

# ***Critical Thinking: Concurrent Validity***

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## **Perspective**

In America in the last decade there has been an explosion of interest in the venerable construct of critical thinking. Critical thinking had been in repose for years until about 1983, but is now a juggernaut. Sternberg (1985) addressed the force behind this critical thinking juggernaut:

“Probably never before in the history of educational practice has there been a greater push to teach children to think critically.”

A main plank in the rationale for enhancing critical thinking of children in general is the finding that 80% of third graders, more than half of seventh graders, and 36% of eleventh graders scored minimally or inadequately when reading critically on the National Assessment of Educational Progress (Vobejda, 1988, February 26). More specifically, less than 1% of third graders, 8% of seventh graders, and 23% of eleventh graders of 36,000 public and private school students performed at the highest level on reading performance.

Essential to the enhancement of children’s critical thinking is a valid criterion of critical thinking so that the efficacy of critical thinking pedagogies and programs, not to mention children, can be determined. Consequently it is important to examine the relationships between and among the central criteria of critical thinking.

## **Purpose**

Essential evidence of the validity of instruments and of other criteria of an underlying construct is how strongly the various criteria interrelate. The purpose of this paper is to present a comprehensive compilation of the correlations between and among the concurrent criteria of the construct of critical thinking in order to articulate the nomothetic network of the relationships constituting the concurrent validity of the measures of critical thinking.

Since the construct of critical reading is both deductively deemed and also empirically evidenced to be related to the construct of critical thinking, it may properly be considered as part of the critical thinking validity nomothetic network and therefore the correlations between critical reading and critical thinking are also included.

### Empirical Evidence

The following table contains the zero order correlations between and among the criterial criteria, mostly tests, of critical thinking. [See Follman (1994, November 11) for the critical thinking nomothetic network correlation (700+) knowledge base.]

#### CRITICAL THINKING CONCURRENT VALIDITY CORRELATIONS

VARIABLES (MOSTLY TESTS)	r	REFERENCES
<b>Critical Thinking (CT) with Critical Thinking (CT)</b>		
Watson Glaser CTA & tchrs.' rats. of pupils' CT	.52, .48, .33, .40	Glaser (1941)
A.C.E. Test of CT Form G & CT in Social Science	.65	CT Form G Man. (1951)
Wrightstone Test of CT-Soc. Stud. & G 6 pup.ints.	.89, .84, .87	Cotter (1951)
W-G & X tchrs.' rats. G 12, Eng. 33 to 52, mdn.	.44	Watson & Glaser (1952)
A.C.E. CT Form G & rats. of CT, 42 to 66, mdn.	.50	Dressel & Mayhew (1954)
A.C.E. Test of CT Form G & Pract. Log., freshmen	.59	Dressel & Mayhew (1954)
A.C.E. Test of CT Form G & Sci. Reas. fresh. wmn.	.39	Dressel & Mayhew (1954)
A.C.E. Form G & Crit. Anal. Read./Writ. fresh. wmn.	.50	Dressel & Mayhew (1954)
A.C.E. Form G & Crit. Anal. Read./Writ. fresh. wmn.	.53	Dressel & Mayhew (1954)
A.C.E. Form G & Crit. Anal. Read./Writ. fresh. wmn.	.51	Dressel & Mayhew (1954)
A.C.E. Form G & Crit. Anal. Read./Writ. fresh. wmn.	.32	Dressel & Mayhew (1954)
A.C.E. Form G & CT in Soc. Sci. freshmen women	.69	Dressel & Mayhew (1954)
A.C.E. Test of CT Form G & CT in Soc. Sci., fresh.	.66	Dressel & Mayhew (1954)
A.C.E. Test of CT Form G & CT in Soc. Sci., fresh.	.67	Dressel & Mayhew (1954)
A.C.E. Test Form G & Crit. Judg. in Lit., G 13, 14	.38	Dressel & Mayhew (1954)
A.C.E. Test of CT Form G & W-G CTA, fresh. wmn.	.61	Dressel & Mayhew (1954)
A.C.E. Test of CT Form G & W-G CTA, freshmen	.53	Dressel & Mayhew (1954)
CT in chem., sec., 33-61, mdn. 45 (corr. 46-87 mdn.	.64)	Max (1954)
Crit. thinking test & tchr. CT rankings, G 4,5,6	unrelated	George & Dietz (1968)
A.C.E. Test of CT Form G & W-G Form ZM	.44	Follman (1970) A.C.E.
Test of CT Form G & Cornell CT Form Z	.44	Follman (1970)
Curry Test of CT & Tchrs.' CT evaluations, G 9-12	.61	Curry (1971)
Watson Glaser CT Form ZM & Cornell CT Form Z	.48	Ennis & Millman (1971)
Uncritical Inference Test & W-G CTA	.25	Stewart (1979)
Reflective Judgment Inv. & Cornell CT, G 13-17	.62	Mines (1980)
Reflective Judgment Inv. & W-G CTA A, G 13-17	.61	Mines (1980)
W-G CTA Form A & Cornell Crit. Think., G 12-16	.79	Brabeck (1983)
Reflective Judg. Intrvw. & W-G CTA Form A, G 12-16	.40	Brabeck (1983)
Appr. Obs. Think. & Perf. A .59, B .77, Whole, sec.	.68	Norris & King (1984)
Test on Appraising Observations & Cornell CT, sec.	.62, .49, .45, .35	Norris (1989)
Test on Appraising Observations & W-G CTA, sec.	.37, .11, .37, .41	Norris (1989)
W-G CTA & Cornell Crit. Think. Form Z, college	.71	Mines et al. (1990)
Test on Appraising Obs. A & Cornell CT Level X	.48	Norris (1990)
Test on Appraising Obs. A & W-G CTA Form A	.31	Norris (1990)
Test on Appraising Obs. A & verbal reports, conc.	.50	Norris (1990)
Test on Appraising Obs. A & verbal reports, subs.	.31	Norris (1990)

<i>VARIABLES (MOSTLY TESTS)</i>	<i>r</i>	<i>REFERENCES</i>
Test on Apprais. Obs. A & verb. rep., conc. & subs.	.49	Norris (1990)
Test of Crit. Think. in Biology & W-G CTA, college	.64	McMurray et al. (1991)
Test of Crit. Think. in Biology & ACT Nat. Sci., coll.	.68	McMurray et al. (1991)
W-G CTA & ACT Natural Science, college	.78	McMurray et al. (1991)
Test on Appraising Obs. & Cornell CT, secondary	.62, .48	Norris (1992)
Test on Appraising Obs. & W-G CTA, secondary	.31, .35	Norris (1992)
Cornell CT Level subtests & Developing Cognitive Abilities Test subtests, college	all low	Farley & Elmore (1992)
Collegiate Assess. of Acad. Prof., & W-G CTA, coll.	.75	Pascarella et al. (1994)
<b>Critical Thinking (CT) with Critical Reading (CR)</b>		
W-G CTA & Martin Reading Comp., initial, G 12	.77	Glaser (1941) W-G CTA &
Mart. Read. Comp., retest (interv.) G 12	.82	Glaser (1941) W-G CTA
Inference & Martin Reading Comp. total	.75	Glaser (1941) W-G CTA
Eval. of Arg. & Mart. Read. Comp. total	.77	Glaser (1941)
W-G CTA Generaliz. & Martin Reading Comp. total	.42	Glaser (1941)
W-G CTA Discr. of Argus. & Mart. Read. Comp. tot.	.49	Glaser (1941)
W-G CTA Gen. Log. Reas. & Mart. Read. Comp. tot.	.71	Glaser (1941)
Martin Read. Comp. & A.C.E. Psych. Exam IQ, G 12	.79	Glaser (1941)
Crit. think. subtests & critical reading subtests	.84	Johnson et al. (1971)
A.C.E. CT Form G & Martin Reading Comp., G 12	.63	Follman et al. (1971)
Cornell Critical Thinking Form X (CT), G 5		Follman et al. (1972)
Intermediate Reading Test-Science (CR-SCI)		Follman et al. (1972)
Intermed. Read. Test-Social Science (CR-SS)		Follman et al. (1972)
CT:CR-SS	.61	Follman et al. (1972)
CT:CR-SCI	.55	Follman et al. (1972)
CR-SS:CR-SCI	.70	Follman et al. (1972)
Maw CT & STEP Read. A and B Crit. Read., G 6	.51	Sullivan (1973)
Maw CT & STEP Read. A and B Crit. Read., G 8	.59	Sullivan (1973)
Cal. CT Skills Test & Nelson-Denny Reading Test	.49	Facione (1990)

Keep in mind that most of these correlations are uncorrected for unreliability, but if corrected, would be higher, in most cases, materially higher. Overview of Table I indicates a substantial amount of concurrent validity research but its results are mixed. The correlations are mostly moderate to strong, as noted, and would be even stronger if corrected. Another reason why these correlations are not higher is the criterion problem. Put succinctly the criterion problem is that the criteria of a construct have less psychometric integrity than its predictor tests. This has probably inhibited progress in the measurement of critical thinking. The correlations also reflect the tendency of a wide variety of researchers, with a wide variety of purposes, to perceive a wide variety of variables as representing part of or even all of the construct of critical thinking. Finally, the correlations between the critical thinking tests and the critical reading tests, ranging from .42 to .84 with a median of .71, are impressively high, even without correction, ironically considerably higher than the correlations between the critical thinking tests and the other critical thinking tests.

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