

Eysenck's BIG THREE and Communication Traits: Communication Traits as Manifestations of Temperament

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Two studies are reported which sought to determine the possible limitations of the proposition that "temperament is manifest through communication." The results of earlier studies suggest that many communication related traits indeed are correlated with one or more temperament variables. In the present study Willingness to Communicate, Singing Apprehension, and Innovativeness were found to be associated with one or more of the BIG THREE temperament variables. Writing apprehension was found to have no meaningful relationship with any of the temperament variables. It is concluded that, while most important oral communication traits probably are correlated with one or more temperament traits, some other communication traits, like writing apprehension, may not be.

Results of recent research have suggested that many communication traits have a strong relationship with temperament traits (Beatty, McCroskey, & Heisel, 1998; McCroskey, Heisel, & Richmond, 2001). McCroskey et al. (2001), for example, studied

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the relationships of Eysenck's (1990) BIG THREE with 13 different traits believed to be strongly associated with communication (affective orientation, argumentativeness, assertiveness, communication apprehension, compulsive communication, responsiveness, self-acceptance, self-perceived communication competence, self-perceived immediacy, (behavioral) shyness, tolerance for disagreement, touch apprehension, and verbal aggressiveness. The results indicated that all of these traits were substantially associated with one or more of the temperament traits.

These findings were expected based on conclusions drawn by psychobiologists' studies of temperament. Bates (1989) had previously indicated that temperament researchers had concluded "individual differences in temperament are most vividly manifest in the context of social interaction." "Social interaction" is the term used by these psychologists for what communication specialists call "communication," or more specifically "interpersonal communication."

All of the studies on temperament and communication traits which have been published in the Communication literature to date have focused primarily on oral communication traits. While "social interaction" may be understood as oral communication, it would seem reasonable to include other forms of communication under this heading—particularly writing and singing. Whether temperament is manifest in these forms of communication remains an unanswered question.

The general hypothesis, based on previously published research, which was posed for this research was:

H1: Communication traits manifest temperament.

We anticipated that this hypothesis would be supported for those traits having to do with oral communication. However, we were not as certain that it would be for traits associated with other forms of communication.

The communication traits we chose to include in this research were willingness to communicate, singing apprehension, innovativeness, and writing apprehension. These traits were chosen because no previous research has been reported relating to temperamental manifestation of any of these traits and some seemed to be only tangentially associated with oral communication (singing apprehension, writing apprehension) while others are strongly associated with oral communication (willingness to communicate and innovativeness). However, all have been studied and found to be related to one or more of the oral communication traits previously studied.

Willingness to Communicate

Willingness to communicate (McCroskey & Richmond, 1987) may be the most basic trait related to oral communication. It relates to the degree to which one is willing to initiate oral communication with other people. It was selected because it has been found to correlate with virtually all of the oral communication traits previously noted.

Innovativeness

Individual innovativeness has been found to require substantial initiation and continuation of communication (Hurt, Joseph, & Cook, 1977). Although innovativeness involves much more than just oral communication (Rogers, 1995), a strong negative

relationship between innovativeness and communication apprehension in previous research suggests that this trait is quite related to communication orientations (Hurt, Joseph, & Cook, 1977; Witteman, 1976).

Singing Apprehension

While singing certainly is oral communication, singing apprehension has been found to have no correlation with oral communication apprehension (Andersen, Andersen, & Garrison, 1978). Other factors also suggest a non-relationship between traits related to talking and those related to singing. For example, it has been demonstrated that most people who stutter when talking do not stutter when singing. Hence, we believed that it would be quite possible that singing apprehension would not be related to temperament variables which are related to apprehension about talking.

Writing Apprehension

The construct of writing apprehension evolved from the previously developed oral communication apprehension construct (Daly & Miller, 1975). The original formulation of the writing apprehension construct assumed that it was a learned phenomenon, as was the original oral communication apprehension construct. However, at the most basic level, oral communication and written communication are very different communication systems. Normal human children are innately capable of acquiring one or more oral languages. All they need is to be exposed to one or more languages during ages 2-6. In contrast, these same children may be exposed to written language (if their culture has one) but never acquire a written language. While parents and school systems may work to help children become more efficient in their oral language skills, the acquisition of that language does not require such efforts. In contrast, without the assistance of parents and/or school systems, human children are very unlikely ever to develop a written language. Essentially, then, oral language acquisition is natural for all human children exposed to a language, but written language must be taught to the human child or it will not be acquired. Its development without specifically designed education is unnatural for humans. They are not programmed to do so.

Oral communication apprehension has been demonstrated (Beatty, McCroskey, & Heisel, 1998) to have a strong relationship with two temperament variables, extroversion (negative) and neuroticism (positive). Apprehension concerning writing has been seen as similar to oral communication apprehension (Daly & Miller, 1975). However, its relationship with temperament variables has not been examined in previous research. We believed this was an important trait to study.

While we had the general hypothesis, noted above, that each of the traits being studied would be found to associations with temperament variables, we did not expect all of them to have equally strong relationships. Hence we posed a research question:

RQ: To what extent are the traits studied meaningfully associated with one or more temperament variables?

METHOD

Two studies were conducted to determine the relationships between the traits being researched and Eysenck's BIG THREE temperament variables. Although our origi-

nal intention was to conduct a single study, the results of the first study relating to writing apprehension were so different from what many might have expected, a second study was conducted to determine whether the results of the first study with regard to writing apprehension could be replicated.

Study 1

Procedures. The first study sampled 213 college students enrolled in basic communication courses at a large Mid-Atlantic university. Participants completed a self-report inventory that included the short-form BIG THREE temperament measures of extraversion, neuroticism (Eysenck & Eysenck, 1985), and psychoticism (Eysenck, Eysenck, & Barrett, 1985). The inventory also included measures for the communication trait variables. These were:

1. The Willingness to Communicate scale (McCroskey & Richmond, 1987).
2. The Singing Apprehension scale (Andersen, Andersen, & Garrison, 1978).
3. The Individual Innovativeness scale (Hurt, Joseph, & Cook, 1977).
4. The Writing Apprehension Test (Daly & Miller, 1975).

Data Analyses. Data analyses involved computation of simple and multiple correlations of scores on the four communication trait measures with scores on the three temperament measures. Basic statistics for each of the measures were also computed (See Table 1).

Results. The obtained alpha reliability estimates for the three temperament variables were extraversion, .79; neuroticism, .84, and psychoticism, .73. The obtained alpha reliability estimates for the four communication trait measures were willingness to communicate, .85; singing apprehension, .92; innovativeness, .79; and writing apprehension, .92 (see Table 1).

TABLE 1
Basic Statistics for Measures

Measure	Mean	Standard Deviation	Range	Alpha
Willingness to Communicate	73.2	16.3	20-98	.85
Innovativeness	72.0	8.4	50-95	.79
Singing Apprehension	59.4	15.2	20-100	.92
Writing Apprehension (Study 1)	55.8	15.8	20-98	.92
Writing Apprehension (Study 2)	56.1	15.5	20-100	.91
Extraversion (Study 1)	38.0	5.6	19-50	.79
Extraversion (Study 2)	37.9	5.7	12-50	.75
Neuroticism (Study 1)	25.2	7.5	10-50	.84
Neuroticism (Study 2)	25.0	7.6	10-50	.81
Psychoticism (Study 1)	26.0	6.3	13-51	.73
Psychoticism (Study 2)	26.3	6.7	12-53	.59

Correlations between the communication trait scores and the temperament scores are reported in Table 2. The results indicate that both willingness to communicate and innovativeness were positively associated with extraversion and negatively associated with neuroticism while singing apprehension was negatively related with extraversion and positively associated with neuroticism. None of the temperament variables

were significantly related to writing apprehension.

TABLE 2
Correlations between Communication Trait Measures and BIG THREE Temperament Measures

	Extraversion	Neuroticism	Psychoticism	Multiple Correlations <i>R</i> ** (<i>R</i>)**	
Study 1					
Willingness to Communicate	.43	-.21	-.10*	.45	.55
Singing Apprehension	-.33	.23	-.07*	.35	.41
Innovativeness	.39	-.29	.00*	.42	.41
Writing Apprehension	-.09*	.13*	-.03*	.00	.00
Study 2					
Writing Apprehension	.15	.16	.12	.23	.28
Average of Studies 1 and 2					
Writing Apprehension	.03*	.15	.05*	.15	.19

*Not statistically significant at $p < .05$. ** R = raw multiple correlation; (R) multiple correlation corrected for attenuation.

Study 2

Procedures. The second study sampled 325 college students enrolled in an upper division service course in communication at a large Mid-Atlantic university. Participants completed the writing apprehension test and the same temperament measures used in the first study and the same data analyses were performed on the data that were employed in the first study.

Results. The obtained alpha reliability estimates for the three temperament variables were extraversion = .75; neuroticism = .81; and psychoticism = .59. Correlations between the WAT scores and the temperament scores are reported in Table 2. All of the correlations were low in this replication study, but in contrast to Study 1, all of them were found to be statistically significant. Averaging the results of the two studies (see Table 1) indicated that only the correlation between writing apprehension and neuroticism was statistically significant and accounted for only about 2 percent of the variance.

DISCUSSION

The results of this investigation indicate that willingness to communicate and innovativeness reflect the same temperament variables as those reflected by positive communication traits such as self-perceived immediacy, assertiveness, and self-perceived communication competence in previously reported studies (McCroskey, Heisel, & Richmond, 2001). Similarly, singing apprehension was found to reflect the same temperament variables as those negative communication traits such as shyness, communication apprehension, and touch apprehension in the previous studies (McCroskey et al., 2001). In general, therefore, extraverted non-neurotics should be expected to manifest positive communication traits while neurotic introverts should be expected to manifest negative communication traits.

As noted in Table 2, the correlations of writing apprehension with the temperament scores were all low for both studies. The slightly higher correlations in the second

study were statistically significant as a function of the substantially increased power provided by the increased sample size in that study. Even the strongest correlation observed could account for less than 4 percent of the variance in writing apprehension scores. Even though the correlations in the study were statistically significant, we believe the most accurate interpretation of these data, across the two studies, is that there is no meaningful relationship between writing apprehension and Eysenck's BIG THREE temperament variables. With no correlation even reaching $r = .20$, the observed relationships can best be described as small.

Based on the results of these two studies, our general hypothesis that "communication traits manifest temperament," can be seen as conditionally supported. However, it probably should be modified to "some communication traits manifest temperament."

Our research question (To what extent are the traits studied meaningfully associated with one or more temperament variables?) must be answered differently for different communication traits. Given the moderate (above $R=.30$) multiple correlation between temperament and singing apprehension and the large (above $R=.50$) multiple correlations between temperament and innovativeness and willingness to communicate, this question may be answered "moderate to high." However, the small (below $R=.20$) multiple correlation of temperament with writing apprehension and temperament in this research forces the answer to be "small to nonexistent."

Writing apprehension does not appear to be meaningfully associated with the temperament scores on the BIG THREE temperament measures. It is not meaningfully related to the two (extraversion, neuroticism) temperament variables which have been found to be meaningfully associated with communication apprehension, nor psychoticism which has not been found to be meaningfully related to communication apprehension either.

The results of this and previous research suggest that temperament may be manifest in some communication traits and not in some others. It is clear that temperament is manifested in many oral communication traits—including such diverse traits as nonverbal immediacy, touch apprehension, and singing apprehension. However, it is not manifested meaningfully in writing apprehension and it may not be manifested in some other non-oral communication traits. Future research is needed to determine the extent to which this is the case.

REFERENCES

- Andersen, P. A., Andersen, J. F., & Garrison, J. P. (1978). Singing apprehension and talking apprehension: The development of two constructs. *Sign Language Studies*, 19, 155-186.
- Bates, J. E. (1989). Concepts and measures of temperament. In G. A. Kohnstamm, J. E. Bates, & M. D. Rothbart (Eds.), *Temperament in childhood* (pp.3-27). New York: Wiley.
- Beatty, M. J., McCroskey, J. C., & Heisel, A. D. (1998). Communication apprehension as temperamental expression: A communibiological paradigm. *Communication Monographs*, 65, 197-219.
- Daly, J. A., & Miller, M. D. (1975). The empirical development of an instrument measure writing apprehension. *Research in the teaching of English*, 9, 242-249.
- Eysenck, H. J. (1990). Biological dimensions of personality. In L. A. Pervin (Ed.) *Handbook of personality: Theory and research* (pp. 244-276). New York: Guilford.
- Eysenck, H. J., & Eysenck, M. W. (1985). *Personality and individual differences: A natural science approach*. New York: Plenum.

- Eysenck, S. B. G., Eysenck, H. J., & Barrett, P. (1985). A revised version of the psychoticism scale. *Personality and Individual Differences*, 6, 21-29.
- Hurt, H. T., Joseph, K., & Cook, C. D. (1977). Scales for the measurement of innovativeness. *Human Communication Research*, 4, 58-65.
- McCroskey, J. C., Heisel, A. D., & Richmond, V. P. (2001). Eysenck's BIG THREE and communication traits: Three correlational studies. *Communication Monographs*, 68, 360-366.
- McCroskey, J. C., & Richmond, V. P. (1987). Willingness to Communicate. In J. C. McCroskey & J. A. Daly (Eds.), *Personality and interpersonal communication* (pp. 129-156). Beverly Hills, CA: Sage.
- Rogers, E. M. (1995). *Diffusion of innovations*. (4th ed.). New York: The Free Press.
- Witteman, H. (1976). *The relationship of communication apprehension to opinion leadership and innovativeness*. M. A. Thesis. Morgantown, WV: West Virginia University.