

The Humax Assessment of Social Capital

The Humax Assessment is the most advanced and comprehensive survey of social capital available. It is the world's first and only World Wide Web (Web) tool for diagnosing social capital. The Humax Assessment combines the best techniques and measures from the field of social network analysis with the power, speed, and convenience of Web technology.

The Humax Assessment is administered entirely via the Web. The service is available around the globe 24 hours a day, 7 days a week.

The use of Web technology overcomes the limitations of traditional paper-and-pencil methods for social capital assessment. It is less burdensome on the user *and* more comprehensive at the same time. Web technology reduces instrument administration time and provides automatic data collection and processing. The interactive nature of the Web-administered survey increases user interest. The Humax Assessment provides immediate feedback, which is the optimum method for learning.

The Humax Assessment provides two types of diagnoses: (1) The **Humax Assessment** is a comprehensive analysis of a person's social capital. (2) The **Humax Composite Profile** is a comprehensive analysis of the social capital of a group, team, department, or company.

The **Humax Assessment** produces immediate feedback online in two formats: a customized Executive Summary, and a comprehensive 25-page customized report. The Executive Summary includes a computer-generated network diagram, a social capital profile type, and discussion of the three dimensions of social capital. The full report includes the Executive Summary plus a comprehensive and detailed diagnosis of the three dimensions and their components. Both formats can be viewed online and printed.

The **Humax Composite Profile** produces a customized comprehensive assessment of organizational social capital with statistical comparisons to our baseline population. It includes an Executive Summary, composite profiles, detailed analysis of each dimension of social capital with statistical comparisons, and a discussion of managing social architecture. This report can be viewed online and printed.

SURVEY METHOD

The Humax Assessment uses well-established and generally accepted survey methods. These methods were first used on a large scale in the Topical Module on Social Networks in the 1985 General Social Survey (GSS) and have become the standard for egocentric network data collection and analysis. (The GSS is a scientific poll of the American population, based on a

national probability sample. It has been conducted annually for about twenty years.) These methods have also been tested in cross-cultural research.[\[2\]](#)

Section 1 of the Humax Assessment uses what are called “name generators” to identify the members of a respondent’s “core network.” For confidentiality, the respondent can enter initials, nicknames, or code numbers instead of actual names in response to the name generator questions. The Humax Assessment uses name generator questions that have been established in the field of network analysis.

Section 2 of the Humax Assessment asks a series of questions about the people identified in the name generators. In accordance with established methods, these questions include age, education, gender, and race/ethnicity. Network composition.

Section 3 of the Humax Assessment asks questions about network structure. These questions focus on the relationships between the people identified in the name generators. In accordance with established methods, the Humax Assessment ask about four types of relationships: strong tie, weak tie, no tie, and avoidance tie.

Section 4 of the Humax Assessment asks questions about the respondent’s background and affiliation with various types of organizations, associations, and groups.

These four sections provide the data used to calculate a set of well-established network measures and statistics for social capital diagnosis. These measures are the basis of the three dimensions of social capital in the Humax Assessment diagnosis: structure, composition, and focus. (Review your Individual Profile for definitions of terms, concepts, and measures.)

Measurement Accuracy, Validity, Reliability, and Error

Accuracy. Most surveys of attitudes, personality, and other areas rely on self-reported data. The same is true for most social network surveys, including the Humax Assessment. In network surveys, respondents are asked to recall their interactions. Their ability to do so correctly is called “informant accuracy.” As Wasserman and Faust (1994:57) note, “Considerable research has been done on the question of *informant accuracy* in social network data.”[\[3\]](#) The conclusion from this research is that self-reported data collected via a sociometric instrument like the Humax Assessment yield an accurate picture of the “*true structure*” of social networks.

Validity. An instrument is valid if it actually measures what it is intended to measure. There are various types of validity. The most important are “construct validity” and “criterion-related validity.” Construct validity refers to how well the measurements in an instrument relate to the measurements made with other instruments or methods. Criterion-related validity refers to how well the measurements in an instrument relate to predicted outcomes, such as performance.

Wasserman and Faust (1994) note that little research has been done on the validity of network instruments. However, since the publication of their book, new research has been published that pertains to the validity of the survey items used in the Humax Assessment. For example, the first question asked in the Humax Assessment is the standard first question in almost all egocentric surveys. New research shows that this question is the best general-purpose question for sampling egocentric networks.[\[4\]](#)

A recent review of empirical studies using egocentric surveys shows that the measures used in the Humax Assessment are significantly correlated to significant outcomes predicted by theory, such as pay, early promotion, probability of an outstanding (or poor) performance appraisal, probability of a large (or small) bonus, and the ability of teams to get their achievements recognized.[\[5\]](#) A recent doctoral dissertation that used the Humax Assessment to evaluate the social capital of automotive engineers found that its measures are significantly correlated with important outcomes predicted by theory, namely, involvement in seventy-five automotive innovations, controlling for a variety of demographic and psychological measures.[\[6\]](#)

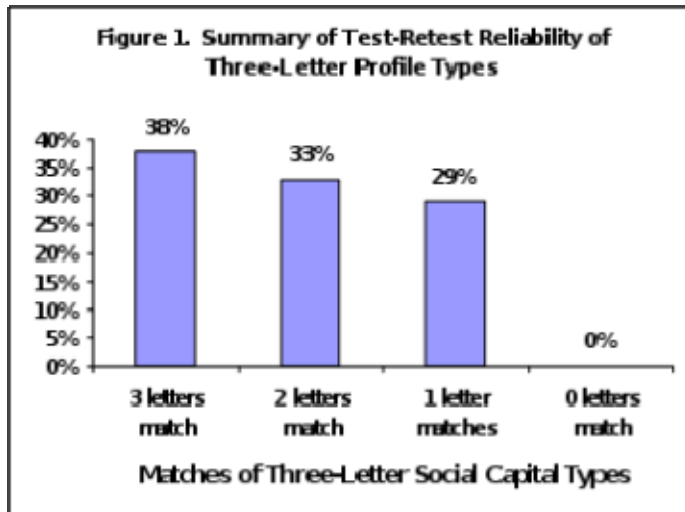
Reliability. An instrument is reliable if it gives the same estimates over repeated measurements. The most important type is “test-retest reliability.” This refers to the ability of an instrument to produce the same results or answers at two points in time. “For the test-retest assessment of reliability to be appropriate,” Wasserman and Faust (1994:58) note, “one must assume that the ‘true’ value of a variable has not changed over time.” For example, personality inventories, such as the Myers-Briggs Type Indicator® Instrument (MBTI), assume that tendencies such as “extraversion-introversion” (E-I) and “sensing-intuition” (S-N) are stable over time. A reliable instrument would produce the same measurements of these tendencies across multiple administrations of the instrument.

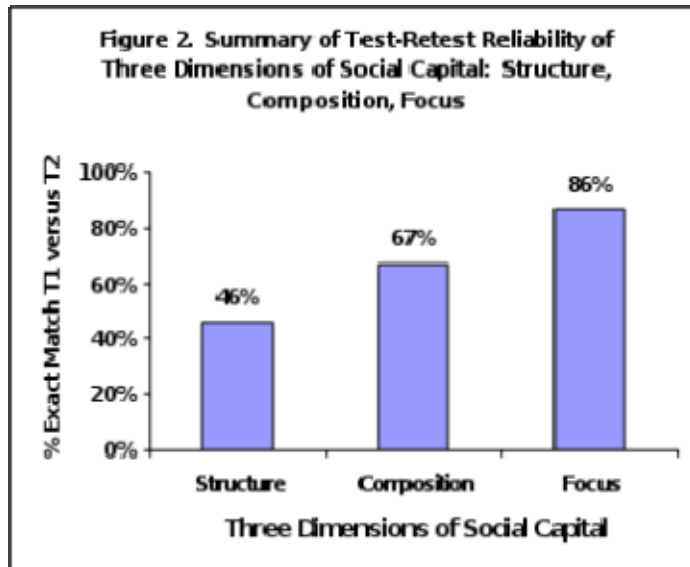
Test-retest reliability may not be appropriate for social network properties, note Wasserman and Faust (1994:58), “since social phenomena cannot be assumed to remain in stasis over any but the shortest time spans.” Nonetheless, Humax Corporation has conducted research on test-retest reliability for egocentric surveys of social networks, using the on-line Humax Assessment. A summary of results is given below.

Humax has identified a subpopulation of its large database of people who have taken the Humax Assessment at two points in time. The duration between the date of the first and second tests is approximately one year (average duration = 355 days). This subpopulation is a reasonably good cross-section of the diversity of people in the database, including a wide range of industries, occupations, and company sizes. As such, it provides a good basis for evaluating test-retest reliability.

There are 27 social capital profiles in the Humax Assessment. These correspond to the three dimensions of social capital: structure, composition, and focus. Figure 1 shows the results of the matches of 3-letter social capital types from Time 1 (test) to Time 2 (retest). As shown, 38% had exactly the same 3-letter types in Time 1 and Time 2. An additional 33% had two of three letters match in Time 1 and Time 2. Together, almost three-quarters (71%) of the respondents had substantial agreement (all three letters or two of three letters match over time). Twenty-nine percent had one letter match over time. Not a single respondent had no letters matching.

These test-retest results from our analysis compare favorably with the results of tests of the reliability of the MBTI. With the MBTI, for example, “on retest, people come out with three to four type preferences the same 75-90% of the time” with the MBTI; and, “when people change their type on retest, it is usually on one scale.”^[7] We note that when our respondents change their type on retest, they *always* change to an adjacent type.





It is customary to evaluate the test-retest reliability of the components or dimensions that compose a “type.” Figure 2 shows the results of test-retest reliability for each of the three dimensions of social capital in the Humax Assessment: structure, composition, and focus. As shown, structure has the lowest consistency over time, with exact matches occurring in 46% of respondents. Focus has the highest consistency over time, with exact matches occurring in 86% of respondents. Composition is in the middle (67%).

These results are consistent with social network theory. Network theory predicts that structure would be the most changeable dimension over time, and that composition and focus should be the least changeable over time. For example, one of the best documented findings in the field of social network analysis is the preference for *similarity*: people tend to associate with people like themselves. This social pattern is called the similarity principle, the homophily principle, and the principle of in-group preferences. Thus, while a person can change the structure of his or her network in various ways (e.g., taking a new assignment, changing jobs, moving to another location), it is very likely that the person(s) added will be very similar to those who are already in the egocentric network. Hence, structure is predicted to change more frequently than composition or focus. Accordingly, most of the changes in type noted in Figure 1 above are changes in structure, not composition or focus.

Error. Measurement error “occurs when there is a discrepancy between the ‘true’ score or value of a concept and the observed (measured) value of that concept” (Wasserman and Faust 1994:59). Measurement error is the difference between the true and observed values. Research on measurement error with network instruments shows that the most important issue is the error that arises in *fixed-choice* data collection designs. For example, asking a person to “name your three best friends” introduces measurement error because “it is unlikely that all people have exactly three best friends” (Wasserman and Faust 1994:59).

All egocentric survey designs *except* the Humax Assessment use fixed-choice designs. The Humax Assessment is the *only* network instrument that does not restrict the name nomination process to a fixed number of names. There is no minimum or maximum number of names that a respondent can nominate. The Humax Assessment makes full use of the advantages of Web technology to produce a dynamically generated egocentric survey and the world's first "unlimited-choice" social network survey instrument. We are in the process of conducting an in-depth analysis of various fixed-choice network designs and the unlimited-choice design of the Humax Assessment (Baker and Marquis 2001).[\[8\]](#)

[\[1\]](#) Based on Wayne Baker and Nathaniel Bulkley, "The evolution of pure generalized reciprocity." Paper presented at the Annual Meetings of the Academy of Management (August 2009).

[\[2\]](#) For example, see Ruan, Danching. "The Context of the General Social Survey Discussion Networks: An Exploration of General Social Survey Discussion Name Generator in a Chinese Context." *Social Networks* 20:247-264, 1998.

[\[3\]](#) Stanley Wasserman and Katherine Faust. 1994. *Social Network Analysis: Methods and Applications*. Cambridge University Press. See pp. 56-59 for a summary of the research on measurement accuracy, validity, reliability, and error.

[\[4\]](#) Bailey, Stephanie and Peter V. Marsden. 1999. "Interpretation and Interview Context: Examining the General Social Survey Name Generator Using Cognitive Methods." *Social Networks* 21:287-309.

[\[5\]](#) Ronald Burt. 2000. "The Network Structure of Social Capital." *Research in Organizational Behavior*. JAI Press.

[\[6\]](#) Obstfeld, David. 2001. "Telling More of What We Know: Examining the Social Processes of Knowledge Creation and Innovation." Unpublished Ph.D. dissertation, University of Michigan. Chair: Professor Wayne Baker.

[\[7\]](#) See Chapter 7 in Gordon Lawrence and Charles Martin, *Building People, Building Programs*, published by CAPT. See, also, K. Nowack, K. 1996. "Is the Myers Briggs Type Indicator the Right Tool to Use?" *Performance in Practice*, American Society of Training and Development, Fall.

[\[8\]](#) Baker, Wayne and Christopher Marquis. 2001. "An Analysis of Unlimited-Choice Versus Fixed-Choice Research Designs for Egocentric Network Surveys." Working paper, University of Michigan.