Temperament and Socio-Communicative Orientation

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This study investigated the relationship of scores on temperament dimensions for both three- (Eysenck, 1985) and five-factor (McCrae & John, 1992) models with scores on two dimensions of socio-communicative orientation (Richmond & McCroskey, 1990). The Eysenck Personality Inventory and the Five-Factor Model measure have previously been validated as measuring genetically-based dimensions of temperament. Substantial variance in scores of both assertiveness and responsiveness were predictable by each of the temperamental models. These results suggest that socio-communicative orientation (self-perceptions) is likely genetically based. There is a need for additional research employing twin designs, and ultimately direct genetic testing, to confirm these results.

Our discussion of trait research will be clearer if we begin with a working definition of what trait researchers commonly mean when they use the term "trait." As defined by Guilford (1959), a trait is "any distinguishable, relatively enduring way in which one individual differs from another" (p.6). Eysenck (1985) defined temperament traits as "essentially dispositional factors that regularly and persistently determine our conduct in many types of situations" (p. 17). As defined by Mischel (1968), a personality trait "refers to the differences between directly observable behavior or characteristics of two or more individuals on a defined dimension" (p. 5). Mischel continues, noting that a "trait can be a personality con-

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struct created for its explanatory convenience and power," in that "a trait is a construct or abstraction (intended) to account for enduring behavioral consistencies and differences" (p. 5).

Any number of traits can exist concurrently. However, scientific psychologists have tended to gather traits into larger groupings to simplify understanding behavioral differences among individuals. Whereas it was noted by Daly (1987) that most traits are conceptually independent, the tendency among psychobiological researchers has been to arrange traits into groupings of what Eysenck (1985) would call "types," or "supertraits." A supertrait (often referred to as a "temperament") is seen as a collection of traits that provides an overall picture which may help to clarify how individuals with differing scores on that variable would behave most of the time. Of course, such large generalizations will not account for the full range of impact of each of the various traits which are collected to compose the generalization.

Eysenck's (1985) conceptualization of overall temperament types is a three dimensional model, consisting of Extraversion (E), Neuroticism (N), and Psychoticism (P). These supertraits, as Eysenck noted, are merely abstractions, groupings of smaller concepts so as to better comprehend overall differences in individuals' behaviors. As he stated, it would be foolhardy to make the assumption "that there is out there in the cosmos a real neuroticism having a unique correlation with extraversion, and that our tests attempt to approximate these real factors" (p.31). Stated another way, these groupings, those of E, N, and P, are abstractions which make it easier for us to understand the numerous personality types that may exist because of the unique natures of human beings. A given supertrait or temperament, then, theoretically may be associated with many individual personality variables--some with a high association, some with a lower association, and, of course, some with no meaningful association at all.

Eysenck was not alone in his attempts to create groupings of traits into temperament types. Currently, much energy is being spent researching what has become known as the "Five-Factor Model" (FFM). The Five-Factor Model bears much resemblance to the work of Eysenck, in that two of the dimensions are identical. The FFM maintains the dimensions of Extraversion (E) and Neuroticism (N), but replaces Psychoticism with the dimensions of Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). The FFM, as McCrae and Costa (1996) argue, is capable of providing "a comprehensive system, a framework for organizing all personality traits" (p. 61). Whether this grand claim is appropriate has been subject to argument, but even if it proves to be overstated, the research conducted with this model has produced important results.

Regardless of the model upon which we rely, it is evident that the various trait theorists and trait researchers are attempting to achieve similar ends. The apparent goal is to create constructs that can help us to understand individual behavior when looked at over a period of time. No mention in any review of the literature is given to the predictive power of either model concerning a specific behavior at a specific instance in a specific environment Rather, the trait viewpoint is one that takes a more grounded, and more holistic, viewpoint.

While there are some semantic differences in each of the preceding definitions of traits, it is clear that traits have been singled out because of their consistent, and some would say *persistent*, predictability across a wide degree of situations. This notion of cross-situational consistency lends credence to the explicit goal of trait-based research. It is recognized that trait research will not always predict what a given individual will do in a given real or

hypothetical situation. Expecting this type of predictive power borders on the nonsensical. Indeed, what is expected of trait research is the ability to generalize that a number of individuals, with given similarity among certain traits, will behave in a generally similar and predictable manner across contexts. This recognition highlights both the rewards and pitfalls of trait-based research. It is imperative that we recognize the fallacy in the argument that trait theory, and hence research, is useless because it is incapable of predicting what people will do all of the time. The underlying assumption in this argument is that other approaches to human behavior do have such predictive power, which they do not (Eysenck, 1985; Funder & Ozer, 1983). The only way humans can have such "predictability" is through hindsight. Traits can only be expected to predict what people with similar traits are likely to do across varying contexts with a probability significantly greater than chance. The value of a given trait is determined by the amount of variability in orientations and/or behaviors it can predict.

Trait-based research has been enormously productive in the field of Communication. The early research into communication apprehension (CA), which is now succinctly defined as "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons" (McCroskey, 1977, p. 269), originated entirely from a trait-based perspective. Although the original research that was inherently trait-based has been broadened to include some state-like qualities, the dominant belief is that those states are a "manifestation of trait CA and other traits of the individual" (McCroskey & Beatty, 1998, p.217).

Similarly, research into the Willingness to Communicate (WTC) construct is clearly cut from a trait perspective. As defined, WTC is "an individual's predisposition to initiate communication with others (McCroskey & Richmond, 1998, 120). It is no accident that terms such as 'predisposition,' 'propensity,' and 'tendency' are included in virtually every working definition of trait-based communication constructs. All of these terms tap into the belief that these behaviors are partially the result of individually held trait foundations. Likewise, none of these terms connote absolutes, and there can be no illusion that a predisposition means that a person will behave in the same manner regardless of any other considerations.

Trait research in the field of Communication currently appears to be focusing on a new concern, although one with traditional roots in philosophy. This is the study of the origins of traits. This is certain to cause rise among some circles, as the trait perspective itself is enough to give rise to cries of heresy among devotees of the social learning model. For most of this century, it has been assumed by people studying human communication that traits (if they exist at all) must be learned. However, there is far more than anecdotal evidence available in extant research to provide for support of the "communibiological perspective" (Beatty, & McCroskey, 1997; Beatty, McCroskey, & Heisel, 1998) that they arise from genetic predispositions. Most importantly, it has been established that both the three-factor (Eysenck and Eysenck, 1985) and the five-factor (McCrae & John, 1992) conceptualizations and operationalizations of temperament have a solid genetic basis. The superiority of one of these approaches over the other has not been established. Hence, although it is not mandatory, it is useful at this point to include both temperament approaches in studies investigating the linkage between genetically based temperaments and communication-related traits.

There is evidence to suggest that there may be a substantial degree of heritability to many traits, and many prominent studies of twins give credence to this assertion. Eysenck and Eysenck (1985) examined personality and monozygotic (identical) and dizygotic (fraternal)

twins. The results of this study on personality similarities of twins obtained intraclass correlations of .56 for identical twins raised together, .37 for fraternal twins, and .58 for identical twins raised separately (p. 87). The association was significantly stronger for both twin sets and for the fraternal set. The strength of the relationship for both sets of identical twins provides interesting evidence supporting the heritability of traits, in particular since the correlation was actually a little bit stronger (NSD, however) for those identical twins who were raised separately. While the shared variance of the fraternal twins suggests the likelihood of some impact of environment on personality, the amount of shared variance for the identical twins not raised together suggests a much larger impact for genetics.

In the first twin study of communication traits, Horvath (1998) examined whether there would be significant differences in scores of identical twin sets compared with fraternal twin sets in regard to scores on the dimensions of Norton's (1978) communicator styles. In her study, Horvath determined that genetics could account for up to half of the variance in scores on some of the Norton dimensions. The results of more recent work (Marshall, 1998) has strongly supported Horvath's findings.

Socio-Communicative Orientation/Style

The evolution of the concept of communicator style had its genesis with Norton's definition of communicator style as "the way one verbally and paraverbally interacts to signal how literal meaning should be taken, interpreted, filtered, or understood" (Norton, 1978). Since this definition first was advanced, a number of research projects have been undertaken. The present constructs of Socio-Communicative Style (SCS) and Socio-Communicative Orientation (SCO) are the most recent products of this effort (McCroskey & Richmond, 1996; Richmond & Martin, 1998; Richmond & McCroskey, 1990; Thomas, Richmond, & McCroskey, 1994).

SCS and SCO are recognized to be constituted of the same three dimensions--assertiveness, responsiveness, and versatility (McCroskey & Richmond, 1996; Richmond & Martin, 1998). Assertiveness represents the characteristics of independence, dominance, and forcefulness. It is generally described as one's ability to stand up for one's self and one's ideas. Responsiveness represents the characteristics of being warm, helpful, friendly, and other-oriented (Richmond & Martin, 1998; Thomas et al., 1994). It generally is described as one's ability to be sensitive to the communication and feelings of others. Versatility is "the degree to which the individual is capable of adapting her or his style to varying situational constraints" (Richmond & Martin, 1998, p. 134). It represents the degree of flexibility of one's SCO or SCS.

Issues of perception are vitally important when trying to understand the constructs of socio-communicative orientation and style. SCS is the pattern of communication behaviors assigned to an individual as perceived by others. In the instructional setting, Wooten and McCroskey (1996) noted that SCS is the association of student perceived views of teacher communication behaviors in regards to assertiveness and responsiveness (Wooten & McCroskey, 1996). Likewise, Thomas et al. (1994) described SCS as communication behaviors which create impressions for others, leading to the presumption that "observers can gain insight into personality by taking note of (others') characteristic communication behaviors" (p. 109).

While SCS is a pattern of behaviors assigned to an individual by the observation of others, SCO is the individual's perception of her/himself with regard to assertiveness and responsiveness. Important to note, however, is that there may be little or no correlation between an individual's self-perceived SCO and their SCS as seen by others. Wooten and McCroskey (1996) argued that this was the case in their research because the two differ with respect to ownership of perception and because individual perception of SCO may not be a result of recognition of one's personal communication behaviors, but may be influenced "by one's personality and other orientations toward human relationships" (p. 95).

Developing an appropriate measure of versatility has been difficult, and there is no consistently applied measure for this dimension. This is not the case with assertiveness and responsiveness, which are measured reliably with the 20-item Assertiveness-Responsiveness Measure. This twenty-item measure (Richmond & McCroskey, 1990) has been used extensively. The measure was originally reported to be internally reliable and assertiveness and responsiveness were found to be uncorrelated (Richmond & McCroskey, 1990) as the constructs were theoretically advanced. Subsequent research has corroborated these findings (Richmond & Martin, 1998).

The versatility construct was also advanced as uncorrelated with the other constructs. However, no measure of this dimension has yet been developed which has not had a substantial correlation with responsiveness. Since this raises a serious issue of validity for this dimension and/or its measures, we did not include it in the current research. This choice has also been made by most previous researchers. Operationally, therefore, SCO and SCS have rather consistently been defined to include only assertiveness and responsiveness. Should an independent measure (unrelated to responsiveness) of versatility be developed, this operational choice will need to be revisited.

Rationale

An examination of the instruments used to measure temperament and those used to measure SCO/SCS indicates that there are some very similar terms employed. Exactly the same term, "assertive," is used both as a part of measures of "assertiveness" and "extraversion." While other terms are not used in exactly the same form, very similar terms appear. Finding similar terms or complete questionnaire items being used to measure different constructs, of course is not uncommon. A cursory examination of 35 measures commonly employed in Psychology to measure a wide variety of traits found 17 to include items which could appear on a quality measure of communication apprehension or shyness. There is overlap among trait constructs.

However, overlap between measures of temperament constructs and communication-related trait constructs suggests that both may have a common origin. Since temperament constructs are presumed to be associated with many personality traits, this should not be surprising. With this in mind we posed our first two research questions:

RQ1: What is the nature of the relationship between scores on the Eysenck Personality Inventory and self-reports of socio-communicative orientation?

RQ2: What is the nature of the relationship between scores on the measure of the Five-Factor temperament model and socio-communicative orientation?

If telling relationships exist, it would be important to also know the amount of variance which can be accounted for with the Eysenck Personality Inventory and a measure of the Five-Factor Model. Thus, we posed our third research question:

RQ3: How well can the Eysenck Personality Inventory and the Five-Factor Model measure predict self-reports of assertiveness and responsiveness?

It is important to recognize that our research questions focus solely on associations--not causes. We are not seeking to determine whether temperament is causing SCO, for example. The communibiological approach would discount that as a possibility. Rather, it would suggest that both of these orientations are the product of a latent cause which can not be measured here. The cause is presumed to be genetically-based brain structures. Since it has already been established that the measures of temperament (3- and 5-factor) are genetically rooted, it would be reasonable to argue that if temperament is substantially associated with a given personality-type variable (such as a communication trait), that variable is most likely a product of the same source. It would be nonsensical to argue, for example, that even though the temperament is genetically based, the trait which is highly associated with the temperament is the product of social learning. In this type of research, measures of temperament are employed as surrogates for direct measures of the genetically-based brain structures to which they have been demonstrated to be highly related.

METHOD

Participants

This study was conducted at a large Mid-Atlantic university. The voluntary participants were all undergraduate students who were enrolled in an elective course in Communication Studies. A total of 202 of 210 enrolled students participated, 102 of whom were male, 98 of whom were female, and two cases in which biological sex was not reported. All of the students in the class were given the option to participate for extra credit, and were informed that if they chose not to participate it would not in any way affect their grade or their standing in the class. The participants were also informed that they would have other options with which they could earn extra-credit if they chose not to participate in this study. The participants were informed that the responses on the survey would remain anonymous, and no attempt was made to link any individual to her/his respective survey.

Measures

This study employed several measures. The first was the Eysenck Personality Inventory (Eysenck, & Eysenck, 1985; Eysenck, Eysenck, & Barrett, 1985). The alphas for the three dimensions of extraversion, neuroticism, and psychoticism in the present study .78, .77, .69, respectively. These are consistent with reliabilities reported in previous research.

In addition to the Eysenck Personality Inventory, the measure of the Five-Factor Model presented by McCrae and John (1992) was employed. For the five dimensions of Extraversion, Neuroticism, Openness to Experience, Agreeableness, and Conscientiousness, the alphas were .84, .86, .69, .85, and .80, respectively. Two items were dropped from the measure of Conscientiousness to increase reliability (from <.65 to .69).

The final measure employed was the 20-item Assertiveness-Responsiveness measure, as developed by Richmond and McCroskey (1990). The estimated alphas in the present study for assertiveness and responsiveness were .81 and .87, respectively.

RESULTS

RQ1 probed the relationship between assertiveness and responsiveness scores and those on the Eysenck Personality Inventory. Eysenck's dimension of extraversion displayed a significant correlation with both assertiveness and responsiveness, $r = .53$, $p < .01$, and $r = .51$, $p < .01$, respectively. For the dimension of neuroticism, the results were mixed, with a slight negative correlation with assertiveness, $r = -.14$, $p < .05$, and no significant relationship with responsiveness, $r = -.09$, $p < .19$. Eysenck's dimension of psychoticism also produced mixed results in relation to assertiveness and responsiveness. There was no significant relationship between psychoticism and assertiveness, $r = .04$, $p < .54$, but a large negative correlation between responsiveness and psychoticism was observed, $r = -.62$, $p < .01$.

Regarding RQ2, several interesting correlations were observed. Scores on the FFM dimension of extraversion showed positive correlations with assertiveness and responsiveness, but not as large as those presented by scores on the Eysenck extraversion dimension $r = .20$, $p < .01$; $r = .42$, $p < .01$, respectively. The FFM dimension of neuroticism displayed similar results to that of Eysenck's neuroticism. The FFM dimension of neuroticism was negatively correlated with assertiveness, $r = -.30$, $p < .01$, and no significant relationship with neuroticism and responsiveness was observed $r = .01$, $p < .95$. Openness to Experience was correlated with both assertiveness and responsiveness, $r = .25$, $p < .01$, and $r = .31$, $p < .01$, respectively. The FFM dimension of Agreeableness correlated negatively with assertiveness ($r = -.20$, $p < .01$) and positively with responsiveness, $r = .55$, $p < .01$. The analysis of conscientiousness and assertiveness and responsiveness unearthed low positive correlations, $r = .15$, $p < .05$, $r = .22$, $p < .01$, respectively. Table 1 provides all relevant information regarding the relationships observed.

TABLE 1
Correlations of Eysenck Personality Dimension Scores and Five Factor Model Scores with Assertiveness and Responsiveness Scores

Variable	Assertiveness		$p<$	Responsiveness		$p<$
Eysenck Personality Inventory						
Extraversion	.53	(.67)*	.0001	.51	(.62)*	.0001
Neuroticism	-.14	(.18)	.05	-.09		.18
Psychoticism	.04		.53	-.62	(.80)	.0001
Five-Factor Model Measure						
Extraversion	.20	(.24)	.0001	.41	(.48)	.0001
Neuroticism	-.30	(-.36)	.0001	-.01		.95
Openness	.25	(.33)	.001	.31	(.40)	.0001
Agreeableness	-.20	(-.24)	.01	.55	(.63)	.0001
Conscientiousness	.15	(.19)	.05	.22	(.26)	.01

* Numbers in parentheses are disattentuated correlations.

To examine RQ3, multiple regression analyses were conducted (see Table 2). Examination of the association of temperament scores on Eysenck Personality Inventory and the FFM scores with the SCO dimension of assertiveness indicated virtually identical multiple correlations, .57 for EPI and .56 for FFM. Although both multiple correlations were considerably

higher for their association with the SCO dimension of responsiveness than those for assertiveness, the multiple correlation for the EPI and responsiveness was .72 while that for the FFM was .65.

TABLE 2
Multiple Regression Analyses for Assertiveness and Responsiveness Employing EPI and Five-Factor Model Scores

Model	*DF*	*F Value*	*Prob.*	*MR*
Eysenck Personality Inventory				
Assertiveness	(3,197)	31.39	$p < .0001$	.57
Responsiveness	(3,197)	70.22	$p < .0001$	.72
Five-Factor Model				
Assertiveness	(5,162)	14.83	$p < .0001$	.56
Responsiveness	(5,162)	23.73	$p < .0001$	.65

Clearly, both dimensions of SCO are substantially associated with temperament. The interpretation of these associations is somewhat different from the typical communication study which assumes the presence of correlations between variables signifies some type of causation between them. That assumption is not present in this instance. It is assumed that if these variables are correlated it is a function of a latent cause, in this case genetically-based brain structures. Hence the multiple correlations themselves are the best estimates of variance accounted for, rather than the typical squared correlation (Jensen, 1980; Ozer, 1985; Tryon, 1929). As Ozer (1985) explains: "Most trait models suggest that some latent variable underlies scores on both measures; and that the latent variable is responsible for the covariance between the measured variables. . .This is not determination of one variable by another, but determination of measured variables by a latent variable" (p. 312).

DISCUSSION

On the basis of the results of this study it is clear that the answer to our first two research questions is that there is a very strong relationship between temperament and Socio-Communicative Orientation. The assertiveness shares over half of its variance with temperament, while responsiveness shares approximately two-thirds of it variance with temperament. These clearly are not small associations which could be produced by similarity of a few items in the measures. Even if they were, however, the associations would be no less real, since individual traits like assertiveness and responsiveness are presumed to be part of the composition of supertraits/temperament. In response to our third research question, it is clear that both operationalizations of temperament are highly predictive of the two SCO dimensions.

The high association between temperament and SCO observed in this research is strongly suggestive that SCO (and probably SCS) are substantially genetically based. This may account for the demonstrated difficulty of training people to be either more assertive or more responsive. While people may learn that they need to change their behavior, and they may even learn to perform the more assertive or responsive behaviors under controlled training conditions, their actual behavior outside the training environment often changes little or not

at all. The fact that something may be genetically based, of course, does not mean it is written is stone, it just means it may be harder to make changes than one would at first tend to believe.

The relationships we observed in this study, as large as they are, still suggest substantial room for modification of assertive and responsive behaviors, if the individual is highly motivated to do so--just as we know that an individual's weight is strongly influenced by genetics, but if the person is committed enough to be willing to virtually starve her/himself, he or she will lose weight.

Given the importance of being certain whether these communication orientations have a strong genetic base, and it has been suggested elsewhere that these two particular orientations are the foundations of interpersonal and communication competence (Bem, 1974; McCroskey & Richmond, 1996), additional research designed to confirm/disconfirm the present findings is needed. Twin research is the most direct approach available at this time. By administering the SCO measure to identical and fraternal twins, it is possible now to compute the impact of genetics vs. environment on the correlations between twins on the measure. Of course, now that the human genome is completed, it will be possible at some point to study the relationship of genes and gene strands to various levels of assertiveness and responsiveness. At that point we will be in a position to draw firm conclusions while we can only draw tentative ones at this time.

In closing, the data provided by this research helps to provide a clearer picture of what dimensions of temperament are associated with self-reports of communication orientations. Extraversion, regardless of model, was found to be associated with both perceptions of responsiveness and assertiveness. Psychoticism, as presented by Eysenck, and in the threefold conceptualization of Five-Factor Model, appears to largely determine the independence of responsiveness and assertiveness scores. Finally, neuroticism, which produced ambiguous results in this research, may be less important as an influence of socio-communicative orientation and style than was previously believed. Drawing firm conclusions in this regard would not be appropriate at this time, but future research needs to be directed at probing the role of neuroticism in influencing communication behaviors and perceptions.

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