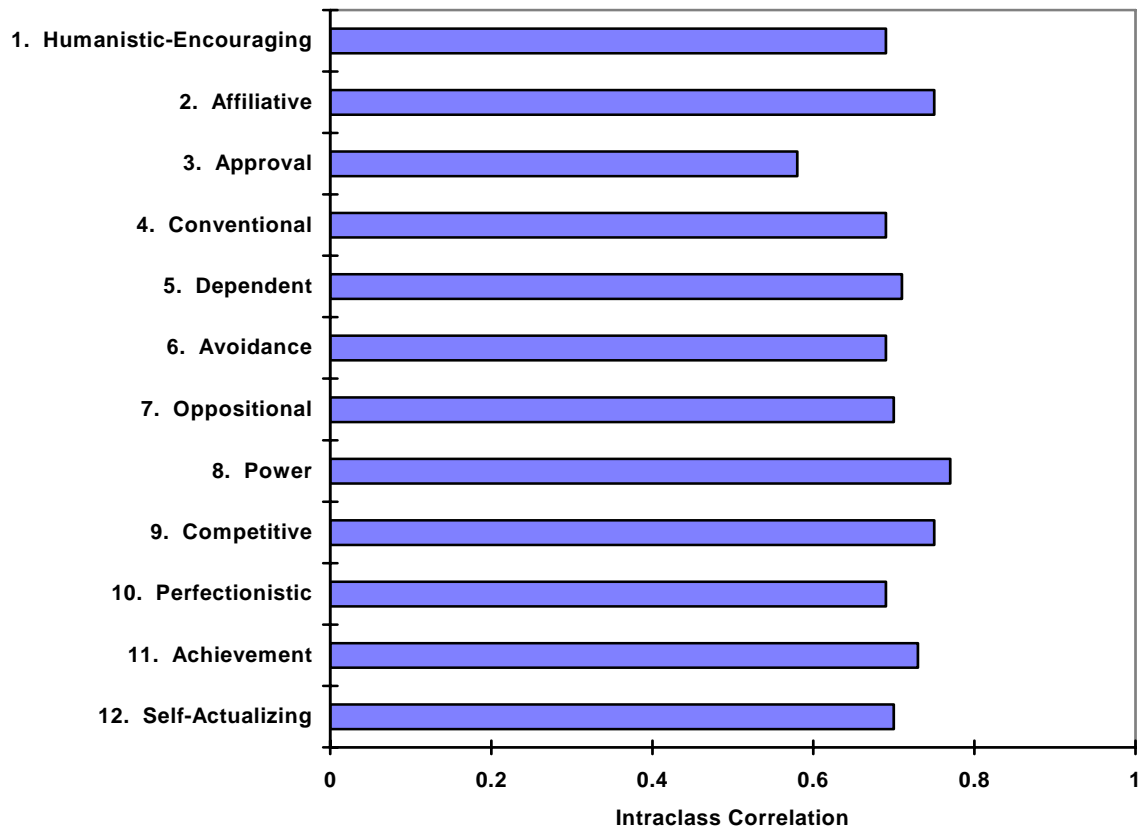
Table 9:
Comparison of Ratings from Different Rater Categories
for ACUMEN Work*Styles*[1]

		Ratings by Direct Reports	Ratings by Bosses	Ratings by Peers
1.	Humanistic-Encouraging	**3.81****	**3.71**	**3.67**
2.	Affiliative	3.89	3.81	3.83
3.	Approval	**2.51****	**2.70**	**2.64**
4.	Conventional	2.31	2.30	2.35
5.	Dependent	**1.99****	**2.17**	**2.15**
6.	Avoidance	**1.80****	**2.01**	**1.95**
7.	Oppositional	**2.02***	2.10	**2.12**
8.	Power	2.07	2.06	2.14
9.	Competitive	2.41	2.35	2.43
10.	Perfectionistic	2.84	2.85	2.86
11.	Achievement	**3.92****	**3.79**	**3.78**
12.	Self-Actualizing	**3.75****	**3.58**	**3.58**

[1] Based on 464 participants rated by at least one rater in each of the three rater categories; these 464 participants were rated by a total of 617 bosses, 1170 peers, 1420 direct reports.

* significantly different ($p < .01$) from only one other rating category

** significantly different ($p < .01$) from both other rating categories

In general, the ratings by bosses and peers tend to be very similar to each other; they do not differ to a statistically significant degree on any of the 12 scales.

Direct reports, however, differ from bosses and peers on about half the scales:

- Direct report ratings are significantly **higher** than boss and peer ratings on Humanistic-Encouraging, Achievement, and Self-Actualizing, where high scores are desirable.

- Direct report ratings are significantly **lower** than boss and peer ratings on Approval, Dependent, and Avoidance, where low scores are desirable.

- Direct report ratings are significantly **lower** than peer ratings on Oppositional, another scale where low scores are desirable. (The difference between direct report ratings and boss ratings falls just short of being considered statistically significant.)

- As a rule, where there are significant differences, direct reports provide more favorable ratings than bosses and peers.

Using data from Table 9, **Figure 8** illustrates the magnitude of these differences. In general, ratings by direct reports tend to be relatively near the 50th percentile. Ratings by bosses and peers are noticeably higher on the Approval, Avoidance, Dependent, and Oppositional scales, and noticeably lower on the Achievement, Self-Actualizing, and Humanistic-Encouraging scales.

It is important to note that these differences between direct report, boss, and peer ratings are statistical averages: the picture is very different for many individual participants.

Overall, these differences between direct report, boss, and peer ratings provide an explanation for why the across-observer reliability coefficients are not higher: the rater's position relative to the person being rated influences ratings to at least some degree. On the other hand, despite the differences between raters, there is still a moderately high level of across-observer reliability.

There are some practical implications of these findings about across-observer reliability:

- There is a point of diminishing returns in asking for more raters. Given the overall amount of agreement, the first few raters usually provide a very good sense of the overall pattern of the ratings. The 9th or 10th rater for a participant often will not be adding any new information.

- Because direct reports, bosses, and peers see a participant in somewhat different situations, the participant is well-advised to include raters from different levels in the organization. When selecting co-workers to provide ratings, the best advice is the most obvious: pick raters who know the individual well and are appropriately placed to observe his or her activities. ("If you want to know the score, ask people who have been watching the game.") In contrast, less useful strategies include using an organizational chart to pick raters, or setting a quota for a certain number of peers and a certain number of direct reports, etc.

Figure 8.
Comparison of ACUMEN WorkStyles Ratings from Different Rater Categories

Boss

Peers

Direct Reports

The WorkStyles Scales

1. Humanistic-Encouraging
supportive, motivates others, patient

2. Affiliative
friendly, warm, trusting

3. Approval
needs approval from others, forgiving, overly generous

4. Conventional
conforming, reliable, restrained

5. Dependent
a follower, deferential, submissive

6. Avoidance
apprehensive, self-doubting, tense

7. Oppositional
questioning, negative, critical

8. Power
authoritarian, controlling, easily angered

9. Competitive
boastful, self-centered, needs to win

10. Perfectionistic
demanding, results-oriented, driven

11. Achievement
enjoys challenges, strives for excellence, decisive

12. Self-Actualizing
enthusiastic, creative, confident

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7. Validity

For the ACUMEN Work*Styles* instrument, the issue of validity is how well the assessment measures what it is intended to measure. Even a highly "reliable" (consistent) instrument might be measuring something other than what was intended. Thus, validity is the ultimate basis for judging the meaningfulness and usefulness of the inferences that can be made from the scores. Validity information for an instrument has to be, by its very nature, accumulated over a long period of time. Traditionally, the various means of accumulating validity evidence have been grouped into categories called content-related, criterion-related, and construct-related. As is recognized in the *Standards for Educational and Psychological Testing* (American Psychological Association, 1985), these groupings are not mutually exclusive and overlap substantially. This is because they do not represent different forms of validity, merely different ways of providing evidence of validity.

Content-related evidence of validity

Content-related evidence of validity deals with the demonstration that a sample of items or questions is representative of a defined domain of interest. This is also referred to as consensual or face validity and is strongly related to internal consistency. The items in ACUMEN Work*Styles* sample thinking styles and traits in a systematic, comprehensive manner. Evidence of the content-related validity of the scales is seen in cluster and factor analyses within and across scales (where distinct behavioral groupings emerge). Each scale has considerable internal consistency and corresponds to an easily recognizable facet of human behavior.

Construct-related evidence of validity

Construct-related evidence of an instrument's validity depends on having a coherent body of theories and constructs on which measurement is based. Validity is demonstrated by the extensiveness of the theoretical basis of the instrument and the accuracy of the predictions made about internal and external characteristics of the measure.

ACUMEN Work*Styles*, like previous ACUMEN assessment instruments, draws on a large and eclectic theoretical base from the fields of clinical psychology, personality assessment, and organizational behavior. The theoretical foundations of Work*Styles* are closely related to its factorial structure. The Satisfaction factor subsumes concepts introduced by Maslow (1954), McClelland (1961), Likert (1967), and Herzberg (1966), as well as concepts more recently endorsed by theorists like Bennis and Nanus (1985), Kotter (1988), Tichy and Devanna (1986), and Waterman (1987). The People-Security factor subsumes concepts introduced by Horney (1945), Ellis (1962), Bandura (1969), and the "locus of control" studies. The Task-Security factor subsumes concepts introduced by McGregor (1960), Stogdill (1963), Blake and Mouton (1964), and the "object relations" psychologists.

High factorial validity and a robust factorial structure have been established by personality theorists (for example, Cattell, 1965, or Eysenck, 1960) as a basis for the description of psychological constructs underlying the given instrument. That is, a robust nomological net (web of relationships) among the elements of an instrument is evidence that the instrument fits into a meaningful, theoretical whole. In this sense, internal validity of the ACUMEN Work*Styles* scales is supported by factor-analytic studies, which show a three-factor structure (see **Table 6**), characterized by distinct psychological and social-psychological features.

The web of external relationships between ACUMEN Work*Styles* scales and measures of other constructs also suggests that ACUMEN Work*Styles* scales are valid. That is, the ACUMEN Work*Styles* scales seem to fit with a predicted pattern of relationships (and lack of relationships) with other variables. This is seen in the (as predicted) relationships with criteria of effectiveness in the work role, described below under "criterion-related evidence of validity." It is also seen in the general lack of widespread relationships with demographic measures such as race, sex, education, age, tenure, or overall years of job experience.

Criterion-related evidence of validity

Criterion-related evidence of ACUMEN Work*Styles'* validity refers to the extent to which scores on the ACUMEN Work*Styles* scales relate to relevant external measures or criteria of performance at work. Because of the possibility of differential validity, Acumen conducted the research separately for leaders/managers versus team members (individual contributors).

Leadership Work*Styles*

Leadership Work*Styles*, despite changes to some items and the adoption of a 5-point scalar, is essentially the same as its predecessor, ACUMEN for Managers. For that reason, research into the validity of ACUMEN is relevant to Work*Styles*.

In an initial study during the development of ACUMEN Group Feedback (Gratzinger, Warren, & Cooke, 1990), the self-ratings of effective and ineffective managers were compared using ACUMEN ratings of 556 managers and their 2,922 co-workers. At the same time that the co-workers used the Group Feedback instrument to provide ACUMEN ratings on the focal managers, they also provided ratings of the managers' Overall Effectiveness, Interest in Self-Improvement, Ability to Deal With Negative Feedback, and Quality of Interpersonal Relations. These four effectiveness ratings, which used 7-point Likert scales with verbal anchors, were factor-analyzed to obtain a weighted-effectiveness score. The 55 managers in the top 10% of the sample on the weighted-effectiveness scales were labeled "effective"; the 54 managers in the bottom 10% were labeled "ineffective." The study then compared effective and ineffective managers on the ACUMEN Self-Assessment scales. Effective managers showed a predominance of styles in the constructive sector of Achievement, Self-Actualizing, Humanistic-Encouraging, and Affiliative scales, which is called a "top-heavy profile." The ineffective managers showed the opposite, with the lowest scores in the constructive sector and

the highest scores on the Dependent, Avoidance, Oppositional, Power, and Competitive scales. This pattern of scores is called a "bottom-heavy profile." The results of independent t-tests confirmed that seven of the 12 self-assessment scales significantly differentiated effective and ineffective managers.

A second ACUMEN study (Warren & Gratzinger, 1990) examined ACUMEN Self-Assessment's predictive validity for promotion decisions. Based on the Achievement, Self-Actualizing, and Humanistic-Encouraging scores, promotability predictions were made for a sample of 26 line managers. In 82% of the cases, the predictions were consistent with the judgments of an assessment team using interviews and a battery of tests.

In a third ACUMEN study (Warren & Gratzinger, 1990), 108 managers with Oppositional, Approval, and Dependent styles were placed in teams to compete in a simulation (for example, Desert Survival or Subarctic Survival) against 102 managers with Achievement, Self-Actualizing, and Humanistic-Encouraging styles. As predicted, the former teams were significantly less likely than the latter to cooperate, pool resources, and perform effectively.

A 1991 ACUMEN study from the financial services industry used a sample of nearly 500 managers with both ACUMEN data and independent measures of job performance. This study examined ACUMEN profile differences between the top 10% and bottom 10% subgroups (in terms of job performance ratings), and found that the most effective performers had significantly higher co-worker feedback scores on the Humanistic-Encouraging, Affiliative, Perfectionistic, Achievement, and Self-Actualizing scales. The least effective performers had significantly higher feedback scores on the Approval, Conventional, Avoidance, Oppositional, and Competitive scales.

A 1992 study examined the relationship between ACUMEN and PRAXIS® for Managers (now called Leadership Skills), a multirater management competency assessment developed by Acumen International in 1990. In this study, bosses and direct reports evaluated how a manager's style (as measured by ACUMEN) relates to his or her success in management competencies and overall effectiveness (as measured by PRAXIS). The findings of this study also supported earlier ACUMEN validation research on effective management style. Managers who scored highest across the 16 competencies in PRAXIS also had significantly higher ACUMEN scores on the Achievement, Self-Actualizing, Humanistic-Encouraging, and Affiliative scales. Managers who scored lowest across the 16 PRAXIS competencies had significantly higher ACUMEN scores on the Avoidance, Oppositional, Power, and Competitive scales. The same pattern emerged whether the study used boss ratings of effectiveness or direct report ratings of effectiveness as the criteria.

Beginning in 1993, the ACUMEN Work*Styles* co-worker assessment instrument included nine questions about performance effectiveness. These nine questions are useful as performance measures, to examine the extent to which the Work*Styles* scales relate to performance. Because the nine rating dimensions are significantly correlated with each other, they were combined to create a single "Overall Average" of performance effectiveness (which has an *alpha* internal consistency coefficient of 0.93.). In some respects, these ratings are similar to traditional appraisal ratings. Because performance appraisal ratings are traditionally completed by an individual's boss, but not by other co-

workers, ratings by bosses on these performance effectiveness questions (along with the Overall Average) were also analyzed separately. Whereas all 444 participants in the leadership/managerial norm sample had been rated by at least four co-workers, only 232 participants had been rated by their bosses. The descriptive statistics in **Table 10** indicate that performance ratings from bosses are typically quite similar to performance ratings from all co-workers (which include boss ratings). Only one performance rating is significantly different between boss raters and all raters: the boss is more likely than other raters to describe a manager as having a higher level of job-related technical expertise. However, the Overall Average ratings are remarkably similar between boss raters and all other raters.

Table 11 presents the zero-order correlations between effectiveness ratings and both self-assessment and co-worker assessment Work*Styles* scale scores. In any large sample, a small correlation can be "statistically significant" and yet still be so small as to be trivial. Given the current sample size (444), any correlation greater than 0.10 would be statistically significant. However, in Table 11, to focus attention primarily on the more meaningful relationships, the values of the correlations are in a larger, bold font only if they are at least 0.20 in magnitude.

- Note that effectiveness ratings from all co-workers were chosen as the criterion, rather than effectiveness ratings only from the boss. There are several practical and theoretical reasons for this:

    1. the feedback report is primarily based on the results from all co-workers, not just the boss;

    2. a combined rating from multiple sources (such as all co-workers) is more statistically reliable—and therefore psychometrically superior as a criterion—than a rating from any one source (such as boss only);

    3. the average rating by boss does not differ systematically from the average rating by all co-workers, especially for the Overall Average composite; and

    4. only about half of all leaders/managers had received ratings by their boss.

Table 10:
Ratings of Effectiveness for Leadership Work*Styles* Participants

Response Anchors

1	2	3	4	5	6	7
Not effective	Well below average	Below average	Average, satisfactory	Above average	Well above average	Extraordinary, absolutely the best

Questions	All Co-Workers (N = 444)		Bosses Only (N = 232)	
	Mean	SD	Mean	SD
Compared to other people in your organization, how would you describe this co-worker's . . .				
1. **overall** performance in their job?	5.25	.62	5.30	.91
2. **teamwork**, ability to work closely with other people?	5.09	.72	5.06	1.06
3. ability to **communicate** clearly?	5.12	.65	5.11	.94
4. **listening** skills?	4.96	.64	4.93	1.03
5. job-related technical **expertise**?	5.38	.67	5.53	.95
6. **creativity**?	5.00	.67	4.98	1.04
7. effectiveness at **solving problems**?	5.14	.61	5.20	.93
8. skill at **resolving disagreements** productively?	4.72	.64	4.60	.96
9. skill at **leading** and influencing others?	4.88	.71	4.76	1.01
Overall Average	5.06	.53	5.05	.70

Note: Key words are printed in bold characters here, but not in the original questions seen by raters.

Table 11:
Correlations Between Leadership WorkStyles Scales and All Co-Workers' Ratings of Effectiveness

	Effectiveness Ratings by All Co-Workers									
	Overall	Team-work	Commu-nicate	Listen-ing	Exper-tise	Creati-vity	Solving	Resolv-ing	Leading	Overall Average
Self-Assessment										
1. Humanistic-Encouraging	.12	**.29**	**.21**	**.28**	.04	.12	.12	**.28**	**.21**	**.23**
2. Affiliative	.09	**.31**	.14	.19	-.11	.10	.05	**.27**	**.21**	.18
3. Approval	-.09	-.05	-.07	-.02	-.06	-.06	-.15	-.05	-.14	-.09
4. Conventional	.17	-.03	-.15	-.01	-.13	**-.24**	-.18	-.04	-.18	-.15
5. Dependent	-.14	-.02	-.11	.05	-.07	-.12	-.16	-.05	-.16	-.11
6. Avoidance	-.15	-.14	-.18	-.10	-.02	-.07	-.16	-.17	**-.20**	-.17
7. Oppositional	-.07	**-.20**	-.08	-.15	.03	-.03	-.06	-.17	-.12	-.12
8. Power	.03	-.18	-.04	**-.22**	.07	.10	.07	-.11	.00	-.04
9. Competitive	-.00	-.10	-.03	-.16	.05	.14	.01	-.07	.03	-.02
10. Perfectionistic	.03	-.12	-.03	-.06	.08	.08	.04	-.04	-.04	-.01
11. Achievement	**.21**	.07	.14	.05	.13	**.23**	.19	.13	**.21**	.19
12. Self-Actualizing	.17	.13	.15	.05	.06	**.33**	.17	.18	**.25**	**.21**
Assessment by Co-Workers										
1. Humanistic-Encouraging	**.52**	**.75**	**.56**	**.71**	**.29**	**.41**	**.51**	**.64**	**.61**	**.69**
2. Affiliative	**.49**	**.79**	**.53**	**.66**	.15	**.37**	**.44**	**.62**	**.60**	**.65**
3. Approval	**-.22**	-.04	-.09	-.05	**-.28**	-.14	**-.30**	-.14	**-.22**	**-.20**
4. Conventional	**-.48**	**-.21**	**-.30**	-.15	**-.36**	**-.56**	**-.49**	**-.31**	**-.44**	**-.45**
5. Dependent	**-.46**	-.14	**-.31**	-.08	**-.37**	**-.40**	**-.46**	**-.30**	**-.44**	**-.41**
6. Avoidance	**-.48**	**-.44**	**-.44**	**-.41**	**-.26**	**-.34**	**-.45**	**-.45**	**-.50**	**-.52**
7. Oppositional	**-.30**	**-.58**	**-.34**	**-.54**	-.08	**-.22**	**-.29**	**-.49**	**-.39**	**-.45**
8. Power	-.19	**-.53**	**-.24**	**-.56**	-.02	-.07	-.16	**-.39**	**-.25**	**-.33**
9. Competitive	-.09	**-.33**	-.12	**-.43**	-.02	.06	-.10	**-.27**	-.09	-.19
10. Perfectionistic	.05	**-.24**	-.01	-.15	.18	.07	.06	-.12	-.06	-.03
11. Achievement	**.61**	**.36**	**.46**	**.33**	**.46**	**.60**	**.61**	**.43**	**.56**	**.61**
12. Self-Actualizing	**.65**	**.59**	**.56**	**.48**	**.40**	**.74**	**.64**	**.56**	**.68**	**.73**

Note: N of cases = 444; any value of r > .10 is statistically significant (p < .01)

The most obvious conclusion from **Table 11** is that self-assessment ratings are much less strongly related to effectiveness than ratings from co-workers. Only 19 correlations involving self-ratings reach or exceed 0.20, whereas 90 correlations involving co-worker ratings reach or exceed 0.20. No correlation involving self-ratings exceeds 0.33, whereas 60 correlations involving co-worker ratings reach or exceed 0.40 in magnitude. Skeptics may question whether co-workers are really very good judges of true performance, but even those skeptics have to be impressed with the fact that co-worker perceptions of style are so strongly related to at least their *perceptions* of performance. And for interpersonal phenomena such as leadership or communication, the impact on co-workers is the intended result: if they perceive that you are not leading or communicating very well, then their perceptions *must* be accurate.

- As a side note, Acumen examined the effectiveness ratings from bosses. The boss ratings show fundamentally the same pattern of relationships with Work*Styles* as the effectiveness ratings from all co-workers. However, the Work*Styles* correlations involving boss effectiveness ratings are uniformly weaker (by roughly 0.10 for relationships with Work*Styles* self-ratings, and roughly 0.20 for relationships with Work*Styles* co-worker ratings) than the comparable correlations involving effectiveness ratings from all co-workers. This pattern is consistent with the observation that the boss effectiveness ratings are less psychometrically reliable than the effectiveness ratings from all co-workers.

Because the self-described style measures are so weakly related to the performance ratings, this strongly implies that co-worker feedback is a critical component of personal development. Many managers are unaware of how others perceive their style, and how their perceived style affects their leadership performance. Co-worker feedback dramatically raises the level of awareness.

A second conclusion from the results shown in Table 11 is that all the Work*Styles* co-worker assessment scale scores are significantly related to at least one important aspect of effectiveness. In many cases, the magnitude of the correlation is substantial—above .40 and as high as .79. Overall:

- Four scales are positively correlated with effectiveness: Humanistic-Encouraging, Affiliative, Achievement, and Self-Actualizing. People with high scores on these thinking styles are clearly seen as more effective.

- Seven scales are negatively correlated with effectiveness: Approval, Conventional, Dependent, Avoidance, Oppositional, Power, and Competitive. People with high scores on these thinking styles tend to be seen as less effective.

- One scale—Perfectionistic—is only weakly related to effectiveness. In particular, managers with extremely high levels of Perfectionistic tend to be seen having slightly more job-related technical expertise, but somewhat less effectiveness at teamwork.

To illustrate the practical meaning of the relationship between ACUMEN Leadership Work*Styles* scores and effectiveness ratings, Acumen created average Work*Styles* profiles for two groups of leaders (see **Figure 9**). The profiles on the left are the average Leadership Work*Styles* profiles for

those people whose Overall Average effectiveness ratings were in the bottom 10% of the standardization sample; these managers performed the poorest in their companies (across the 9 areas rated). The profiles on the right are the average Leadership Work*Styles* profiles for those managers whose Overall Average effectiveness ratings were in the top 10%; these managers were the most effective performers in their companies (across the 9 areas rated). You can see the difference in thinking styles between the two groups: the most effective performers have thinking styles especially marked by higher scores on Achievement (11 o'clock), Self-Actualizing (12 o'clock), Humanistic-Encouraging (1 o'clock), and Affiliative (2 o'clock).

Apart from performance ratings by co-workers, the Work*Styles* scales are also related to self-reported earnings. The Work*Styles* self-assessment instrument includes a multiple-choice question asking a participant to indicate the range into which his or her salary falls. Although participants have the option of declining to answer this question, 426 of the 444 managers in the norm sample provided this salary information. Interestingly, the pattern of relationships between earnings and Work*Styles* scales is very similar for self-rated styles and co-worker rated styles. Again, because large sample sizes can make weak relationships become statistically significant, only correlations above 0.20 were treated as important.

- Higher earnings are associated with higher scores on four scales: Power, Competitive, Achievement, and Self-Actualizing.

- Lower earnings are associated with higher scores on just one scale: Conventional.

- This pattern of relationships is essentially the same for both self- and co-worker ratings of style, although the associations to earnings are stronger with co-worker ratings (correlations ranging between 0.20 and 0.29) than with self-ratings (corresponding correlations ranging between 0.13 and 0.17).

This means when it comes to salary, leaders are likely to earn more if their styles are more proactive, more results-oriented, and characterized by greater internal locus of control (high scores on Achievement and Self-Actualizing, but low scores on Conventional). They are also likely to earn more if they have stronger drives around Competitive and dominance (higher scores on Competitive and Power).

Figure 9.
ACUMEN Leadership Work*Styles* Profiles for Groups
with Lowest and Highest Effectiveness Ratings

10% with
Lowest Effectiveness

10% with
Highest Effectiveness

Self Ratings

Co-Worker Ratings

The Work*Styles* Scales

1. Humanistic-Encouraging
supportive, motivates
others, patient

5. Dependent
a follower, deferential,
submissive

9. Competitive
boastful, self-centered,
needs to win

2. Affiliative
friendly, warm, trusting

6. Avoidance
apprehensive, self-doubting,
tense

10. Perfectionistic
demanding, results-
oriented, driven

3. Approval
needs approval from others,
forgiving, overly generous

7. Oppositional
questioning, negative, critical

11. Achievement
enjoys challenges, strives
for excellence, decisive

4. Conventional
conforming, reliable, restrained

8. Power
authoritarian, controlling,
easily angered

12. Self-Actualizing
enthusiastic, creative,
confident

The Work*Styles* self-assessment instrument also includes a multiple-choice demographic question asking about a participant's level of stress. All but one of the 444 managers in the norm sample provided ratings of their own stress level. As expected, the participants' stress levels are related to their thinking styles.

- Stress is primarily associated with higher self- and co-worker ratings on Avoidance. The relationship is stronger with self-ratings of Avoidance ($r = 0.32$) than with co-worker ratings of Avoidance ($r = 0.21$).

- Although stress is statistically significantly related to several other Work*Styles* scales, the magnitude of the correlations is relatively slight (between 0.13 and 0.16) and the pattern is not the same for self-ratings and co-worker ratings. The only common element is that lower stress is associated with higher scores on Humanistic-Encouraging ($r = -0.13$ with self-ratings, $r = -0.15$ with co-worker ratings).

In contrast, the Leadership Work*Styles* scores are generally not significantly related to demographic variables. There are a handful of exceptions to this general statement. Here, again, large sample sizes can make weak relationships become statistically significant, so only correlations above 0.20 were treated as important:

- **Race/ethnicity:** In both self-assessments and co-worker assessments, none of the Work*Styles* scales are substantially correlated with race/ethnicity.

- **Sex:** There is only one sex difference: males have higher Competitive scores than females, especially in self-ratings ($r = 0.21$) more than in co worker ratings ($r = 0.14$).

- **Age:** There are no meaningful differences associated with age.

- **Job tenure:** The number of years in the current job has no significant relationship to any of the Work*Styles* scores.

- **Education:** Level of education is not strongly related to either self-assessed or co-worker assessed Work*Styles* scores.

The one meaningfully large relationship (between sex and Competitive) is the exception: in general, Work*Styles* scores are not strongly or widely related to demographic variables.

To summarize, ACUMEN Leadership Work*Styles* shows a robust pattern of meaningful relations with measures of management performance, and few relationships with purely demographic variables.

Team Work*Styles*

Apart from the presumed validity inherited from the ACUMEN instrument, the primary empirical evidence of ACUMEN Team Work*Styles* comes from studies conducted using effectiveness ratings collected at the same time that co-workers completed the Work*Styles* assessment instrument. These are the same nine effectiveness ratings that have been collected since 1993 in conjunction with Leadership Work*Styles* assessments. In addition to analyzing these nine ratings separately, Acumen combined them into a single "Overall Average" rating of effectiveness. Because ratings of performance are more typically completed only by an individual's boss (and not other co-workers), Acumen also separately examined the ratings by boss on these effectiveness ratings. All 2,057 participants in the Team Work*Styles* norm sample were rated by at least 4 co-workers, but only about half of them (1,170) were rated by their boss.

The descriptive statistics for these effectiveness ratings, shown in **Table 12**, suggest that for non-supervisory team members (as opposed to managers), bosses tend to give lower effectiveness ratings than do other co-workers (who are predominantly peers). The greatest difference is effectiveness at leading and influencing others, where the typical boss rating is only 4.33, while the typical co-workers' rating (with the boss included) is 4.57. Translating this difference on "leading and influencing others" into percentiles compared to all co-worker ratings, the typical rating *by a co-worker* is at the 50th percentile, but the typical rating *by a boss* is at the 39th percentile.

A comparison to **Table 10** confirms what you might expect: effectiveness ratings are higher for leaders/managers than for team members. And predictably, the greatest difference between those two populations is the effectiveness at leading and influencing others, where the average co-worker rating is 4.88 for leader/managers, but only 4.57 for team members. Again, to translate this difference between the two populations into percentiles, if the typical *team member* is rated at the 50th percentile on "leading and influencing others", then the typical *leader/manager* is rated at the 68th percentile.

As performance criteria, the effectiveness ratings from all co-workers (including bosses) are preferable because they are more statistically reliable than the ratings by boss, and they are available for the entire Team Work*Styles* sample.

Response Anchors

1	2	3	4	5	6	7
Not effective	Well below average	Below average	Average, satisfactory	Above average	Well above average	Extraordinary, absolutely the best

Questions	All Co-Workers (N = 2,057)		Bosses Only (N = 1,170)	
	Mean	**SD**	**Mean**	**SD**

Compared to other people in your organization,
how would you describe this co-worker's . . .

1. **overall** performance in their job?	5.13	0.68	5.06	0.97
2. **teamwork**, ability to work closely with other people?	5.06	0.73	4.95	1.09
3. ability to **communicate** clearly?	4.98	0.69	4.83	0.96
4. **listening** skills?	4.95	0.65	4.79	0.93
5. job-related technical **expertise**?	5.19	0.74	5.12	1.02
6. **creativity**?	4.83	0.66	4.68	0.95
7. effectiveness at **solving problems**?	5.00	0.66	4.86	0.94
8. skill at **resolving disagreements** productively?	4.58	0.66	4.39	0.91
9. skill at **leading** and influencing others?	4.57	0.75	4.33	1.00
Overall Average	4.92	0.57	4.78	0.75

Note: Key words are printed in bold characters here, but not in the original questions seen by raters.

The Team Work*Styles* scales are significantly related to these effectiveness ratings, but much more strongly for the co-worker assessment ratings than for the self-ratings (see **Table 13**). In a sample of more than 2,000 participants, a very small correlation (as small as 0.06) can be "statistically significant", but such a weak relationship—although statistically detectable—would be trivial and lack practical importance. Therefore, to highlight only the larger, more meaningful relationships, the values of correlations are in a larger, bold font if they are at least 0.20 in magnitude.

The pattern of Team Work*Styles* correlations in Table 13 is remarkably similar in most respects to the comparable correlations for Leadership Work*Styles,* shown in **Table 11**.

- Co-worker ratings on Work*Styles* are much more strongly related to effectiveness, compared to self-ratings. Only 7 correlations involving self-ratings of style reach or exceed 0.20 in magnitude, but 34 correlations involving co-worker ratings of style reach or exceed 0.50 (either positive or negative). The largest correlations involving self-ratings range between 0.20 and 0.24, whereas the comparable correlations involving co-worker ratings are as high as 0.78!

- Four scales—Humanistic-Encouraging, Affiliative, Achievement, and Self-Actualizing—are strongly positively related to effectiveness. Team members with higher levels of these style orientations are seen as more effective. This is exactly the same pattern found in the Leadership Work*Styles* research.

- Seven scales—Approval, Conventional, Dependent, Avoidance, Oppositional, Power, and Competitive—are negatively related to effectiveness, albeit to different degrees. This too is generally similar to the pattern found in the Leadership Work*Styles* research. Team members with high scores on these thinking styles tend to be seen as less effective.

- One scale—Perfectionistic—is positively related to effectiveness, but only weakly. Team members with higher levels of Perfectionistic are described as being slightly more effective overall, primarily due to the task-related (as opposed to team-related) aspects of technical expertise, creativity, and problem solving. This is slightly different from the dynamic for leaders/managers, where an extremely high level of Perfectionistic contributes to task-related effectiveness *but also interferes with teamwork.*

Table 13:
Correlations Between Team WorkStyles Scales
and All Co-Workers' Ratings of Effectiveness

		Effectiveness Ratings by All Co-Workers									
		Overall	Team-work	Commu-nicate	Listen-ing	Exper-tise	Creati-vity	Solving	Resolv-ing	Leading	Overall Average
Self-Assessment											
1.	Humanistic-Encouraging	0.09	**0.21**	0.14	0.16	0.03	0.07	0.06	0.17	0.13	0.14
2.	Affiliative	0.06	**0.24**	0.12	0.15	-0.10	0.04	0.00	0.16	0.11	0.10
3.	Approval	-0.03	0.02	-0.01	0.02	-0.07	-0.01	-0.04	-0.03	-0.08	-0.03
4.	Conventional	-0.15	-0.01	-0.15	-0.01	-0.15	**-0.23**	-0.15	-0.09	**-0.20**	-0.15
5.	Dependent	-0.16	-0.03	-0.14	0.00	-0.13	-0.15	-0.15	-0.09	**-0.22**	-0.14
6.	Avoidance	-0.08	-0.07	-0.08	0.01	-0.06	-0.08	-0.08	-0.07	-0.14	-0.09
7.	Oppositional	-0.04	-0.14	-0.03	-0.09	0.02	0.03	-0.01	-0.12	-0.06	-0.06
8.	Power	0.03	-0.16	0.01	-0.13	0.08	0.12	0.08	-0.07	0.06	0.00
9.	Competitive	0.03	-0.05	0.03	-0.06	0.05	0.12	0.08	0.00	0.08	0.04
10.	Perfectionistic	0.05	-0.04	0.00	-0.02	0.04	0.08	0.04	-0.04	0.00	0.01
11.	Achievement	0.19	0.08	0.13	0.04	0.12	**0.20**	0.17	0.09	0.18	0.16
12.	Self-Actualizing	0.13	0.12	0.13	0.04	0.04	**0.24**	0.11	0.10	0.16	0.14
Assessment by Co-Workers											
1.	Humanistic-Encouraging	**0.55**	**0.76**	**0.59**	**0.67**	**0.39**	**0.44**	**0.50**	**0.63**	**0.57**	**0.69**
2.	Affiliative	**0.46**	**0.78**	**0.54**	**0.64**	**0.22**	**0.35**	**0.36**	**0.59**	**0.47**	**0.59**
3.	Approval	**-0.22**	-0.05	-0.18	-0.13	**-0.26**	-0.15	**-0.26**	-0.18	**-0.25**	**-0.23**
4.	Conventional	**-0.39**	-0.13	**-0.34**	-0.15	**-0.37**	**-0.48**	**-0.43**	**-0.22**	**-0.42**	**-0.39**
5.	Dependent	**-0.41**	-0.14	**-0.38**	-0.15	**-0.40**	**-0.40**	**-0.45**	**-0.25**	**-0.50**	**-0.41**
6.	Avoidance	**-0.46**	**-0.43**	**-0.48**	**-0.38**	**-0.36**	**-0.36**	**-0.45**	**-0.42**	**-0.51**	**-0.52**
7.	Oppositional	**-0.32**	**-0.61**	**-0.36**	**-0.53**	-0.14	**-0.20**	**-0.27**	**-0.49**	**-0.31**	**-0.43**
8.	Power	-0.16	**-0.52**	**-0.21**	**-0.46**	-0.03	-0.05	-0.09	**-0.34**	-0.11	**-0.26**
9.	Competitive	-0.09	**-0.36**	-0.10	**-0.35**	-0.02	0.06	-0.03	**-0.23**	-0.01	-0.15
10.	Perfectionistic	**0.23**	-0.09	0.10	-0.03	**0.25**	**0.22**	**0.24**	-0.03	0.12	0.13
11.	Achievement	**0.68**	**0.45**	**0.54**	**0.43**	**0.56**	**0.60**	**0.66**	**0.46**	**0.61**	**0.67**
12.	Self-Actualizing	**0.67**	**0.65**	**0.65**	**0.56**	**0.46**	**0.71**	**0.63**	**0.58**	**0.68**	**0.75**

Note: N of cases = 2,057; all values of $r > .05$ are statistically significant ($p < .01$)

Correlation coefficients are quite abstract. To help communicate the magnitude of the relationships between ACUMEN Team Work*Styles* and effectiveness, Acumen created average Work*Styles* profiles for two groups of team members. The first group consists of the people whose Overall Average effectiveness ratings were in the bottom 10% of the standardization sample—the "least effective" team members. The second group consists of the people whose Overall Average effectiveness ratings were in the top 10% of the standardization sample—the "most effective" team members. **Figure 10** shows the average profiles for these two groups, including both self- and co-worker ratings. Although there are differences between the two groups in the self-profiles, the differences are far greater in the co-worker profiles.

- Incidentally, do not interpret the profile for the group with the highest effectiveness as literally representing an "ideal." Remember the profile is an average based on over 200 participants. In this profile, a higher average score on, for example, Humanistic-Encouraging simply means this scale is more highly related to effectiveness. There is no implication that the average Humanistic-Encouraging score for the high effectiveness group represents an ideal level where a score *higher* than that would be undesirable—in fact, roughly half of the participants in the highest-effectiveness group have Humanistic-Encouraging scores higher than the average for that group.

As with Leadership Work*Styles*, the Team Work*Styles* ratings are related to participants' self-reported earnings. The Work*Styles* self-assessment questionnaire asks participants to indicate the range into which their salaries fall. Of the 2,057 participants in the Team Work*Styles* norm sample, 1,922 provided salary information. Again, because large sample sizes distort the importance of weak but "statistically significant" correlations, only correlations of at least 0.20 were treated as meaningful:

- Higher earnings are primarily associated with higher co-worker Work*Styles* ratings on just one scale, Achievement ($r = .22$).

- Higher earnings are primarily associated with lower scores on Conventional, for both self-ratings ($r = -0.21$) and co-worker ratings ($r = -0.24$).
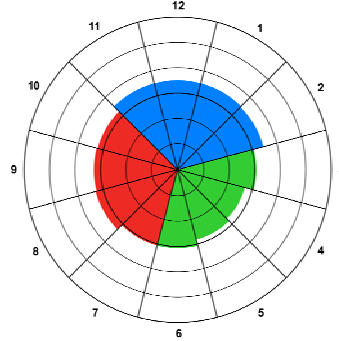
This means that when it comes to salary, team members and individual contributors are likely to earn more if they are more proactive and results-oriented (high Achievement) rather than passively accepting the status quo (high Conventional).

Figure 10.
ACUMEN Team WorkStyles Profiles for Groups
with Lowest and Highest Effectiveness Ratings

**10% with
Lowest Effectiveness**

**10% with
Highest Effectiveness**

Self Ratings

Co-Worker Ratings

The WorkStyles Scales

1. Humanistic-Encouraging
supportive, motivates
others, patient

2. Affiliative
friendly, warm, trusting

3. Approval
needs approval from others,
forgiving, overly generous

4. Conventional
conforming, reliable, restrained

5. Dependent
a follower, deferential,
submissive

6. Avoidance
apprehensive, self-doubting,
tense

7. Oppositional
questioning, negative, critical

8. Power
authoritarian, controlling,
easily angered

9. Competitive
boastful, self-centered,
needs to win

10. Perfectionistic
demanding, results-
oriented, driven

11. Achievement
enjoys challenges, strives
for excellence, decisive

12. Self-Actualizing
enthusiastic, creative,
confident

Work*Styles* scores are also related to self-reported stress in non-supervisory team members, although not as strongly as for managers. The Team Work*Styles* questionnaire includes a multiple-choice question asking about the participant's stress level. This information was available for 2,052 of the 2,057 participants in the Team Work*Styles* sample.

- Stress is primarily associated with higher self-ratings on Avoidance ($r = 0.21$). Co-worker ratings of Avoidance are associated with the participants' self-reported stress, but not as strongly ($r = 0.12$).

- As might be expected, the overall level of stress in the Team sample was significantly less than in the Leadership sample.

This confirms the obvious: people who describe themselves as anxious and self-doubting also experience more stress.

Although Team Work*Styles* is related to effectiveness ratings, earnings, and stress, it does not show a general pattern of meaningful relationships with demographic measures. However, there are a handful of exceptions (only correlations at least as large as 0.20 were treated as meaningful):

- **Race/Ethnicity:** Race and ethnicity do not make much difference in Team Work*Styles* ratings. There are no substantial differences.

- **Sex:** Males have higher scores on Competitive, especially in self-ratings ($r = +0.21$) but also in co-worker ratings ($r = +0.17$).

- **Age:** There is a tendency for older people to give lower Competitive self-ratings ($r = -0.21$). There are no substantial relationships between co-worker ratings and participants' age.

- **Job Tenure:** The length of time participants have worked in their current jobs is not meaningfully related to their Work*Styles* scores, either in self-ratings or co-worker ratings.

- **Education:** None of the scores on Work*Styles* are substantially related to level of education.

In short, there are few meaningful correlations between demographic variables and Work*Styles*, and none of the correlations exceed 0.21. Though there are some differences on Work*Styles* between major demographic groups, these differences are very small in magnitude, and are not meaningfully large, widespread, or systematic. The few meaningful significant relationships are the exception: in general, Work*Styles* scores are not strongly or broadly related to demographic variables.

8. WorkStyles Individual Reports

Results of the self-ratings and the ratings by co-workers are presented to the participant in an Individual Report. To receive a **Self Report**, a participant must complete a self-assessment. To receive a **Feedback Report**, the participant must complete a self-assessment *and* must be rated by at least four co-workers.

The individual reports present results as a combination of text and graphics. The graphic profiles display the scale scores in a circumplex, as described below. For the most part, the narrative reports describe how the scale scores work together, using the personality "*type*" concept. The type concept is based on the recognition that, while each of us is unique in many ways, we are very similar to certain other people who share the same traits. When a group of people have enough traits in common, they tend to think and behave in recognizably similar ways, and it makes sense to describe their behavior as "typical" of that "type" of person. For example, the Myers-Briggs Type Indicator uses four scales to identify 16 different types of people, and the Eysenck Personality Questionnaire uses three scales to identify 12 different types.

ACUMEN WorkStyles identifies 31 basic types by examining the pattern of scores among the 12 scales. The typology is based on identifying primary and secondary clusters from a total of six clusters (scale combinations of 1-2, 3-4-5, 6, 7-8, 9-10, and 11-12). These clusters were derived from the initial data analysis for ACUMEN Insight for Managers (see **Table 14**).

Table 14:
ACUMEN WorkStyles Cluster Structure for Report Typology

CLUSTER	SCALES	CONTENT
1	1,2	Sociability
2	3,4,5	External Locus of Control
3	6	Avoidance/Apprehension
4	7,8	Dogmatic/Authoritarian
5	9,10	Competitive/Perfectionistic
6	11,12	Achieving/Confident

For types with high 11-12 and 1-2 clusters, tertiary clusters are used to obtain additional information, used in sub-types. Cluster scores are formed by averaging the percentile scores within each cluster. The primary and secondary clusters are usually the two clusters with the highest and second-highest average percentile scores. The Report Generator, which determines the actual type assignment based on the expertise of the ACUMEN Work*Styles* creators, helps handle numerous rules, exceptions, and special cases that arise in profile identification. In any case, the type assignment leads to one of 31 main types (and 8 sub-types) of reports, where each report describes an overall thinking style dominated for the most part by two clusters.

The Individual Self Report includes several sections, some of which are optional and some of which are only available for **Feedback Reports,** which include both self- *and* co-worker feedback (see **Table 15**).

The structure of the reports is the same for both **Team Work*Styles*** and **Leadership Work*Styles***. The typology system is also the same. What differs is the choice of topics discussed:

- **Team Work*Styles*** addresses four topic areas: Accomplishing Tasks, Working with Others, Communicating, and Working with Differences of Opinion. The report describes the impact and implications of a team member's attitudes and thinking style in the context of an individual working as part of a team, with neither more nor less formal authority than any other team member.

- **Leadership Work*Styles*** addresses the same four topics, and adds fresh subject matter related to project leadership, team leadership, and managing others. The report discusses the impact of a leader's attitudes and thinking style from the perspective of an individual who is in a management and leadership role, expected to accomplish business results by way of organizing, coaching, motivating, and leading other people.

As an example, consider an individual whose dominant characteristics include the 7-8 cluster (dogmatic/authoritarian). The **Team Work*Styles*** report discusses how to be more flexible in addressing the concerns of fellow team members, how to deal with issues without escalating different perspectives into conflict. The **Leadership Work*Styles*** report discusses the same concept of flexibility, and also goes on to discuss issues related to empowering a team.

Table 15:
Sections of an ACUMEN Work*Styles* Individual Report

Report Section	Self	Feedback
Introduction	✓	✓
Graphic Profile	✓	✓
Self-Perceptions: Summary	✓	✓
Co-Worker Perceptions: Summary		✓
Self vs. Feedback Profiles		✓
Spread of Opinion		optional
Breakout of Ratings from Different Sources		optional
Self-Perceptions: A Closer Look	✓	
Co-Worker Perceptions: A Closer Look		✓
Suggestions for Development	✓	✓
Comments from Co-Workers		optional
List of Raters		optional

Key

✓	Automatically printed as part of report
optional	Can be selected for inclusion in the report at the time of printing

Descriptions of Report Sections

Introduction

The **Introduction** is the same for every Individual Report; it explains the purpose of the report and how to get the most out of the feedback provided in the report.

Graphic Profile

The **Graphic Profile** shows an individual's scores as shaded areas in a circumplex (see **Figure 11**). Preceding the Graphic Profile is a page that explains how to read the results in the circumplex.

The elements of a circumplex include four concentric circles, 12 segments, and shaded scale score areas.

- The concentric circles represent the 10th, 25th, 50th, 75th, 90th, and 100th percentile points, where the 100th percentile is the outermost edge of the profile.

- The 12 wedge-shaped segments correspond to the 12 scales. Because the segments of the circumplex are labeled with numbers like a clock face, the scales are often referenced by their "clock names," as a mnemonic. For example, the Humanistic-Encouraging scale is called the "1 o'clock" scale.

- The score on any scale is shown by extending a shaded area out from the center of the circumplex. The longer the extension, the higher the percentile score. The percentile score is calculated by converting the raw score on the scale to a percentile score in relation to the norms established in the appropriate standardization sample (either managers or individual contributors). So, for example, the 1 o'clock Humanistic-Encouraging scale in Figure 11 shows a percentile score of about 85, meaning that the score for this person is higher than 85 percent of the people in the norm sample.

The main purpose of the graphic profiles is to show which scales dominate the individual's thinking styles. The Report Generator creates separate profiles from self-ratings and co-worker ratings, using different norms.

For **Self-Profiles**, the process of creating percentile scores is straightforward. The individual's self-ratings on the items within a scale are added together to create a raw score. This scale score is compared to the distribution of raw scores for that self-assessment scale for the people in the appropriate norm sample. If the score is equal to or higher than exactly 85% of the scores in the norm sample, then the score is in the 85th percentile for that scale.
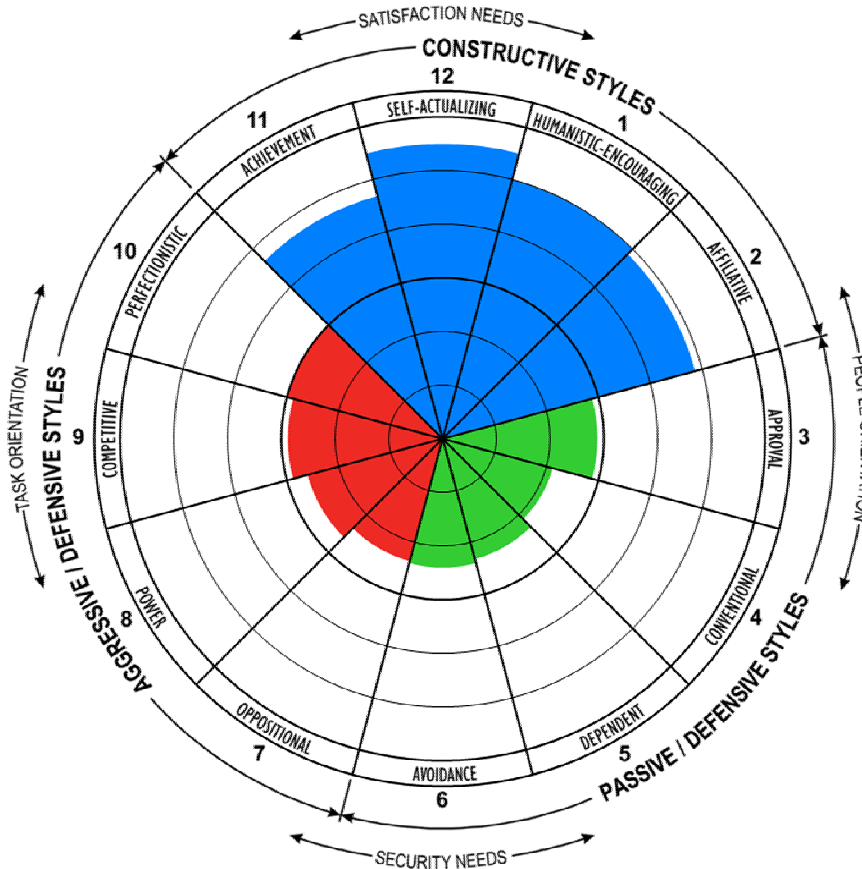
For **Co-Worker Feedback Profiles**, the process of creating percentile scores is more complex. The Report Generator adds together each co-worker's ratings on the items within a scale to create a raw

scale score from that rater. These raw scale scores from raters are then averaged using an algorithm which gives less weight to scores which are farther from the mean of the remaining scores. In effect, the Report Generator partially (but not totally) discounts ratings, which are substantially different from the consensus of opinion.

- ▪ For example, assume that five raters had rated a person using "4," but a sixth rater had rated the same person using "1." The arithmetic average would be 3.5 (the sum of all six ratings divided by the number of ratings, which would be 21 divided by 6). However, that sixth rater gave a very different rating from everyone else—literally one way to define "unreliable." (The less scientific term is "outlier.") The Work*Styles* scoring algorithm places less weight on outlier ratings, and so the weighted average would be 3.7. The outlier rating is given some weight (so the average is not 4.0), but not as much as ratings which are closer to the consensus rating.

Once the Report Generator calculates a weighted average raw scale score from co-workers, it converts this score to a percentile by comparing it to the distribution of similar co-worker average raw scale scores for the people in the appropriate norm sample.

Figure 11.
Example of ACUMEN Work*Styles* Graphic Profile

The Work*Styles* Scales

1. Humanistic-Encouraging
supportive, motivates
others, patient

2. Affiliative
friendly, warm, trusting

3. Approval
needs approval from others,
forgiving, overly generous

4. Conventional
conforming, reliable, restrained

5. Dependent
a follower, deferential,
submissive

6. Avoidance
apprehensive, self-doubting,
tense

7. Oppositional
questioning, negative, critical

8. Power
authoritarian, controlling,
easily angered

9. Competitive
boastful, self-centered,
needs to win

10. Perfectionistic
demanding, results-
oriented, driven

11. Achievement
enjoys challenges, strives
for excellence, decisive

12. Self-Actualizing
enthusiastic, creative,
confident

Self-Perceptions: Summary

The **Self-Perceptions: Summary** section provides a one- or two-page narrative overview of the dominant characteristics evident in the individual's self-description. In a few short paragraphs, the narrative outlines the dominant characteristics and how those characteristics are likely to come into play in accomplishing tasks and engaging in teamwork. The report is type-driven; it summarizes the key assets and possible areas of concern for individuals with that type of thinking style. The **Leadership Work**Styles version differs from the **Team Work**Styles in its emphasis on the implications for management and leadership.

Co-Worker Perceptions: Summary

The **Co-Worker Perceptions: Summary** section is analogous to Self-Perceptions: Summary, except that it describes the individual's thinking style as rated by co-workers. The co-worker summary is a type-driven, one- or two-page narrative that outlines the dominant characteristics evident in the ratings from co-workers, summarizing key assets and possible liabilities for either team members or leaders with that type of thinking style. Similar to Self-Perceptions: Summary, the **Leadership Work**Styles version differs from the **Team Work**Styles version by outlining implications for a management and leadership role.

Self vs. Feedback Profiles

The Self vs. Feedback Profiles section presents the individual's self profile along with his or her co-worker profile to facilitate a comparison.

Spread of Opinion

The **Spread of Opinion** is a circumplex graphic which illustrates the amount of variation in ratings from co-workers. This circumplex graphic takes the same general form as the graphic profile used to display the average co-worker ratings; however, the average score from co-workers for any scale is displayed as a black line at the appropriate percentile, and the size of the shaded area surrounding that black line indicates the degree to which co-workers' ratings vary (see **Figure 12**). Basically, the narrower the shaded area, the less difference among the co-worker ratings; the wider the shaded area, the greater the difference among co-worker ratings.

In technical terms, the shaded area displays one-half standard deviation on each side of the average score from co-workers. The standard deviation is a commonly used statistic to measure the amount of variation in a set of scores. For an individual participant, the standard deviation is calculated for each scale from the full set of his or her co-worker ratings for that scale. The Report Generator calculates the size of the standard deviation in raw scale score units. Then the Report Generator defines two boundary points: one-half standard deviation unit above the weighted average raw scale score, and one-half standard deviation unit below the weighted average raw scale score. These two boundary
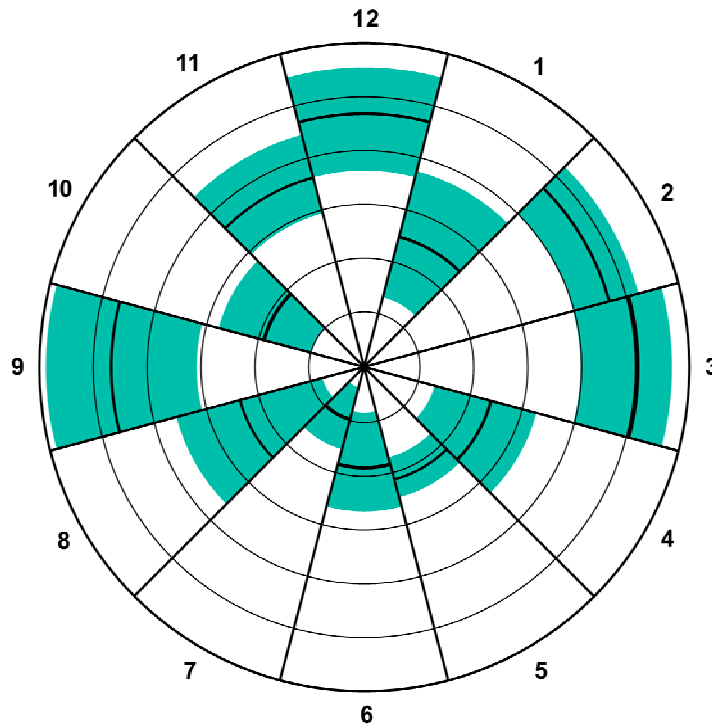
points are converted to percentiles (in relation to the appropriate norm sample), and serve as the upper and lower boundaries for the shaded area in the Spread of Opinion graphic.

- **Note:** The black line for the average score in the graphic does not always appear exactly in the center of the shaded area that represents plus/minus one-half standard deviation. In particular, where the black line is notably higher than the 50th percentile, the shaded area is larger toward the 50th percentile and smaller toward the outside of the circumplex. Similarly, where the black line is notably lower than the 50th percentile, the shaded area is larger toward the 50th percentile and smaller toward the inside of the circumplex. This is a predictable byproduct of the method of calculating the upper and lower boundaries as raw scores, which then get converted to percentiles. In any normally distributed set of scores, a change of one raw score unit is associated with a larger percentile change near the center of the distribution—the 50th percentile—than near the extreme high or low ends of the distribution. In simple terms, there are a lot of people with scores near the middle of a bell-curve, so a one-point change near the middle will move the score past a relatively large number of people, perhaps 7% or 8%. But there are few people with very low or very high scores, so a one-point change near either end will move the score past only a few people, perhaps 2% or 3%. For this reason, the portion of the shaded area that is in the direction of the 50th percentile tends to be larger. However, the simpler interpretation remains true: the narrower the total shaded area, the less difference exists among the co-worker ratings; the wider the total shaded area, the greater the difference among the co-worker ratings.

To communicate the relative amount of agreement or disagreement among raters, using the standard deviation is better than merely displaying the highest and lowest scores. This is because the highest and lowest scores can place too much emphasis on a single rater.

- To return to a previous example, assume five raters rated a person using "4," but a sixth rater rated the same person using "1." Using the highest and lowest scores to communicate the amount of rater disagreement would suggest considerable variation among the raters, when in fact five of the six were in perfect agreement. Using the standard deviation would more accurately reflect a smaller amount of variation in the ratings, because it is based on all six ratings rather than the most extreme two.

Figure 12.
Example of Spread of Opinion Graphic

The WorkStyles Scales

1. Humanistic-Encouraging
supportive, motivates
others, patient

2. Affiliative
friendly, warm, trusting

3. Approval
needs approval from others,
forgiving, overly generous

4. Conventional
conforming, reliable, restrained

5. Dependent
a follower, deferential,
submissive

6. Avoidance
apprehensive, self-doubting,
tense

7. Oppositional
questioning, negative, critical

8. Power
authoritarian, controlling,
easily angered

9. Competitive
boastful, self-centered,
needs to win

10. Perfectionistic
demanding, results-
oriented, driven

11. Achievement
enjoys challenges, strives
for excellence, decisive

12. Self-Actualizing
enthusiastic, creative,
confident

Breakout of Ratings from Different Sources

The **Breakout of Ratings from Different Sources** displays ratings by different groups or categories of respondents—bosses, peers, direct reports, etc.—in separate profiles (see **Figure 13**). An explanatory page precedes and introduces the Breakout Profiles. While formatted the same as the main graphic profile, the results presented by each breakout profile are based on only a subset of raters (i.e., those from one specific rater category). The breakout profile for the boss category can be based on ratings by a single individual provided that, at the time of completing the assessment, the boss consented to have his or her ratings displayed separately. To protect confidentiality, the breakout profiles for the other categories of raters require at least three respondents within each category. For example, a breakout profile for peers requires **at least three raters** who are peers; a breakout profile for direct reports requires **at least three raters** who are direct reports, etc.

Breakout profiles for multiple bosses became available with the version of the WorkStyles report introduced in 2007. When two or more bosses serve as raters and consent to having their responses presented separately, their ratings are displayed in separate breakout profiles with their names above the appropriate profiles. Additionally, with the 2007 report, the Breakout Profiles page includes specific profiles (for bosses, peers, direct reports, etc.) only when the relevant data are available. In other words, unlike previous versions of the report, 'blank' profiles never appear on the page. Similarly, if too little data were collected to develop any breakout profiles, a note appears on the page stating that no profiles can be presented.

Figure 13.
Example of Breakout of Ratings Graphics

Boss

Peers

Direct Reports

Others

The Work*Styles* Scales

1. Humanistic-Encouraging
supportive, motivates
others, patient

2. Affiliative
friendly, warm, trusting

3. Approval
needs approval from others,
forgiving, overly generous

4. Conventional
conforming, reliable, restrained

5. Dependent
a follower, deferential,
submissive

6. Avoidance
apprehensive, self-doubting,
tense

7. Oppositional
questioning, negative, critical

8. Power
authoritarian, controlling,
easily angered

9. Competitive
boastful, self-centered,
needs to win

10. Perfectionistic
demanding, results-
oriented, driven

11. Achievement
enjoys challenges, strives
for excellence, decisive

12. Self-Actualizing
enthusiastic, creative,
confident

Self-Perceptions: A Closer Look

Self-Perceptions: A Closer Look is a section several pages long that only appears in **Self Reports**. The Report Generator uses the individual's "type" of thinking style to determine the narrative for this section. The narrative provides a more detailed analysis of the individual's dominant characteristics than that found in Self-Perceptions: Summary.

- In **Team Work***Styles*, this section describes how a team player's style affects accomplishing tasks, teamwork, communications, and working with differences of opinion, and describes key assets together with possible counterproductive tendencies.

- In **Leadership Work***Styles*, this section addresses how the person's dominant characteristics are likely to come into play in accomplishing tasks and engaging in teamwork, including descriptions of the person's key assets and possible areas for concern, coupled with a review of relevant findings from management research.

In both **Team Work***Styles* and **Leadership Work***Styles* reports, the topics raised can be quite different, depending on the individual's type. For an individual whose dominant characteristics include the 9-10 cluster (competitive), the report may address listening as a key to effective teamwork. For another individual whose dominant characteristics include the 3-4-5 cluster (external locus of control), the report may address how to derive satisfaction directly and independently, rather than indirectly through the reflected satisfaction of the boss or co-workers.

Co-Worker Perceptions: A Closer Look

Co-Worker Perceptions: A Closer Look provides a detailed analysis of co-workers' perceptions of the individual's dominant characteristics. The individual's perceived "type" of thinking style determines the narrative, which is several pages in length and appears only in **Feedback Reports**. Like the Self-Perceptions: A Closer Look section, the topics raised differ depending on the individual's type. For an individual whose dominant characteristics include the 9-10 cluster (competitive/perfectionistic), the report may address how to set realistic standards. For another individual whose dominant characteristics include the 7-8 cluster (dogmatic/authoritarian), the report may address how to cultivate the free exchange of ideas. The content of the **Team Work***Styles* version differs from the **Leadership Work***Styles* version.

- **Team Work***Styles* discusses how the individual's style affects accomplishing tasks, teamwork, communications, and working with differences of opinion. The text describes key assets and possible counterproductive tendencies for an individual contributor (someone who is not in a management role).

- **Leadership Work***Styles* addresses how the manager's dominant characteristics are likely to influence the person's effectiveness in accomplishing tasks and engaging in teamwork, including

descriptions of the person's key assets and possible areas for concern. A selected review of relevant findings from management research is also included.

Suggestions for Development

The **Suggestions for Development** section contains a series of possible activities or practices a participant can use to enhance his or her effectiveness. The suggestions are based on the person's thinking style. If co-worker feedback is present, the suggestions are driven by the thinking style perceived by co-workers. If only self-ratings are present, then the suggestions are driven by the self-assessed thinking style. In both cases, the suggestions for development are organized and labeled by topic area, such as "Listening Skills" or "Project Leadership." The development suggestions presented differ depending on the individual's type.

This is another area where the content differs between the **Team Work***Styles* report and the **Leadership Work***Styles* report. The leadership version contains extra suggestions about topics such team leadership, project leadership, communicating the mission, feedback and coaching, etc., which are especially appropriate for managers and leaders.

Comments from Co-Workers

Near the end of each assessment, co-workers have the opportunity to provide observations or suggestions to help the person they are rating perform more effectively. The comments in the **Comments from Co-Workers** section, are listed anonymously, in random order with lines separating each comment. The comments appear exactly as raters enter them, with no editing or review.

List of Raters

The **List of Raters** provides information about the co-workers who provided ratings. Work*Styles* displays the names of these co-workers (last name, then first name) in alphabetical order, accompanied by the rater's relationship to the participant being assessed (boss, peer direct report, etc.). The list of names is for purely administrative purposes, to ensure that the correct set of raters has rated the participant, and that raters have correctly identified their relationship to the participant. In virtually all cases, participants select their own co-worker raters, so the list of names does not violate any agreements about confidentiality.

9. WorkStyles Composite Reports

Note: The Group Report was renamed Composite Report with the Acumen WorkStyles 2007 release.

A Composite Report summarizes the "typical" scores for a group of participants. It compiles the participants' results to create group averages for self and co-worker ratings as a way of providing an overall profile for a particular group.

There are two kinds of composite reports. A **Composite Self Report** summarizes only the self-assessment results for the group of selected participants. A **Composite Feedback Report** summarizes the self and co-worker assessment results for the participants in the group. However, a participant can be included in the composite report only if the comparable individual report can be printed for that participant. In effect, this means that none of a participant's data will be included in a Composite Feedback Report unless that participant has completed the self-ratings *and* been rated by at least four co-workers.

A composite report consists primarily of graphic profiles (see **Table 16**). A composite report is always accompanied by a short introduction, which outlines the purpose of the report and how to interpret the results in the circumplex. Otherwise, it contains very little narrative text.

Table 16:
Components of an ACUMEN WorkStyles Composite Report

Report Section	Composite Self	Composite Feedback
Introduction	✓	✓
Composite Self-Profile	✓	✓
Composite Co-Worker Profile		✓
Composite Breakout of Co-Worker Ratings		✓
Composite Breakout Profiles		✓
Composite Variability Graphics		✓
Variability of Self-Profiles	✓	✓
Variability of Co-Worker Profiles		✓
List of Participants	✓	✓

Both the **Composite Self-Profile** and **Composite Co-Worker Profile** show the group's average scores as shaded areas in a circumplex (see **Figure 14**). They are similar in format to the graphic profiles in an individual's report. However, instead of displaying an individual's percentile scores, the

composite graphic profiles display the average percentile scores across all the participants in the group.

Figure 14.
Example of ACUMEN WorkStyles Composite Profile
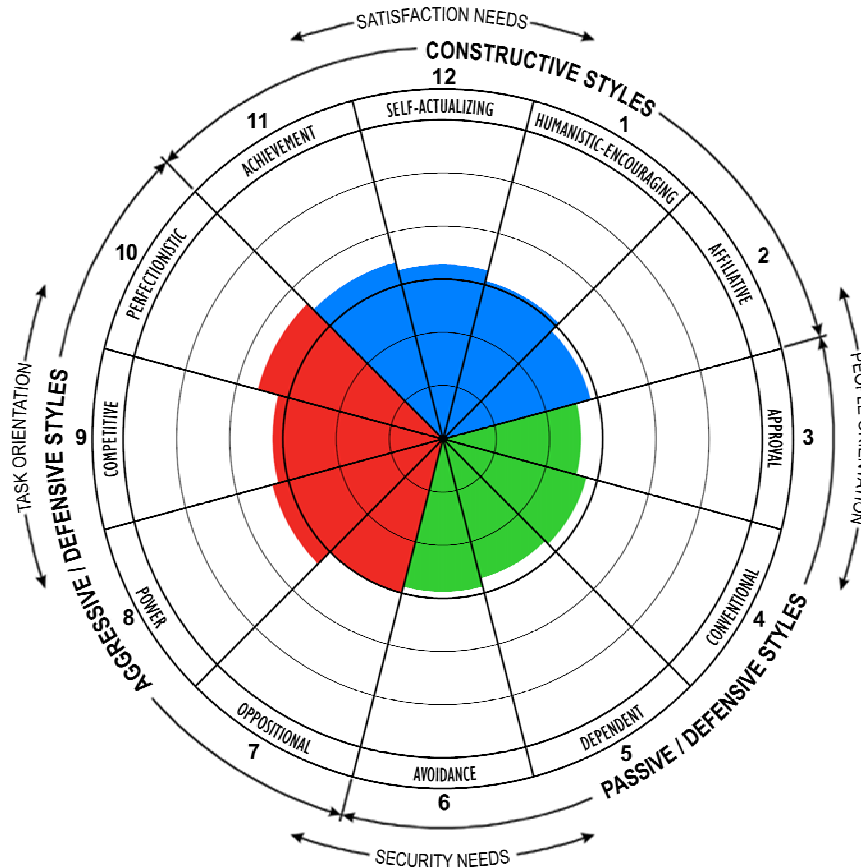
Feedback based on ratings from 12 participants

The WorkStyles Scales

1. Humanistic-Encouraging
supportive, motivates others, patient

2. Affiliative
friendly, warm, trusting

3. Approval
needs approval from others, forgiving, overly generous

4. Conventional
conforming, reliable, restrained

5. Dependent
a follower, deferential, submissive

6. Avoidance
apprehensive, self-doubting, tense

7. Oppositional
questioning, negative, critical

8. Power
authoritarian, controlling, easily angered

9. Competitive
boastful, self-centered, needs to win

10. Perfectionistic
demanding, results-oriented, driven

11. Achievement
enjoys challenges, strives for excellence, decisive

12. Self-Actualizing
enthusiastic, creative, confident

The composite graphic profiles are followed by two graphics (one for self and one for co-worker ratings) which summarize the variability of scores within each of the 12 scales, the **Variability of Self Profiles** graphic and the **Variability of Co-Worker Profiles** graphic. These are stylistically similar to the Spread of Opinion profile in an Individual Report. The variability graphics show, for each scale, the standard deviation of scores around the group average. In effect, these graphics give you an indication of the dispersion of scores among the participants within the group.

- For example, if the Composite Co-Worker Profile shows that the average percentile score for co-worker ratings on the Humanistic-Encouraging scale is at the 54th percentile, is that because all 12 participants have very similar scores from co-workers (say, all between the 41st and 60th percentiles), or is it because some participants have low scores (below the 20th percentile) while some participants have high scores (above the 81st percentile)? The size of the standard deviation graphically displayed in the Variability of Co-Worker Profiles provides that information.

A composite report also contains **Composite Breakout Profiles**. These profiles display the average ratings from different sources—bosses, peers, direct reports, etc.—for the participants in the group. For each source, the Composite Breakout Profile is produced by first creating a score from that source for each participant, then finding the average of those scores across all participants. For example, if there were 15 participants in the group, then the Composite Breakout Profile for Peers would be found by creating a "peer score" (the average rating from peers) for each of the 15 participants in the group, then calculating the average of these 15 peer scores.

- Comparisons of the Composite Breakout Profiles from different sources are only useful when the different sources have rated essentially the same set of participants. The Composite Breakout Profiles can be very misleading if the different sources rated different participants. For example, if 3 participants were rated only by peers and another 3 participants were rated only by direct reports, then a comparison of the Peer Breakout Profile and Direct Report Breakout Profile for these 6 participants would **not** be useful. Any differences in the Breakout Profiles could simply be a reflection of real differences between the participants, not the differences in perspective between peers and direct reports.

The information in Work*Styles* Composite Reports can be useful in several ways:

- to help give participants a sense of how their scores compare to those of the other participants in the group (*"Is it just me? Or is everyone around here like this?"*)

- to open a discussion about which factors in the organization stimulate or inhibit certain kinds of thinking styles

- to help decide whether special attention to a specific thinking style would be appropriate for the group

- to help decide, over time, whether changes are occurring within a group as a whole.

As a caveat, the results shown in composite graphic profiles may often seem underwhelming: many times the scores fall between the 30th and 70th percentile on every scale, whereas profiles for individual participants almost always have much more pronounced differences between the high and low scores. Remember, though that composite profiles are *averages.* The process of averaging implies that, in the absence of a profound group "culture," the larger the number of participants that are included in a group, the more the group average will look like the 50th percentile—the population average. In large groups, small deviations from the 50th percentile may represent meaningful impacts of local group culture.

10. Summary

ACUMEN Work*Styles* builds upon instruments with demonstrable reliability and has a basis in studies that indicate content, criterion-related, and construct-related validity. While the assessment routines in ACUMEN Work*Styles* have a sound empirical basis, we actively work to support further research that inquires into ACUMEN Work*Styles*'s utility and validity.

Work*Styles* provides an empirically-based, reliable and valid assessment for professional development. We are proud to say that reviewers and customers alike report that the Work*Styles* instruments do an excellent job of assessing managers' and team members' strengths and weaknesses, relating personal thinking orientations to work performance, and providing structured experiences that promote positive change.

For further information, please contact Human Synergistics/Acumen Inc. at 510-899-7404, or visit our web site at *www.humansynergistics.com.*

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12. Statistical Appendix

Demographic description of leadership and team standardization samples

Appendix Table 1:
Years Worked in Current Job

Years Worked in Current Job		Leadership Frequency	Percent	Team Frequency	Percent
1. Less than one year		104	23.5	582	28.3
2. 1 - 2 years		101	22.9	433	21.1
3. 3 - 5 years		104	23.5	462	22.5
4. 6 - 10 years		72	16.3	280	13.6
5. More than 10 years		61	13.8	297	14.5
		2	Missing	3	Missing
	Total	444	100.0	2057	100.0

Appendix Table 2:
Total Work Experience

Total Work Experience		Leadership Frequency	Percent	Team Frequency	Percent
1. Less than one year		8	1.8	84	4.1
2. 1 - 2 years		3	.7	80	3.9
3. 3 - 5 years		12	2.7	195	9.5
4. 6 - 10 years		49	11.1	369	18.0
5. More than 10 years		370	83.7	1326	64.6
		2	Missing	3	Missing
	Total	444	100.0	2057	100.0

Appendix Table 3:
Current Annual Earnings

Current Annual Earnings	Leadership Frequency	Percent	Team Frequency	Percent
1. $25,000 or less	14	3.3	309	16.1
2. $25,001 to $37,500	13	3.1	427	22.2
3. $37,501 to $50,000	33	7.7	409	21.3
4. $50,001 to $62,500	38	8.9	372	19.4
5. $62,501 to $75,000	85	20.0	149	7.8
6. $75,001 to $87,500	67	15.7	77	4.0
7. $87,501 to $100,000	51	11.5	63	3.3
8. $100,001 or more	125	28.2	116	6.0
9. Prefer not to state	18	Missing	135	Missing
Total	444	100.0	2057	100.0

Appendix Table 4:
Age

Age	Leadership Frequency	Percent	Team Frequency	Percent
1. Under 25	4	.9	171	8.4
2. 25 - 29	16	3.6	326	16.1
3. 30 - 34	82	18.6	439	21.6
4. 35 - 39	117	26.5	360	17.8
5. 40 - 44	84	19.0	311	15.3
6. 45 - 49	66	15.0	220	10.8
7. 50 - 54	50	11.3	120	5.9
8. 55 or over	22	5.0	81	4.0
9. Prefer not to state	3	Missing	29	Missing
Total	444	100.0	2057	100.0

Appendix Table 5:
Sex

Sex	Leadership Frequency	Percent	Team Frequency	Percent
1. Female	115	26.1	824	40.5
2. Male	325	73.9	1213	59.5
3. Prefer not to state	4	Missing	20	Missing
Total	444	100.0	2057	100.0

Appendix Table 6:
Ethnic Background

Ethnic Background	Leadership Frequency	Percent	Team Frequency	Percent
1. African American	27	6.2	137	6.9
2. Asian	22	5.1	172	8.7
3. Hispanic	11	2.5	66	3.3
4. Native American	1	.2	20	1.0
5. White	373	85.9	1556	78.3
6. Other	0	0	36	1.8
7. Prefer not to state	10	Missing	70	Missing
Total	444	100.0	2057	100.0

Appendix Table 7:
Education

Education		Leadership Frequency	Percent	Team Frequency	Percent
1.	High School	30	6.8	232	11.4
2.	Technical - Vocational	4	.9	140	6.9
3.	Some College	65	14.8	453	22.2
4.	Bachelors Degree	180	40.9	860	42.2
5.	Masters Degree	126	28.6	302	14.8
6.	Doctorate Degree	35	8.0	51	2.5
7.	Prefer not to state	4	Missing	19	Missing
	Total	444	100.0	2057	100.0

Appendix Table 8:
Occupational Category

Occupational Category	Leadership Frequency	Percent	Team Frequency	Percent
1. Administrative	58	13.1	356	17.4
2. Clerical	3	.7	64	3.1
3. Communication	22	5.0	111	5.4
4. Customer Service	33	7.5	118	5.8
5. Data Processing	23	5.2	94	4.6
6. Education	14	3.2	70	3.4
7. Engineering	59	13.3	237	11.6
8. Finance	80	18.1	225	11.0
9. Hospitality Services	3	.7	8	.4
10. Law Enforcement	1	.2	0	.0
11. Legal	4	.9	9	.4
12. Manufacturing/Production	26	5.9	146	7.1
13. Materials Handling/Control	6	1.4	45	2.2
14. Medical/Health Services	3	.7	16	.8
15. Public Administration	1	.2	5	.2
16. Quality Control	4	.9	35	1.7
17. Scientific	13	2.9	24	1.2
18. Social Services	2	.5	7	.3
19. Transportation	4	.9	3	.1
20. Utilities	11	2.5	143	7.0
21. Other	72	16.3	335	16.3
	2	Missing	6	Missing
Total	444	100.0	2057	100.0

Appendix Table 9:
Perceived Level of Stress

Perceived level of Stress		Leadership		Team	
		Frequency	Percent	Frequency	Percent
1. Extremely low		4	.9	54	2.6
2. Low		15	3.4	110	5.4
3. Below Average		17	3.8	142	6.9
4. Average		130	29.4	753	36.7
5. Above Average		144	32.6	591	28.8
6. High		105	23.8	316	15.4
7. Extremely High		27	6.1	86	4.2
		2	Missing	5	Missing
	Total	444	100.0	2057	100.0