

Eysenck's BIG THREE and Communication Traits: Three Correlational Studies

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Over the past decade, communication scholars have increasingly considered biological contributions to the ways in which we communicate. One approach to exploring the links between biology and communication involves analysis of relationships between communication variables and variables containing strong biological underpinnings. The present study was designed to provide an examination of the relationship between Eysenck's personality dimensions and communication variables. This essay reports the results of three separate studies that encompass more than a dozen communication variables. The results seem to indicate that non-neurotic extraverts are not shy or apprehensive about touch, tend to perceive themselves as more competent, view themselves as assertive and responsive, and express greater degrees of self-acceptance. Neurotic introverts report apprehension about communication, perceive themselves as less immediate, rate themselves as having a lower affect orientation, and somewhat higher levels of verbal aggressiveness. Neurotic participants report less self-acceptance. Neurotic non-psychotics report a greater degree of affect orientation, more apprehension about communication, and lower verbal aggression. Neurotic psychotic extraverts tend to be compulsive communicators and report greater tolerance for disagreement. Psychotics are non-responsive, and tend to report higher levels of verbal aggressiveness, argumentativeness and assertiveness. Finally, psychotic non-neurotics tend to have a greater tolerance for disagreement and are less likely to identify themselves as compulsive communicators. Possible directions for future research are suggested.

Over the past decade, communication scholars have increasingly considered biological contributions to the ways in which we communicate (Beatty, McCroskey, & Valencic, 2001; Cappella, 1991, 1993; Horvath, 1995; Knapp, Miller, & Fudge, 1994). One approach to exploring the links between biology and communication involves analysis of relationship between communication variables and variables containing strong biological underpinnings (Beatty et al., 2001). Eysenck's (1947, 1990) BIG THREE personality structure (extraversion, neuroticism, and psychoticism) has been widely, albeit not universally, adopted as a theoretical framework for such studies. This is principally due to the correspondence between the three dimensions of personality derived through higher order factor analysis and Gray's (1991) tripartite organization of neurobiological systems. The precise linkages between Gray's neurobiological systems and Eysenck's personality factors have been discussed in detail elsewhere (Beatty et al., 2001). Some research has already shown strong associations between Eysenck's BIG THREE and communication variables (Beatty, McCroskey, & Heisel, 1998; Valencic, Beatty, Rudd, Dobos, & Heisel, 1998; Weaver, 1998). The present study was designed to provide a more comprehensive examination of the relationship between Eysenck's personality dimensions and communication variables. Specifically, this essay reports the results of three separate studies that encompassed over a dozen communication variables.

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Study 1

Sample and Trait Measures

Study 1 sampled 216 college students enrolled in basic communication courses at a large Mid-Atlantic University. Participants received a self-report inventory that included the short-form temperament measures of extraversion (Eysenck & Eysenck, 1985), neuroticism (Eysenck & Eysenck, 1985), and psychoticism (Eysenck, Eysenck, & Barrett, 1985) along with indices of communication traits including argumentativeness (Infante & Rancer, 1982), assertiveness-responsiveness (Richmond & McCroskey, 1990), self-acceptance (Berger, 1952), and shyness (McCroskey & Richmond, 1982). Descriptive and univariate analyses were conducted on each of the measures.¹

Results

Pearson correlation coefficients were calculated for each communication trait and corresponding temperament scores. Significant attenuated correlations range from $-.67$ to $.14$ while disattenuated correlations were as high as $-.77$. Each of the three temperament scores were related to the communication traits investigated. Extraversion was significantly related to each of the communication traits with the strongest associations with shyness ($r = -.67, p < .01$) and assertiveness ($r = .43, p < .01$). Neuroticism was significantly related with three of the five communication traits to the strongest association ($r = -.58, p < .01$) with self-acceptance. Finally, Psychoticism was significantly related to three of the five communication traits with the strongest associations with responsiveness ($r = -.35, p < .01$) and argumentativeness ($r = .28, p < .01$). A complete listing of attenuated and disattenuated correlations appears in Table 1.

TABLE 1
CORRELATIONS AMONG EYSENCK'S BIG THREE AND COMMUNICATION-RELATED TRAITS FOR STUDY 1

Communication Traits	Extraversion		Neuroticism		Psychoticism	
	<i>r</i>	(<i>n</i>)	<i>r</i>	(<i>n</i>)	<i>r</i>	(<i>n</i>)
Argumentativeness	.16*	(.19)	-.10	-	.28**	(.36)
Assertiveness	.43**	(.52)	-.18**	(-.21)	.14*	(.18)
Responsiveness	.26**	(.30)	-.10	-	-.35**	(-.40)
Self-acceptance	.17*	(.20)	-.58**	(-.66)	-.04	-
Shyness	-.67**	(-.77)	.24**	(.27)	-.08	-

Note: Disattenuated correlations are reported in parantheses.

*Indicates correlation is significant ($p < .05$).

**Indicates correlation is significant ($p < .01$). Nonsignificant correlations are not corrected for attenuation.

Canonical correlation yielded three significant roots (see Table 2). The first root ($Cr_1 = .73, F = 24.09, p < .01$) indicated that the temperament set, principally defined by extraversion (.95) and neuroticism ($-.51$) was significantly associated with the communication trait set, which was mostly defined by shyness ($-.88$), assertiveness (.55), responsiveness ($-.46$), and self-acceptance (.40). These results suggest that stable extraverts tend to be nonshy, assertive, responsive, and accepting of self.

The temperament set in root 2 ($Cr_2 = .54, F = 16.61, p < .01$) was dominated by neuroticism (.86) and the communication trait set was defined primarily by self-

TABLE 2
CANONICAL CORRELATION ANALYSIS FOR STUDY 1

Set	Variables	Canonical Variables		
		V1	V2	V3
Temperament	Extraversion	.95	.23	.23
	Neuroticism	-.51	.86	-.07
	Psychoticism	-.04	.08	.99
Communication	Argumentativeness	.15	-.05	.69
	Assertiveness	.55	.09	.37
	Responsiveness	.46	.11	-.81
	Self-acceptance	.40	-.91	.03
	Shyness	-.88	-.22	-.24
Adjusted canonical correlations		.73	.54	.42
<i>F</i> values		24.09	16.61	14.68
<i>p</i> <		.01	.01	.01

acceptance (-.91). Root 3 ($Cr_3 = .42$, $F = 14.68$, $p < .01$) indicated that psychoticism dominated the temperament set and the communication trait set was defined by responsiveness (-.81), argumentativeness (.69), and to a lesser extent assertive (-.37).

Study 2

Sample and Trait Measures

The sample consisted of 219 college students enrolled in basic communication courses at a large Mid-Atlantic University. Participants received a self-report inventory that included the short-form temperament measures of extraversion (Eysenck & Eysenck, 1985), neuroticism (Eysenck & Eysenck, 1985), and psychoticism (Eysenck, Eysenck, & Barrett, 1985) along with indices of communication traits including affect orientation (Booth-Butterfield & Booth-Butterfield, 1990), communication apprehension (McCroskey, 1982), self-perceived immediacy (Richmond & McCroskey, 2000), other-perceived immediacy (McCroskey, Richmond, Sallinen, Fayer, & Barraclough, 1995) and verbal aggressiveness (Infante & Wigley, 1986). Univariate and descriptive analyses were conducted on each of the measures (see Footnote 1).

Results

Pearson correlation coefficients were calculated for each communication trait and corresponding temperament scores. Significant attenuated correlations range from -.47 to -.19 while disattenuated correlations were as high as -.54. In this study, temperament scores were related to all of the communication traits investigated except other-perceived immediacy. Extraversion was significantly related with affect orientation ($r = .29$, $p < .01$), communication apprehension ($r = -.47$, $p < .01$), and self-perceived immediacy ($r = .43$, $p < .01$). Neuroticism was significantly correlated with communication apprehension ($r = .39$, $p < .01$) and self-perceived immediacy ($r = -.19$, $p < .01$). Finally, psychoticism was significantly related to only verbal aggression ($r = .41$, $p < .01$). A complete listing of attenuated and disattenuated correlations is reported in Table 3.

The results of canonical correlation produced three significant roots (see Table 4). The first root ($Cr_1 = .58$, $F = 12.27$, $p < .01$) indicated the temperament set comprised of extraversion (-.93) and neuroticism (.58) was significantly associated

TABLE 3
CORRELATIONS AMONG EYSENCK'S BIG THREE AND COMMUNICATION-RELATED TRAITS FOR STUDY 2

Communication Traits	Extraversion		Neuroticism		Psychoticism	
	<i>r</i>	(<i>r</i>)	<i>r</i>	(<i>r</i>)	<i>r</i>	(<i>r</i>)
Affect orientation	.29**	(.34)	.10	—	-.05	—
Communication apprehension	-.47**	(-.54)	.39**	(.46)	-.01	—
Self-perceived immediacy	.43**	(.52)	-.19**	(-.23)	-.07	—
Other-perceived immediacy	.08	—	-.08	—	.03	—
Verbal aggression	-.13	—	.11	—	.41**	(.55)

Note: Disattenuated correlations are reported in parentheses.

*Indicates correlation is significant ($p < .05$).

**Indicates correlation is significant ($p < .01$). Nonsignificant correlations are not corrected for attenuation.

with the communication trait set primarily defined by communication apprehension (.88) and self-perceived immediacy (-.73). These results suggest that nonstable introverts tend to be more apprehensive about communication and perceive themselves to be less immediate.

The temperament set in root 2 ($Cr_2 = .42$, $F = 9.10$, $p < .01$) dominated by psychoticism (.92) was significantly associated with the communication trait set defined mostly by verbal aggressiveness (.81). The third canonical root ($Cr_3 = .31$, $F = 7.56$, $p < .01$) indicated that the temperament set defined mostly by neuroticism (.78) was significantly associated with the communication set defined primarily by affect orientation (.86) and to a lesser extent, communication apprehension (.40).

TABLE 4
CANONICAL CORRELATION ANALYSIS FOR STUDY 2

Set	Variables	Canonical Variables		
		V1	V2	V3
Temperament	Extraversion	-.93	.24	.27
	Neuroticism	.58	.24	.78
	Psychoticism	.22	.92	-.31
Communication	Affect orientation	-.36	.20	.86
	Communication apprehension	.88	-.16	.40
	Self-perceived immediacy	-.73	.12	.22
	Other-perceived immediacy	-.18	-.25	.03
Adjusted canonical correlations	Verbal aggressiveness	.33	.81	-.36
		.58	.42	.31
<i>F</i> values		12.27	9.10	7.56
$p <$.01	.01	.01

Study 3

Sample and Trait Measures

A sample of 205 college students enrolled in basic communication courses at a large Mid-Atlantic University was used in study 3. Participants received a self-report inventory that included the short-form temperament measures of extraversion (Eysenck & Eysenck, 1985), neuroticism (Eysenck & Eysenck, 1985), and psychoticism (Eysenck, Eysenck, & Barrett, 1985) along with indices of communication traits including communication competence (McCroskey & McCroskey, 1988), compulsive communication (McCroskey & Richmond, 1993), tolerance for disagreement (Teven, McCroskey, & Richmond, 1998), and touch apprehension (Richmond &

McCroskey, 2000). Descriptive and univariate analyses were conducted on each of the measures (see Footnote 1).

Results

Pearson correlation coefficients were calculated for each communication trait and corresponding temperament scores. Significant attenuated correlations ranged from .19 to $-.42$ while disattenuated correlations were as high as $-.50$. As in study one, temperament scores were related to all of the communication traits investigated. Extraversion was significantly related to each of the four communication traits. The strongest relationships were produced by extraversion with touch apprehension ($r = -.42, p < .01$), communication competence ($r = .37, p < .01$), and compulsive communication ($r = .36, p < .01$). Neuroticism was significantly related to competence ($r = -.25, p < .01$) and touch apprehension ($r = .33, p < .01$). Finally, the only significant correlation for psychoticism was with tolerance for disagreement ($r = .19, p < .01$). A complete listing of attenuated and disattenuated correlations is reported in Table 5.

TABLE 5
CORRELATIONS AMONG EYSENCK'S BIG THREE AND COMMUNICATION-RELATED TRAITS FOR STUDY 3

Communication Traits	Extraversion		Neuroticism		Psychoticism	
	<i>r</i>	(<i>t</i>)	<i>r</i>	(<i>t</i>)	<i>r</i>	(<i>t</i>)
Competence	.37**	(.45)	-.25**	(-.30)	-.01	-
Compulsive communication	.36**	(.43)	-.09	-	.08	-
Tolerance for disagreement	.23**	(.28)	-.08	-	.19**	(.24)
Touch Apprehension	-.42**	(-.50)	.33**	(.38)	.13	-

Note: Disattenuated correlations are reported in parentheses.

*Indicates correlation is significant ($p < .05$).

**Indicates correlation is significant ($p < .01$). Nonsignificant correlations are not corrected for attenuation.

Implementing canonical correlation analyses yielded three significant roots (see Table 6). The first root ($Cr_1 = .60, F = 12.19, p < .01$) indicated that the temperament set defined mostly by extraversion (.93) and neuroticism ($-.53$) was

TABLE 6
CANONICAL CORRELATION ANALYSES FOR STUDY 3

Set	Variables	Canonical Variables		
		V1	V2	V3
Temperament	Extraversion	.93	.37	.00
	Neuroticism	-.53	.67	-.51
	Psychoticism	-.12	.55	.82
Communication	Competence	.68	-.12	.00
	Compulsive communication	.44	.80	-.32
	Tolerance for disagreement	.30	.41	.86
	Touch apprehension	-.81	.28	.05
Adjusted canonical correlations		.60	.35	.18
<i>F</i> values		12.19	6.17	3.61
<i>p</i> <		.01	.01	.01

significantly associated with the communication set primarily composed of touch apprehension ($-.81$), communication competence (.68), and to a lesser extent compulsive communication (.44). These results indicate that stable extraverts tend to

be less apprehensive about touch, perceive themselves to be more competent communicators, and have a somewhat greater tendency toward compulsive communication.

The second canonical root ($Cr_2 = .35$, $F = 6.17$, $p < .01$) indicated that the temperament set defined primarily by neuroticism (.67), psychoticism (.55), and to a lesser extent, extraversion (.37) was significantly associated with the communication trait set primarily composed of compulsive communication (.80) and to a lesser extent, tolerance for disagreement (.41). These results indicate that nonstable psychotic extraverts are more likely to engage in compulsive communication and have a higher tolerance for disagreement. The third canonical root ($Cr_3 = .18$, $F = 3.61$, $p < .01$) indicated that the temperament set dominated by psychoticism (.82) and neuroticism (-.51) was significantly associated with the communication trait set comprised mostly of tolerance for disagreement (.86) and compulsive communication (-.32). These results suggest that stable psychotics are more likely to tolerate disagreement and less likely to compulsively communicate.

Discussion

A consistent pattern emerged across the three studies. Specifically, the results seem to indicate that non-neurotic extraverts are not shy or apprehensive about touch, tend to perceive themselves as more competent, view themselves as assertive and responsive, and express greater degrees of self-acceptance. Neurotic introverts report apprehension about communication, perceive themselves as less immediate, rate themselves as having a lower affect orientation, and somewhat higher levels of verbal aggressiveness. Neurotic participants report less self-acceptance. Neurotic non-psychotics report a greater degree of affect orientation, more apprehension about communication, and lower verbal aggression. Neurotic psychotic extraverts tend to be compulsive communicators and report greater tolerance for disagreement. Psychotics are non-responsive, and tend to report higher levels of verbal aggressiveness, argumentativeness and assertiveness. Finally, psychotic non-neurotics tend to have a greater tolerance for disagreement and are less likely to identify themselves as compulsive communicators.

These patterns are consistent with previous research (Beatty et al., 2001; Weaver, 1998). Moreover, the communication variables associated with each combination of personality traits are consistent with expectations for the underlying neurobiological systems and communication (Beatty et al., 2001). For instance, the pool of variables associated with psychoticism is consistent with theoretical expectations for Gray's fight/flight system (Beatty et al., 2001). The pattern of results observed in the present study are also consistent with theoretical expectations based on the extant neurobiological literature. However, supporting evidence from alternative methodological approaches such as twins studies, magnetic resonance imaging, and biochemical signatures of neurobiological functioning are needed to fully describe the biological link to communication. Although the results of the present study are informative, the bulk of future research should be directed at alternative methodologies such as those just mentioned.

Note

¹For the sake of brevity, descriptive analyses for each of the measures are not reported. These statistics can be reviewed by contacting the senior author.

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