

Limestone Technologies Inc.

Visual Sexual Preference Assessment

Statistics Template

Validity

An essential element of a psychological test construction is the extent to which the test measures what it is designed to measure. This element is referred to as test validity. It has been argued that all test validity can be reduced to construct validity (Rogers, 1995). That is, at the heart of validity is the claim that the object of the measurement is real and exists. Yards or meters may be arbitrary methods, but length exists. Test validity is especially important when one is using tests for clinical purposes and should reflect the overall quality of the test. Consequently, to ascertain the validity of a test one has to compare the instrument in question against relevant criteria, thereby formulating reasonable judgments on the relative merits of the test.

There are several ways to examine a test for validity. Most researchers examine construct validity by conducting one or more of the following procedures:

1. Compare the test in question against similar measures (convergent validity).
2. Compare the test in question against dissimilar measures (discriminant validity).
3. Examine the test to see if it identifies known group (convergent or diagnostic validity).
4. Examine the test to see if it forecasts future behavior or functioning (predictive validity).

Convergent Validity

In convergent validity, test makers examine the degree to which a test corresponds to (converges on) other tests to which it, theoretically, should be similar. For instance, to show that the **LIMESTONE VSP** test correlates with the Abel Assessment for Sexual Interest (AASI2) would be evidence for convergent validity. In order to determine whether the **LIMESTONE VSP** was correlated with the AASI2, a Pearson Product Moment correlation coefficient was performed. Results indicated moderate to high correlations for the Abel scales and the **LIMESTONE VSP**. This result would suggest that the **LIMESTONE VSP** has convergent validity.

Convergent Validity Studies of Age Categories for Viewing Time

The **LIMESTONE VSP** and AASI2 have essentially the same age categories for the viewing time portions of their test. The categories are divided by race with Caucasian and African American models. The race categories are further divided by gender, male and female. The gender categories are further divided by age groups. There is one significant difference between age groups regarding the Limestone VSP and AASI2. That difference is that the AASI2 categorizes males and females as 6 to 13 years of age while the Limestone VSP utilizes 6 to 10 year olds and 11 to 13 year olds to address ephebophilic interests.

Participant Size = 40 (Each Participant took the LimestoneVSP and the Abel Assessment for Sexual Interest Version II on the same date. Each Participant was randomly given the VSP or AASI2). Since the VSP does not address the 14 to 17 year old category, the AASI2 data was processed two different ways. The first method was to take the greater z-score between the 14 to 17 year old and

Adult categories for both the male and female categories. The second method was to average the two z-scores between the 14 to 17 year old and adult groups in both male and female groups.

Method 1: .59 Method 2: .64

The convergent validity studies demonstrated that the **LIMESTONE VSP** and the AASI2 are moderately correlated with widely accepted standards of validity.

Convergent Validity Studies of the Paraphilia Scales

A sample of 60 adjudicated sex offenders underwent assessment with the **LIMESTONE VSP**, the Abel Screen, the MMPI-2 Hypochondriasis Scale, and the Static 99 instrument. In order to determine whether or not the **LIMESTONE VSP** was valid, several two-tailed Pearson Product Moment Correlations were performed. Descriptive statistics for these indicators are found in Table 1. Correlation coefficients are found in Table 2.

Table 1
Descriptive Statistics for Validity Study

<u>Variable</u>	<u>Mean</u>	<u>SD</u>	<u>N</u>
MMPI-2 Hypochondriasis Score (Hs)	52.98	11.65	60
LIMESTONE VSP Awareness Quotient (AQ)	0.24	0.29	60
Offender Endorsed Pedophile	0.37	0.49	60
Clinician Endorsed Pedophile (CEP)	0.45	0.5	60
Static 99	1.52	1.38	60
Abel Endorsed Deviant Behavior (ADB)	1.03	1.39	60
Abel Endorsed Deviant Fantasies (ADF)	0.72	1.03	60
VSP Endorsed Deviant Behavior (VSPEn)	1.37	1.69	60
LIMESTONE VSP Endorsed Deviant Fantasies (VSPF)	1.05	1.21	60

Table 2
Validity Correlation Coefficient Matrix (N=60)

<u>Criteria Variables</u>	<u>VSP Variables</u>		
	<u>AQ</u>	<u>VSPDB</u>	<u>VSPF</u>
MMPI-2 Hs	0.19	-0.07	0.22
Clinician Endorsed Pedophile	-0.24	-.26*	-.26*
Offender Endorsed Pedophile	.33**	.35**	0.2
Abel Endorsed Deviant Behavior	.37**	.88**	.34**
Abel Endorsed Deviant Fantasies	.52**	.42**	.73**
Static 99	0.22	.27**	0.09

*p< .05; **p<.01

VSP & MMPI-2 Statistical Comparison

The Minnesota Multiphasic Personality Inventory-2 (MMPI-2) is one of the most widely utilized and respected psychological tests. A comparison of **LIMESTONE VSP** Paraphilia Scales and MMPI-2 Basic Scales Internal Consistency Estimates (Cronbach Coefficient Alpha) is provided to demonstrate the relative Alpha Coefficients between the two tests. *The LIMESTONE VSP has greater alpha scores in comparison to the clinical scales of the*

MMPI-2. In simple language, this means that the **LIMESTONE VSP** is as internally consistent as the MMPI-2 scales. This means that individuals/clients/people are likely to respond as consistently to the **LIMESTONE VSP** as they would with the scales in the MMPI-2.

Comparison of LIMESTONE VSP Age Category Scales & MMPI-2 Basic Scales
Internal Consistency Estimates (Cronbach Coefficient Alpha)

MMPI-2 (N=1090)		(N=112)	
<u>Scale</u>	<u>Alpha</u>	<u>Scale</u>	<u>Alpha</u>
L	.62	CM 0-2	.85
F	.64	CM 3-5	.74
K	.73	CM 6-10	.94
Hs	.76	CF 6-10	.94
D	.58	CF 0-2	.94
Hy	.58	CF 3-5	.74
Pd	.59	CM 11-13	.90
Mf	.58	CF 11-13	.89
Pa	.33	CM Adult	.92
Pt	.84	F Adult	.74
Sc	.84		
Ma	.58		
Si	.82		
Mean Alpha:	.65		.86

Nonconvergent or Discriminant Validity

It is important to discriminate a test from other irrelevant variables. In nonconvergent or discriminant validity, a test is examined to determine the degree to which it diverges from other measures to which it, theoretically, should be dissimilar. For instance, to show the discriminant validity of the **LIMESTONE VSP** test we might gather evidence that shows that the test is not similar to other tests that do not claim to be tests of sexual interest (for example the MMPI-2 Hypochondriasis Scale Score). In this case, low coefficient scores would indicate discriminant validity.

A nonconvergent validity study was performed between the **LIMESTONE VSP** and the Hypochondriasis Scale (Hs) of the MMPI-2. Subjects (N=60) completed the **LIMESTONE VSP** and the MMPI-2 on the same date. Tracking which instrument was completed first was not done. The Hs Scale of the MMPI-2 was developed from a group of patients that showed an excessive amount of concern and preoccupation about their health (Hathaway & McKinley, 1989). The Hs t-score values of each subject were compared with their **LIMESTONE VSP** Adult Female stimulus category. Inspection of Table 2 reveals low to almost no correlation between the Hypochondriasis measure and the **LIMESTONE VSP** Adult Female scores (*-.07 to .22*) providing support for discriminant validity.

Criterion-Related Validity

In criteria-related validity, one tests the performance of a measurement against some standard of comparison. Usually, in criterion-related validity, predictions are made about how the measurement will perform based on some theoretical construct. The difference among the different criterion-related validity types is in the criteria they use as the standard for judgment. There are two types of criteria-related validity: predictive and concurrent.

Predictive Validity

In predictive validity, we assess the measurement's capacity to forecast some variable it should theoretically be able to predict. For instance, taking the LIMESTONE VSP versus the Static 99 score (Hanson & Thornton, 1999), a high correlation would indicate similar predictive capabilities of offender relapse. *In actuality, only one VSP score was significantly related to the Static 99 (BSF Endorsed Deviant Behavior; $r=.27$; $p=.035$). One possible explanation for the low predictive correlations has to do with the nature of disclosing deviant fantasies and behavior and predicting relapse.* These variables may not be related in a linear manner. Future research will explore this possibility further.

Concurrent Validity

In concurrent validity, we assess the measurement's capacity to diagnose individuals or differentiate between groups that it should theoretically be able to distinguish between. For example, if we had a known group of adjudicated child molesters and the LIMESTONE VSP test demonstrated these same people to be interested in pedophilic stimuli, then we would have evidence for concurrent validity. As in any discriminating test, the results are more powerful if you are able to show that you can discriminate between two groups that are very similar (for example, show that persons with symptoms of pedophilia male exclusive are different from those persons with sexual crimes against adult females. *The high correlations between the Limestone VSP (BFS) deviant endorsements and the Abel client endorsements (r 's $.73$ to $.88$) suggest good concurrent validity.*

Statistics

<u>Age-Race-Gender</u>	<u># Items</u>	<u>Alpha</u>
AAM 0-2	5	.83
AAM 3-5	5	.79
AAF 0-2	5	.88
AAF	5	.78
AAM 6-10	5	.91
AAF 6-10	5	.89
AAM 11-13	5	.87
AAF 11-13	5	.92
AAM Adult	5	.82
AAF Adult	5	.80
CM 0-2	5	.85
CM 3-5	5	.94
CF 0-2	5	.94
CF 3-5	5	.74
CM 6-10	5	.94
CF 6-10	5	.94

CM 11-13	5	.90
CF 11-13	5	.89
CM Adult	5	.92
CF Adult	5	.80
Overall Average Crobach Alpha	100	.85