

A TECHNICAL REPORT ON THE CLIFTON STRENGTHSFINDER® WITH COLLEGE STUDENTS

Laurie A. Schreiner, Ph.D.
Azusa Pacific University

The decision to use the results from any instrument in working with students should be based upon a careful examination of the reliability and validity of the instrument within the context of how it is intended to be used. Meeting scientific standards for test development is an important aspect in evaluating the use of any instrument such as the Clifton StrengthsFinder. Such standards have been developed by the American Psychological Association, the American Educational Research Association, and the National Council on Measurement in Education (1999). Before deciding to use the Clifton StrengthsFinder, three issues should be addressed by those who are using the results. The first has to do with the *reliability* of the instrument, or the consistency of the measurement. Are the results a dependable, consistent indicator of the quality that is being measured? The second question has to do with the *validity* of the instrument; that is, does this instrument actually measure what it claims to measure? The third question has to do with the *appropriate use* of the instrument: what is the purpose for which the instrument was designed? How should the results be used, given the purpose of the instrument? The issues of reliability, validity, and appropriate use will be addressed in this report.

Development of the Clifton StrengthsFinder

The Clifton StrengthsFinder, developed by Gallup under the leadership of educational psychologist Donald O. Clifton, has as its foundation the strengths philosophy that has formed the basis for the positive psychology movement. Positive psychology is a field that emphasizes optimal human functioning and factors that contribute to a sense of well-being and the ability to

contribute productively to society (Seligman & Csikszentmihalyi, 2000). Rather than studying mental illness, this movement studies mental health. In the same way, when Don Clifton first designed the interviews that later became the basis for the CSF, he began with the question, “What would happen if we studied what is right with people?” (Lopez, Hodges, & Harter, 2005, p. 3). From this initial question emerged a philosophy of developing strengths as the basis for achieving excellence. Specifically, the strengths philosophy is the belief that individuals are able to gain far more when they expend effort to build on their talents than when they spend a comparable amount of effort to remediate their weaknesses (Clifton & Harter, 2003).

Clifton believed that these talents were “naturally recurring patterns of thought, feeling, or behavior that can be productively applied” (Hodges & Clifton, 2004, p. 257). *Strengths* were viewed as developed talents. Specifically, a strength was defined as a talent that was honed with the knowledge and skills that were needed to achieve excellence. The CSF was designed to measure the raw talents that could then be developed into strengths. Thus the purpose of the instrument is to identify “signature themes” (Lopez, Hodges, & Harter, 2005, p. 6) of talent that can be productively applied to achieve success. Its purpose is for personal development and growth, not selection, placement, or screening for mental health. Within the college setting in particular, the instrument is intended to be used primarily to enable students to identify the talents they bring into the learning environment that they can capitalize upon in order to achieve academic success and personal growth. In the same manner as other categorical instruments, the CSF results are viewed as a preliminary hypothesis to be verified with the student. In the *StrengthsQuest* text, students are encouraged to claim any theme they believe is a dominant talent, whether or not it is in their top five (Clifton, Anderson, & Schreiner, 2006). In this way,

their talent development is not constricted by the limitations of only receiving five signature themes.

So far, the CSF has been used with over 112,000 college students. The instrument is used primarily as a springboard for discussion in advising and as a tool for self-awareness. Feedback about strengths often forms the basis of further interventions that teach students how to capitalize on their strengths and apply them to new challenges. Previous empirical studies have shown that such strengths-based interventions have contributed to statistically significant increases in student retention and academic performance, as well as increases in students' academic engagement and self-efficacy, self-confidence, optimism, direction, hope, altruism, and sense of meaning and purpose (Cantwell, 2005; Hodges & Clifton, 2004; Schreiner, 2004).

The CSF was originally designed for business and industry to identify talent as the basis for increasing the productivity and morale of employees. Based on over two million interviews used for the past 30 years to select and develop talented employees, Clifton designed the CSF as an objective instrument that could be administered online in 30-45 minutes yet was as reliable and valid as the longer interviews. The instrument was developed primarily from an empirical basis, meaning that the items generated were those that were most descriptive of the highest achievers across a number of careers and environments. These descriptions initially resulted in over 5,000 items which were then condensed to 180 item pairs on the basis of construct and criterion validity evidence, including over 100 predictive validity studies (Lopez, Hodges, & Harter, 2005; Schmidt & Rader, 1999).

These 180 item pairs are presented at 20-second time intervals as potential self-descriptors. The timed nature of the instrument intentionally taps into people's "first reaction." Previous research has found that the time limit does not significantly affect people's ability to

answer the questions (Lopez, Hodges, & Harter, 2005); however, the timer can be turned off for students with disabilities that prevent quick computer response time. These 180 items measure 34 possible talent themes. Students receive a report describing their top five “signature themes” that represent their most intense themes of talent, rather than themes that have been compared to the responses of other people.

In 2004-05 we conducted a national study to determine the psychometric properties of the Clifton StrengthsFinder when used with college students. Students from 14 colleges and universities (five community colleges and nine universities) participated in a national study of the reliability and validity of the CSF. Although 750 students initially began the study, 479 completed all phases of the study and 438 had usable results on all instruments. The students were a representative sample of those college students who have taken the CSF, in terms of their gender, race, and class level. Of these, 54% were female and 46% were male. First-year students were 46% of the sample, with sophomores comprising 31.5%, juniors 8.7%, and seniors 10.8%. Three percent of the sample did not report their class level. The sample represented the following ethnicities: 76% Caucasian, 13.6% Asian, 5% Hispanic, 4.3% African-American, and 1.2% multiethnic.

Each student completed three online instruments in counterbalanced order during the first phase of the study: the *CSF*, the *California Psychological Inventory* (CPI-260; Gough & Bradley, 1996), and the *16PF* (Cattell, 1993). These last two instruments are among the most valid and reliable psychological measures of personality. Both of these instruments contain scales which intuitively should correlate with many of the CSF themes. The 16PF also contains Holland’s (1973) six vocational types (Realistic, Artistic, Investigative, Social, Conventional,

and Enterprising). Students did not receive the results from any of the measures until the end of the study.

In the second phase of the study, students returned 8-12 weeks after they initially took the CSF and completed it a second time. At this point they received a printout of their five signature themes. All results were then analyzed by an independent researcher, after the raw data were collected by Gallup and the publishers of the other two instruments. The results of this study were then confirmed with the full sample of all college students who have taken the CSF.

The Reliability of the Clifton StrengthsFinder

Reliability refers to the consistency of a measurement. That is, are the results a dependable indicator of the quality that is being measured? There are two primary ways of answering that question. The first is through test-retest reliability, which assesses the extent to which students' responses to items on each theme are stable over time. The highest possible test-retest reliability score is 1.00, which would indicate that all students who took the CSF responded *exactly* the same 8-12 weeks later as they responded the first time—despite not knowing their initial results. Most statisticians agree that a test-retest reliability estimate of .70 is evidence of acceptable stability over time (AERA/APA/NCME, 1999). The mean test-retest reliability estimate across the 34 themes in this college student sample was .70, which meets these standards. The themes with the greatest stability were Discipline, Deliberative, Intellection, Positivity, and Competition, all with reliability estimates of .80 or higher. Table 1 presents the reliability estimates of all 34 themes, while Table 2 compares the reliability estimates for any significant gender differences in reliability, and Table 3 compares the reliability estimates for any significant racial differences.

Since only five top themes are provided to students, it is also important to determine the degree to which the top five themes remained the same over time. Because the CSF contains 278,256 possible unique combinations of signature themes and some scales have as few as four items, a change in the response to even one item on some scales can move a theme in or out of the top five (Lopez, Hodges, & Harter, 2005). Thus, the likelihood of retaining exactly the same themes, particularly in the same order, is very small. However, 52% of the students in this sample had at least three themes that remained among their top five themes both times. Another 35% retained two of their top five themes over time, 11% retained only one of their themes, and 2% did not retain any of the same five themes from time 1 to time 2. A further frequency analysis indicated that in the vast majority of cases, the themes that did not remain in students' top five in the retest did remain in their top ten. These results are similar to those found with other instruments that use categorical labels; research across multiple studies has found that up to 50% of participants report different categorical labels of personality type after a 5-week test-retest interval (Pittenger, 2005).

The second way of estimating reliability is through “internal consistency,” as measured by coefficient alpha. This statistic assesses the extent to which all the items on a theme are related to each other rather than to items on another theme. A perfect score of 1.00 would indicate that all of the items on a theme are related only to the other items on that theme and not to any other items, something that is statistically improbable. Since the CSF was designed so that some items intentionally appear on more than one theme, this makes a high internal consistency score unlikely. Coefficient alphas in this sample ranged from $\alpha = .42$ for the Activator theme to $\alpha = .80$ for the Discipline theme, with a mean alpha of .61 and a median alpha of .63. This range is

comparable to that found in the *CPI-260* and is acceptable given the intended purpose of the instrument. Table 2 contains the coefficient alpha estimates for all 34 themes.

Validity of the Clifton StrengthsFinder

The validity of an instrument concerns the extent to which it measures what it claims to measure. For instruments that are not meant to predict future behavior and have no correct or incorrect answers, the type of validity that is of interest is construct validity. Construct validity is an indication of what the scores on an instrument mean and whether they can be used to understand people accurately. This type of validity can be assessed in a wide variety of ways, but initial evidence of the construct validity of the CSF was obtained in this study by correlating students' scores on each of the 34 CSF themes with their scale scores on the other two instruments (the *CPI-260* and the *16PF*), since certain CSF themes were expected to be at least moderately related to scales on these other instruments. For example, the CSF theme of Achiever claims to measure a strong need for achievement, as well as stamina, hard work, and productivity. Thus, it ought to be related to the Achievement scales on the *CPI-260*, and in fact this was the case ($r = .47$). Woo, described as characteristic of those who enjoy the challenge of meeting new people, was expected to correlate with the Extraversion scale score on the *16PF* and did so significantly ($r = .62$). In the same manner, 137 different predicted relationships between specific CSF theme scores and their counterparts on the *CPI-260* and *16PF* were explored. A total of 128 (93.4%) of these predictions were confirmed by significant correlation coefficients, providing strong evidence for the construct validity of the CSF (the full table of these results can be found in Table 3).

An additional way construct validity was assessed was by examining how each item “clustered” onto a particular theme. Because of the high degree of item overlap on the CSF,

traditional confirmatory factor analysis was replaced with a technique known as pairwise hierarchical cluster analysis. A score of 100% would indicate that each item clustered perfectly onto its expected theme. The average item clustering percentage across all possible theme pairs was 90%. Using the rule of thumb that a 70% pairwise hierarchical cluster loading indicates adequate construct validity (Sireci, 2001), 95% of the theme pairs met this criterion.

In short, preliminary evidence that the CSF measures what it claims to measure is strong, based on its validation with two other well-respected personality instruments. Further evidence of its construct validity can be seen in a cluster analysis that predominantly confirmed that items tended to cluster on their intended themes.

Gender and Racial Differences in Clifton StrengthsFinder Scores

Earlier analyses of the test-retest reliability estimates had indicated that there were few significant gender or racial differences in the temporal stability of the Clifton StrengthsFinder scores. However, a common question that arises is whether or not there are significant gender or racial differences in the theme scores themselves. Although previous Gallup research on adult populations worldwide has found very few such differences, there were some significant differences in this college student sample.

The most significant gender differences were in the themes of Achiever, Belief, Consistency, Developer, Discipline, Empathy, Harmony, Input, and Responsibility, where women scored higher than men, and in Ideation, where men scored significantly higher than women (see Table 6). Most of the racial differences were slight, but ethnic minorities scored higher than Caucasian students on the Significance, Harmony, and Analytical themes, while Caucasians scored higher than ethnic minority students on the Adaptability, Self-Assurance, and Strategic themes (see Table 7).

Appropriate Use of the Clifton StrengthsFinder

The CSF's intended purpose is for personal development and growth. Particularly within college student populations, its purpose is to provide a foundation for students' further development during the college years. When used as a springboard for discussion and as a tool for self-awareness, the psychometric properties of the instrument are more than adequate. The results of the national study completed with college students indicate that the psychometric properties of the CSF are sufficient to support the use of the instrument in initiating strengths development programs on college campuses.

Table 1. *Test-Retest Reliability Estimates of the CSF Themes*

CSF Theme	Test-Retest Reliability Estimate
Achiever	.78
Activator	.52
Adaptability	.69
Analytical	.76
Arranger	.63
Belief	.77
Command	.67
Communication	.75
Competition	.80
Connectedness	.75
Consistency	.53
Context	.65
Deliberative	.81
Developer	.79
Discipline	.84
Empathy	.74
Focus	.68
Futuristic	.69
Harmony	.62
Ideation	.65
Includer	.66
Individualization	.60
Input	.77
Intellection	.80
Learner	.78
Maximizer	.55
Positivity	.80
Relator	.65
Responsibility	.70
Restorative	.70
Self-Assurance	.65
Significance	.65
Strategic	.65
Woo	.78

Note. N=438.

Table 2. *Test-Retest Reliability Estimates for Females and Males.*

CSF Theme	Test-Retest Reliability Estimate	
	Females (N=228)	Males (N=180)
Achiever	.78	.78
Activator	.50	.58
Adaptability	.69	.70
Analytical	.76	.77
Arranger	.60	.67
Belief	.76	.77
Command	.66	.71
Communication	.72	.78
Competition	.80	.80
Connectedness	.68	.78
Consistency	.51	.50
Context	.61	.73
Deliberative	.84	.80
Developer	.75	.83
Discipline	.84	.86
Empathy	.72	.69
Focus	.70	.62
Futuristic	.72	.66
Harmony	.64	.65
Ideation	.67	.67
Includer	.66	.66
Individualization	.57	.62
Input	.78	.76
Intellection	.84	.75
Learner	.80	.80
Maximizer	.51	.61
Positivity	.80	.81
Relator	.64	.61
Responsibility	.66	.77
Restorative	.68	.79
Self-Assurance**	.58	.78
Significance	.65	.65
Strategic	.67	.69
Woo	.79	.81

** $p < .01$

Table 3. *Test-Retest Reliability Estimates of White and Ethnic Minority Students.*

CSF Theme	Test-Retest Reliability Estimate	
	Caucasian Students	Minority Students
Achiever	.75	.81
Activator	.52	.39
Adaptability	.68	.65
Analytical	.74	.81
Arranger	.61	.71
Belief	.79	.74
Command	.69	.59
Communication	.77	.66
Competition	.79	.73
Connectedness	.75	.75
Consistency	.51	.63
Context	.65	.64
Deliberative**	.85	.70
Developer	.78	.79
Discipline	.82	.90
Empathy	.75	.74
Focus	.69	.73
Futuristic	.70	.65
Harmony*	.57	.75
Ideation	.70	.53
Includer	.66	.66
Individualization	.60	.55
Input	.76	.71
Intellection**	.84	.63
Learner	.80	.76
Maximizer	.52	.55
Positivity	.78	.83
Relator	.68	.53
Responsibility	.69	.75
Restorative	.68	.72
Self-Assurance	.68	.52
Significance	.67	.52
Strategic	.70	.62
Woo	.76	.82

* $p < .05$. ** $p < .01$.

Table 4. *Items per Clifton StrengthsFinder Theme and Coefficient Alpha Reliability Estimates*

CSF Theme	Items per Theme	Coefficient Alpha Reliability Estimate
Achiever	6	.71
Activator	6	.42
Adaptability	8	.72
Analytical	9	.65
Arranger	9	.48
Belief	10	.57
Command	8	.64
Communication	8	.63
Competition	6	.67
Connectedness	8	.63
Consistency	7	.47
Context	4	.51
Deliberative	9	.75
Developer	10	.72
Discipline	13	.80
Empathy	8	.63
Focus	7	.62
Futuristic	9	.64
Harmony	5	.61
Ideation	4	.45
Includer	4	.61
Individualization	6	.56
Input	4	.51
Intellection	10	.67
Learner	8	.73
Maximizer	5	.56
Positivity	15	.78
Relator	5	.46
Responsibility	11	.61
Restorative	6	.73
Self-Assurance	8	.49
Significance	10	.55
Strategic	4	.51
Woo	6	.65

Note. N=438. The 256 scored items (of the 360 items administered) are represented in the table.

Table 5. Specified A Priori Hypotheses and Significant Results for the Relationship of CSF Themes to CPI-260 and 16PF Scale Scores.

CSF Theme	CPI scale	Correlation	16PF scale	Correlation
Achiever	Responsibility	.34***	Perfectionism	.47***
	Achievement via Conformance	.47***		
	Conceptual Fluency	.32***		
	Law Enforcement Orientation	.34***		
Activator	Dominance	.43***	Social Boldness	.41***
	Creative Temperament	.24***	Independence	.38***
	Sociability	.39***	Tension	n.s.
	Social Presence	.37***	Social Adjustment	.40***
	Independence	.31***		
Adaptability	Flexibility	.36***	Openness to Change	.18**
	Creative Temperament	.33***	Perfectionism (-)	-.44***
			Self-control (-)	-.48***
Analytical	Insightfulness	.18**		
Arranger	Dominance	.38***	Openness to Change	n.s.
	Independence	.33***		
Belief	Communality	.33***	Rule Consciousness	.42***
	Flexibility (-)	-.23***	Openness to Change (-)	n.s.
Command	Dominance	.29***	Social Boldness	.21**
	Capacity for Status	.27***	Independence	.38***
	Self-acceptance	.33***	Tough-Mindedness	-.28***
	Independence	.26***		
Communication	Dominance	.46***	Dominance	.30***
	Sociability	.44***	Social Boldness	.46***
	Self-Acceptance	.41***	Liveliness	.29***
			Extraversion	.47***

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			Social Expressivity	.50***
Competition	Dominance	.38***	Dominance	.25***
	Capacity for Status	.27***		
Connectedness			Tough-Mindedness (-)	-.39***
Consistency			Rule Consciousness	.26***
			Self-control	.31***
Context				
Deliberative	Self-Control	n.s.	Privateness	.42***
			Liveliness (-)	-.36***
Developer			Warmth	.38***
Discipline	Achievement via Conformance	.38***	Rule Consciousness	.33***
	Responsibility	.21***	Perfectionism	.65***
	Self-Control	.27***	Self-control	.58***
	Flexibility (-)	-.49***		
	Creative Temperament (-)	-.45***		
Empathy	Empathy	n.s.	Empathy	n.s.
	Sensitivity	.23***	Emotional Sensitivity	.29***
			Social Sensitivity	.38***
Focus	Achievement via Conformance	.33***	Perfectionism	.42***
Futuristic			Abstractedness	.20**
			Openness to Change	.15*
Harmony	Amicability	n.s.	Dominance (-)	-.12*
			Independence (-)	-.16*
Ideation	Tolerance	n.s.	Abstractedness	.40***
	Flexibility	.25***	Openness to Change	.44***
	Conceptual Fluency	.16*	Tough-mindedness (-)	-.40***
	Creative Temperament	.33***	Creative Potential	.32***
			Extraversion	.32***

Includer				
			Self-reliance (-)	-.25***
			Empathy	.32***
Individualization				
Input	Conceptual Fluency	.29***	Sensitivity	.40***
Intellection	Conceptual Fluency	.22***	Sensitivity	.38***
			Openness to Change	.32***
			Liveliness (-)	-.26***
			Abstractedness	.26***
Learner	Achievement via Conformance	.47***		
	Achievement via Independence	.29***		
	Conceptual Fluency	.38***		
Maximizer				
Positivity	Dominance	.35***	Warmth	.45***
	Sociability	.47***	Liveliness	.39***
	Social Presence	.30***	Extraversion	.54***
	Well-being	.25***	Social Expressivity	.48***
			Self-reliance (-)	-.32***
			Empathy	.53***
Relator	Sociability	.31***		
Responsibility	Responsibility	.42***	Rule Consciousness	.41***
	Achievement via Conformance	.41***	Perfectionism	.35***
	Good Impression	.33***	Self-control	.43***
Restorative				
Self-Assurance	Dominance	.43***	Self-Esteem	.31***
	Self-Acceptance	.42***	Emotional Adjustment	.25***
	Social Presence Independence	.33***	Apprehension (-)	-.20**
	Well-being	.22***	Social Control	.31***
Significance	Dominance	.29***		
	Capacity for Status	n.s.		
	Social Presence	n.s.		

Strategic			Openness to Change	.27***
			Creative Potential	.33***
Woo	Dominance	.46***	Warmth	.42***
	Capacity for Status	.43***	Liveliness	.44***
	Sociability	.49***	Social Boldness	.54***
	Social Presence	.38***	Extraversion	.62***
			Social Expressivity	.62***
			Social Adjustment	.53***
			Self-reliance (-)	-.34***
			Social Control	.48***
			Emotional Expressivity	.53***
			Emotional Sensitivity	.42***

Note. n.s. = not significant. * $p < .05$. ** $p < .01$. *** $p < .001$. N = 284.

Table 6. *Independent T-Test Analysis of Gender Differences in CSF Themes*

Theme	Female Mean Score N=239	Male Mean Score N=203	Sig Level
Achiever	.75	.56	.000
Activator	.53	.55	
Adaptability	.71	.78	
Analytical	.46	.43	
Arranger	.63	.57	.041
Belief	.74	.61	.000
Command	.44	.54	.007
Communication	.58	.55	
Competition	.43	.57	.002
Connectedness	.58	.55	
Consistency	.61	.44	.000
Context	.37	.40	
Deliberative	.49	.48	
Developer	.79	.61	.000
Discipline	.59	.40	.000
Empathy	.83	.59	.000
Focus	.68	.56	.001
Futuristic	.65	.58	
Harmony	.64	.45	.000
Ideation	.40	.58	.000
Includer	.58	.53	
Individualization	.56	.53	
Input	.78	.59	.000
Intellection	.64	.54	.008
Learner	.80	.62	.000
Maximizer	.53	.52	
Positivity	.74	.65	.013
Relator	.82	.74	.048
Responsibility	.78	.63	.000
Restorative	.71	.60	.016
Self-Assurance	.54	.52	
Significance	.49	.45	
Strategic	.57	.65	
Woo	.54	.49	

Table 7. *Independent T-Test Analysis of Racial Differences in CSF Theme Scores*

Theme	Caucasian Student Mean Score (N=333)	Ethnic Minority Student Mean Score (N=105)	Sig level
Achiever	.72	.75	
Activator	.55	.55	
Adaptability	.68	.54	.019
Analytical	.46	.59	.028
Arranger	.64	.66	
Belief	.70	.64	
Command	.46	.51	
Communication	.58	.54	
Competition	.53	.54	
Connectedness	.53	.57	
Consistency	.59	.60	
Context	.46	.37	
Deliberative	.50	.61	
Developer	.71	.73	
Discipline	.60	.60	
Empathy	.71	.74	
Focus	.67	.76	
Futuristic	.63	.66	
Harmony	.57	.72	.024
Ideation	.47	.43	
Includer	.60	.54	
Individualization	.54	.61	
Input	.70	.64	
Intellection	.64	.60	
Learner	.79	.82	
Maximizer	.54	.47	
Positivity	.67	.69	
Relator	.81	.83	
Responsibility	.74	.77	
Restorative	.65	.77	
Self-Assurance	.57	.45	.022
Significance	.45	.59	.009
Strategic	.62	.48	.035
Woo	.47	.49	

References

- American Educational Research Association, American Psychological Association, National Council on Measurement in Education (AERA/APA/NCME). (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.
- Cantwell, L. D. (2005). *A comparative analysis of strengths-based versus traditional teaching methods in a freshman public speaking course: Impacts on student learning and academic engagement*. Unpublished dissertation, Azusa Pacific University, Azusa, CA.
- Cattell, R. B. (1993). *The 16PF fifth edition*. Champagne, IL: Institute for Personality and Ability Testing, Inc.
- Clifton, D. O., Anderson, E. C., & Schreiner, L. A. (2006). *StrengthsQuest: Discover and develop your strengths in academics, career, and beyond, 2nd edition*. Washington, DC: The Gallup Organization.
- Clifton, D. O., & Harter, J. K. (2003). Strengths investment. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship* (pp. 111-121). San Francisco: Berrett-Koehler.
- Gough, H., & Bradley, P. (1996). *CPITM manual (3rd edition)*. Palo Alto, CA: CPP, Inc.
- Harter, J. K., & Hodges, T. D. (2003). *Construct validity study: StrengthsFinder and the five factor model* [technical report]. Omaha, NE: The Gallup Organization.
- Hodges, T., & Clifton, D. O. (2004). Strengths-based development in practice. In A. Linley & S. Joseph (Eds.), *Handbook of positive psychology in practice*. Hoboken, NJ: John Wiley & Sons.
- Holland, J. L. (1973). *Making vocational choices: A theory of careers*. Englewood Cliffs, NJ: Prentice Hall.
- Lopez, S. J., Hodges, T., & Harter, J. (2005). Clifton StrengthsFinder *technical report: Development and validation*. Princeton, NJ: The Gallup Organization.
- Pittenger, D. J. (2005). Cautionary comments regarding the Myers-Briggs Type Indicator. *Consulting Psychology Journal: Practice and Research*, 57(3), 210-221.
- Schmidt, F. L., & Rader, M. (1999). Exploring the boundary conditions for interview validity: Meta-analytical validity findings for a new interview type. *Personnel Psychology*, 52, 445-464.

- Schreiner, L. (2004). [Results of a strengths-based approach to the first-year seminar at Azusa Pacific University.] Unpublished raw data.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*(1), 5-14.
- Sireci, S. G. (2001). Standard setting using cluster analysis. In C. J. Cizek (Ed.), *Standard setting: Concepts, methods, and perspectives* (pp. 339-354). Mahwah, NJ: Lawrence Erlbaum.