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AchieveWorks™
Intelligences

Statistical Analysis

Background Information

Introduction

AchieveWorks® Intelligences is a multiple intelligence self-assessment and report for students to identify their intelligence profile and receive a personalized report that helps them use their strengths, work with their challenge areas, and be more successful in school.

Traditional schools often focus on linguistic and mathematical intelligence through content delivery and in measurement of student ability. This causes students with talents in other areas to struggle through school. The application of multiple intelligences theory in the learning environment allows students with a wide variety of talents to develop and thrive. Using *AchieveWorks Intelligences* can be extremely helpful in the application of multiple intelligences theory.

Assessment

The *AchieveWorks Intelligences* assessment is comprised of 54 survey-style questions. Each question offers seven possible responses, ranging from never (1) to always (7) and assigned a point value accordingly. Six questions correspond to each intelligence, meaning that each intelligence can receive a raw score from six to 42.

Sample Descriptives

- Total number of assessments administered: 2,286
- 1,029 (45%) male
- 1,257 (55%) female

Distribution and Normalization

Intelligence	Number of Questions	Question Value	Total Raw Score	Low Rank	Mid-Range Rank	High Rank
Bodily-Kinesthetic	6	1-7	6-42	6-22	23-33	34-42
Interpersonal	6	1-7	6-42	6-27	28-35	36-42
Intrapersonal	6	1-7	6-42	6-28	29-35	36-42
Linguistic	6	1-7	6-42	6-25	26-33	34-42
Logical-Mathematical	6	1-7	6-42	6-23	24-33	34-42
Musical	6	1-7	6-42	6-21	22-33	34-42
Naturalist	6	1-7	6-42	6-21	22-29	30-42
Spatial	6	1-7	6-42	6-24	25-31	32-42

The rank scores in the table above were determined based on the normalization of data collected from a test group of 830 individuals. Aggregated results from the test groups were used to determine cutoffs at the 25th and 75th percentiles. Low rank is at or below the 25th percentile. Mid-range is between the 75th percentile and 25th percentile. High rank is above the 75th percentile.
Note: Within the application, students and counselors see the terms "strengths" for high rank intelligences and "challenges" for low rank intelligences.

Reliability and Validity Testing

Intelligence	Internal consistency (Chronbach's alpha)	Standard Error of Measurement
Bodily-Kinesthetic	.81	1.98
Existential	.73	2.19
Interpersonal	.74	1.75
Intrapersonal	.79	1.61
Linguistic	.76	1.97
Logical-Mathematical	.80	2.04
Musical	.84	2.19
Naturalist	.69	2.35
Spatial	.67	2.14

Covariance

The covariance of each intelligence as measured by *AchieveWorks Intelligences* is shown below. Some intelligence pairs had relatively high covariance for separate constructs. However, the fact that all pairs had some level of positive covariance, the majority of the covariance are between 0.2 to 0.4, and the specific pairs which show highest covariance are all consistent with multiple intelligences theory. The values support the theory of nine intelligences as separate constructs.

Intelligence pairs that showed covariance above 0.45 are:

- Bodily-Kinesthetic and Spatial: 0.502

- Spatial and Logical-Mathematical: 0.492

- Interpersonal and Intrapersonal: 0.561

- Interpersonal and Existential: 0.488

- Naturalist and Existential: 0.453

Covariance Matrix

	Bodily-Kinesthetic	Spatial	Linguistic	Logical-Mathematical	Musical	Interpersonal	Intrapersonal	Naturalist	Existential
Bodily-Kinesthetic	1	0.502	0.228	0.356	0.286	0.396	0.362	0.269	0.291
Spatial		1	0.340	0.492	0.351	0.386	0.347	0.419	0.359
Linguistic			1	0.201	0.304	0.411	0.401	0.321	0.448
Logical-Mathematical				1	0.177	0.176	0.226	0.202	0.181
Musical					1	0.321	0.149	0.219	0.262
Interpersonal						1	0.561	0.257	0.488
Intrapersonal							1	0.259	0.433
Naturalist								1	0.453
Existential									1

Validity

We've used a few different instruments for comparison:

- **The Wonderlic Personnel Test (WPT)** – a measure of global intelligence

- **The General Aptitude Test Battery (GATB)**

- **The Bar-On EQi** – for measures of emotional intelligence. This is a self-report and is more in line with AchieveWorks Intelligences. The correlations below for Bar-On with AchieveWorks Intelligences are from the paper version of AchieveWorks Intelligences.

Correlations

AchieveWorks Intelligences	Comparison Instrument	r
Linguistic	GATB Verbal	.55
Logical-Mathematical	GATB Numeric	.43
Linguistic + Logical-Mathematical	WPT	.55
Linguistic + Logical-Mathematical	GATB – general apt.	.51
Interpersonal	Bar-On EQi total	.52
Interpersonal	Bar-On Interpersonal	.67
Intrapersonal	Bar-On EQi total	.52
Intrapersonal	Bar-On Intrapersonal	.50
Interpersonal + Intrapersonal	Bar-On EQi total	.59