

This article explores the development and testing of two popular communication instruments: argumentativeness and verbal aggressiveness scales. One measures the degree to which an individual engages in verbal attacks on another individual's position on some controversial topic, and the second measures the degree to which one engages in attacks on another's self-concept. The authors make recommendations about the use of the two instruments and present new evidence of their reliability and validity.

ARGUMENTATIVENESS AND AGGRESSIVENESS

The Flip Side of Gentle Persuasion

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One of the most important principles of social science research is that conceptualization must come before operationalization (Daniels & Frandsen, 1984; Kaplan, 1964; O'Keefe, 1975). Prior to the development of an instrument to measure a communication construct, that construct must be well defined theoretically. This principle seems reasonable, because it is impossible to assess the validity of an instrument when one has little sense of the theoretical structure of the construct. The existence of theoretically well-developed constructs can thus enhance the integrity of the field of communication as a scientific discipline.

Two constructs in communication research that were thoroughly discussed prior to instrument development are verbal aggressiveness (VA) and argumentativeness. Infante and his many associates (Infante, 1987; Infante, Trebing, Shepherd, & Seeds, 1984; Infante,

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Wall, Leap, & Danielson, 1984; Infante & Wigley, 1986) developed a thorough conceptualization of VA as a personality trait. The same researchers also developed the Argumentativeness Scale (Infante & Gordon, 1985; Infante & Rancer, 1982; Infante, Trebling, Shepherd, & Seeds, 1984; Johnson & Johnson, 1979; Rancer, Baukus, & Infante, 1985). The two constructs are conceptually related only in that they are both personality traits. In fact, they represent two very different types of aggression, and they reside in entirely different dimensions of personality (Infante, 1987). Because the two constructs are theoretically unrelated, an individual can be high in both, low in both, or high in one and low in the other.

The focus of this article is on the development of the scales used to measure these traits. In order to critique the construction of the scales, two things must be discussed. First, the full conceptualization of the constructs must be explained. Second, the scales' development, including validity studies, must be reviewed. A critique of the scales' construction can be meaningful only after these pieces of information are made available. Because both of these measures have been linked to aggression, a discussion of how that trait differs from those under consideration will precede the analysis of the two instruments.

AGGRESSION

Infante (1987; Infante & Wigley, 1986) contended that aggression, although widely studied in various social science disciplines, has been regarded in a generic sense. He argued that much of the literature ostensibly lumps all forms of aggression into one general category. Infante's (1987) intent was to come to an understanding of aggression in interpersonal relations. He took a personality approach to understanding aggression based on the work of several personality scholars and provided a cogent rationale for doing so. His specific approach allowed for situational determinants to play a role in influencing behavior. Infante thus dealt directly and clearly with the controversy over cross-situational behavioral consistency. Moreover, his approach allowed for traits to be learned.

Infante (1987) synthesized the work of several scholars to arrive at a general definition of aggression in interpersonal communication:

An interpersonal behavior may be considered aggressive if it applies force physically and/or symbolically in order, minimally, to dominate and perhaps damage or, maximally, to defeat and perhaps destroy the locus of attack. The locus of attack in interpersonal communication can be a person's body, material possessions, self-concept, position on topics of communication, or behavior. (p. 158)

Infante conceded that his definition does not resolve all definitional issues but argued that it provides a clear basis for the development of an understanding of aggression in interpersonal communication.

Infante's (1987) major contribution was that he considered aggression to be not one but several traits. He posited four specific aggressive communicative traits, not all of which are socially undesirable: assertiveness, argumentativeness, hostility, and VA. In fact, he stated that his goal was "to produce a clearer and more comprehensive understanding of the structure of socially desirable as well as socially undesirable aggressive behavior patterns in interpersonal communication" (p. 161). The underlying axiom that guides the definitional structure is that "a constructive-destructive distinction is meaningful when considering aggression in interpersonal relations" (p. 162). In this way the context of human values, so salient to interpersonal communication research, is maintained and clarified. Constructive or destructive meaning is dependent on the perspective from which the act is viewed. Infante posited four perspectives for viewing acts: one member of the dyad, both members of the dyad, observers of the dyad, and societal standards.

The first distinction made in categorizing aggression is physical versus symbolic. Obviously, it is symbolic aggression that is relevant to interpersonal communication research. Symbolic aggression is dissected into constructive symbolic aggression and destructive symbolic aggression. Constructive symbolic aggression is subsumed under the heading of assertiveness. Further, one facet of assertiveness is argumentativeness, which was defined by Infante and Rancer (1982) as a stable trait that predisposes an individual to defend a position on an issue and verbally attack the positions of others. "Argumentativeness may be considered a subset of asser-

tiveness, in that all arguing is assertive, but not all assertiveness involves arguing" (Infante, 1987, p. 164).

Destructive symbolic aggression is classified as hostility, one facet of which is verbal aggression. Verbal aggression is defined as "the tendency to attack the self-concepts of individuals instead of, or in addition to, their positions on topics of communication" (p. 164). Thus the distinction between argumentativeness and verbal aggression is the locus of attack (Infante, 1987; Infante & Wigley, 1986). Further, the two concepts stem from related, but different, theoretical structures. Argumentativeness is a form of assertiveness, which is constructive aggression; VA is a form of hostility, which is destructive aggression (Infante, 1987; Infante & Wigley, 1986).

The entire categorization is based on Costa and McCrae's (1980) model of personality. Costa and McCrae posited three dimensions of personality: extraversion, neuroticism, and openness. Within this model, assertiveness is one of six facets of extraversion, and hostility is one of six facets of neuroticism. Openness is irrelevant to aggression.

The difference between argumentativeness and verbal aggression is defined by the locus of attack. In argumentativeness, the locus is the other's position on an issue; in verbal aggression, it is the other's self-concept (Infante, 1987; Infante & Rancer, 1982; Infante & Wigley, 1986). An implication of this distinction is that verbal aggression occurs only if the message is received directly (Infante, 1987). Attacking a third person's character is not verbal aggression, because that person's self-concept is not involved. Infante (1987) and Infante, Trebing, Shepherd, and Seeds (1984) suggested several reasons why verbal aggression may occur in interpersonal communication: frustration, social learning, psychopathology or transference, and argumentative skill deficiency.

Infante (1987) and Infante and Wigley (1986) listed several instruments that have been used to measure aggressiveness. None, they contend, distinguishes between the several types of aggressiveness delineated in Infante's (1987) theoretical structure. In particular, the authors were concerned that the constructive-destructive aspect of aggression in interpersonal communication cannot be tapped with any existing instrument. The rationale for

the development of the Verbal Aggressiveness Scale (VAS; Infante & Wigley, 1986) is therefore presented.

VERBAL AGGRESSIVENESS SCALE

SCALE DEVELOPMENT

An initial 30-item version of the scale was administered to 209 students. The 30 items were constructed to reflect the definition of VA developed by Infante (1987): the trait to attack the self-concept of others instead of (or in addition to) their positions on an issue. In order to avoid defensiveness in responses, three steps were taken: The existence of VA was assumed, so that some items asked where, how, and when it is expressed; justification for the behavior was provided in some items to legitimize the expression of VA; and in some items, the VA response was made to appear benevolent. Such strategies are consistent with research findings that reveal that aggressive individuals often provide justification to themselves for their socially undesirable aggressive behavior (reviewed in Infante, 1987). In the initial version, half of the items were positively worded and half negatively worded. In this initial data collection, the subjects also completed the Argumentativeness Scale in order to test the ability of the scales to operationalize two separate constructs.

Factor analysis and item analysis of the data from the administration of the initial version resulted in a 20-item unidimensional scale, with 10 positively worded items and 10 negatively worded items. (This final version of the scale is presented in Appendix A). The specific results of these analyses were not reported in the article (Infante & Wigley, 1986). The reliability of the 20-item scale was high ($\alpha = .81$). In addition, its correlation with the Argumentativeness Scale was nonsignificant ($r = .10$). Infante and Wigley (1986) claimed that the low nonsignificant correlation with argumentativeness provided support for discriminant validity. However, a true multitrait-multimethod analysis was not conducted.

In addition, a sex difference was found such that the mean for males (52.53) was significantly greater ($t = 2.08, p < .05$) than the mean for females (49.22). This was consistent with previous research (Infante, Trebing, Shepherd, & Seeds, 1984; Infante, Wall, Leap, & Danielson, 1984). Infante and Wigley (1986) claimed that such a finding supports a personality approach to VA, given the social learning school of thought (see Infante, 1987, for a review).

The 20-item version was then administered to 427 students. Reliability was high and consistent ($\alpha = .81$). Tentative norms were reported: Mean = 49.10; median = 48.82; standard deviation = 9.79. The observed distribution of scores was compared to the normal distribution, resulting in a nonsignificant chi-square of 3.90 ($df = 5$). The conceptualization of VA as a personality trait is further supported, given its apparent normal distribution.

The data from this second administration was factor analyzed, resulting in a two-factor varimax solution. The items loaded onto factors according to their wording, so that the two factors consisted of all negatively worded items and all positively worded items. Infante and Wigley concluded that the scale was unidimensional, with a latent variable being item wording. They reported that respondents tended to admit to positively worded items (mean = 25.78) more than to negatively worded items (mean = 24.88). The difference in these two means was found to be significant ($t = 2.16, p < .05$). Infante and Wigley argued that this "latent variable" creates a simple structure for the items that is due solely to item wording.

RELIABILITY

Because VA is conceptualized as a stable trait (Infante, 1987), its stability needed to be assessed. Data from a different sample of 40 students in a 4-week, test-retest study revealed a correlation of .82 ($p < .001$) between the first and second administration of the scale. Further, the means of the two administrations were not significantly different ($t < 1$). Coefficient alphas for the two administrations were not reported. However, given the demonstration of

stability and the high coefficient alphas of .81 reported for each of the first two administrations, reliability of the scale is shown to be quite good.

CONCURRENT VALIDITY

Infante and Wigley (1986) investigated the concurrent validity of the VAS by administering it and seven other trait instruments to a different sample of 104 students. What Infante and Wigley refer to as "concurrent" validity, however, is labeled "construct" validity by Allen and Yen (1979). Infante and Wigley make predictions about the correlations of the VAS with other measures, based on the theoretical structure and conceptual definitions of all the constructs.

The instruments were administered by different investigators in three separate sessions with 2-week intervals. The administrations were made to appear as if they were different studies. All the hypotheses were supported. Thus the authors concluded that these results were an indication that the VAS was indeed an operationalization of VA as conceptualized by Infante (1987) and Infante and Wigley (1986), because the pattern of correlations among the instruments was consistent with the theoretical structure.

Buss and Durkee's (1957) Hostility subscale contained some items that corresponded to Infante's (1987) conceptualization of argumentativeness and some that corresponded to his conceptualization of VA. The validity of the VAS was further supported by the fact that the correlation between Buss and Durkee's Hostility subscale was significantly positively correlated with both the Argumentativeness Scale ($r = .25, p < .02$) and the VAS ($r = .43, p < .001$). Because the correlation between the VAS and the Argumentativeness Scale was nonsignificant ($r = -.04$), Infante and Wigley (1986) interpreted their results as showing support for the speculation that VA and argumentativeness are two separate constructs and that the Hostility subscale contains elements of both. Furthermore, Buss and Durkee's Assault subscale was significantly positively correlated with the VAS ($r = .32, p < .003$) and nonsignificantly correlated with the Argumentativeness Scale ($r = .09$).

These results were considered to be supportive of the conceptualization that VA has elements of hostility toward people, whereas argumentativeness does not.

PREDICTIVE VALIDITY

Finally, a study was conducted to assess the power of the VAS in predicting preferences for verbally aggressive messages in various social influence situations. The VAS was administered to a different sample of 86 students. Three weeks later, they received a booklet of descriptions of three different social influence situations. Six messages followed each description. Two were verbally aggressive messages; the other four were fillers. Each statement was rated on a 7-point scale for likelihood of its use in the given situation.

The VAS was significantly positively correlated with the sum of the likelihood ratings of the six verbally aggressive messages in three situations ($r = .69, p < .001$). Separately, each verbally aggressive message was also significantly positively correlated with the VAS, with correlations ranging from .36 to .58 (all $ps < .002$). The correlations between the VAS and the filler messages were not reported. Infante and Wigley (1986) concluded that the VAS has good predictive power for preference of verbally aggressive messages.

CRITIQUE

Overall, the VAS shows good reliability and adequate validity. A close reading of the items with the conceptualization of the construct in mind indicates good face validity and logical validity. Several questions must be raised, however, about the methods used to assess other types of validity. First, Infante and Wigley (1986) claimed to have found support for discriminant validity because the VAS does not correlate with the Argumentativeness Scale. Such a finding does not provide full support for the existence of discriminant validity, however. A complete multitrait-multimethod analysis would provide a more stringent test of convergent and discriminant

validity. Both VA and argumentativeness are measured with a self-report instrument. Within a multitrait-multimethod analysis, the correlation between different traits measured with the same method should be slightly higher than that between different traits measured with different methods if the instrument being tested has good convergent and discriminant validity. Because the correlation between VA and argumentativeness was so low and was nonsignificant, the problem is probably not crucial. However, without a complete analysis, the decision regarding convergent and discriminant validity of the VAS must remain open.

A problem with conducting such an analysis is that there are no other instruments for either construct. However, other ways have been devised in the past for the express purpose of validity testing. Infante (1981) conducted a study in which subjects were rated on the level of argumentative behavior by an observer who watched them in a laboratory setting. In the same study, the members of the dyad rated one another on argumentative skill and several other variables. Such ratings are different methods of measurement. Because the validity testing on the Argumentativeness Scale and the development of the VAS are integral parts of the same line of research, it is puzzling that such an in-depth procedure was not followed for the VAS.

Although the second validity study conducted by Infante and Wigley (1986) does seem to show that the VAS has some predictive power for choice of verbally aggressive messages, several problems are apparent. First, although the correlations between the VAS and the likelihood ratings of the six verbally aggressive messages were all significant, only the weakest (.36) and strongest (.58) of those correlations were reported. The VAS explains only 13% of the variance of one message and only 34% of another. The specific correlations of the VAS with the ratings of the remaining four verbally aggressive messages were not reported. These correlations are somewhere between .36 and .58. A correlation of .36 is not particularly high. If the correlations of these other four verbally aggressive messages with VAS are closer to .36 than .58, the argument for predictive validity is weakened. In fact, the strongest

argument for predictive validity is that the correlation between the VAS and the sum of the ratings of the six messages was .69. An explained variance of 48% is acceptable, but certainly no evidence of excellent predictive validity.

Second, the correlations of the VAS with the likelihood ratings of the fillers (items unrelated to the variable in question) were not reported. If these correlations were close to those for the verbally aggressive messages, the claim for predictive validity would not be substantiated. However, if these correlations were nonsignificant or very small, the claim for predictive validity would be stronger. Because they were not reported, it is impossible to compare them.

Finally, although it is valuable to have knowledge of the predictive validity of the VAS for preference of verbally aggressive messages, a behavioral component would be much more valuable. Rather than assess validity with a self-reported criterion, the assessment should be done with a true behavioral criterion. In this way, a true test of criterion-related validity could be achieved.

ARGUMENTATIVENESS SCALE

This section examines the methods used to determine the validity and reliability of the Argumentativeness Scale developed by Infante and Rancer (1982). Tests of validity and reliability were conducted while developing the measure. Subsequent research using the Argumentativeness Scale has further contributed to our knowledge claims regarding the construct.

Argumentativeness was conceptualized as a stable trait that predisposes an individual to verbally attack or defend positions on issues (Infante & Rancer, 1982). People have varying degrees of trait argumentativeness. A person with a high argumentativeness score would enjoy arguing and engaging in verbal argumentativeness when most people would choose to avoid arguing. A person with a low argumentativeness score would feel uncomfortable about the prospect of arguing, the argumentation process, and the after-feelings of argumentation (Infante & Rancer, 1982). Though

previous research had been concerned with argumentativeness (Hovland & Janis, 1959) and contentiousness (Norton, 1978), a model of argumentativeness had not been developed (Infante & Rancer, 1982).

The theoretical basis for the Argumentativeness Scale is Atkinson's (1957, 1966) theory of achievement motivation (Infante & Rancer, 1982). The theory postulates that excitation-inhibition toward conflict situations will determine a person's response to a conflict situation. Based on trait and state conditions, conflict approach or avoidance is determined by an individual's perceptions of negative and positive outcomes on tasks. Atkinson's theory states that individuals weigh perceptions of failure and success to determine their motivation in achieving success at a given task. On the basis of Atkinson's theory, Infante and Rancer (1982) argued that there are competing approach and avoidance motivations for a person to engage in argumentation, which are based on trait and state factors.

To conceptualize the argumentativeness trait, dichotomous factors—argumentativeness approach and avoidance—were postulated by Infante and Rancer (1982). Argumentativeness approach (ARGap) is the tendency to approach arguments, and argumentativeness avoidance (ARGav) is the tendency to avoid arguments. An individual's argumentativeness general trait (ARGgt) is equal to ARGav subtracted from ARGap. A high-trait-argumentativeness person is high on ARGap and low on ARGav. The opposite is true for a low-argumentative person. A moderate-argumentative person would have equal levels of ARGap and ARGav. A low ARGap and low ARGav would represent an apathetic disposition toward arguing. A person with high ARGap and high ARGav would have conflicting feelings about arguing (Infante & Rancer, 1982).

Perceived probabilities of success and failure influence the likelihood of a person's desire to engage in argumentation. On the basis of Atkinson's achievement motivation theory (1957, 1966), which examines state probabilities of success and failure, Infante and Rancer (1982) developed four situational factors to predict argumentativeness. The factors concern the probability of success (Ps), probability of failure (Pf), the importance of success (Is), and

the importance of failure (If). State factors based on the four situational conditions as well as trait factors will determine the likelihood of a person's engaging in argumentation.

Tendency to approach an argument (Tap) is dependent on trait and state conditions. Infante and Rancer (1982) state, "Tap = ARGap × Ps × Is": The tendency to avoid argumentation is determined by "Tav = ARGav × Pf × Pf × Is" (p. 74). Resultant motivation for argument (RMArg), which would determine the argumentativeness of an individual in a specific situation, is calculated by "RMArg = Tap – Tav" (Infante & Rancer, 1982). Though RMArg is determined by state and trait factors, the Argumentativeness Scale is a trait scale. One study concerned with the validity of the scale examined the impact of the argumentativeness general trait (ARGgt) compared to RMArg (Infante & Rancer, 1982). This study found that RMArg was a better predictor of argumentativeness than ARGgt. In developing the scale, Infante and Rancer differentiated argumentativeness from related constructs.

VA, as indicated previously, is conceptualized as personal attacks designed to discredit another person. Argumentativeness focuses on issues and positions on those issues. Infante and Rancer hypothesized that factor analysis of verbal-aggressiveness and argumentativeness items would produce independent loadings. Though communication apprehension (McCroskey, 1977) may be related to the argumentativeness trait, communication apprehension is concerned with a broad scope of communication situations. It was hypothesized that there would be a low level of shared variance between communication apprehension and argumentativeness (Infante & Rancer, 1982). To test the theoretical considerations and hypotheses, a measure of argumentativeness was developed.

MEASUREMENT DEVELOPMENT

The Argumentativeness Scale was developed in a series of three studies using factor analysis. The first study consisted of administering a 45-item Likert-type test designed to tap argumentativeness approach, argumentativeness avoidance, and VA (Infante &

Rancer, 1982). Items that "appeared to have face validity" (p. 75) were administered to 141 undergraduate students. The authors do not offer examples of the items administered in this study, except for two examples of VA: "I like poking fun at someone who does something I regard as stupid" or "I enjoy telling off someone who has insulted me" (p. 75).

Results of the first study were factor analyzed to establish construct validity of the three factors (Allen & Yen, 1979). Using principal component analysis, items needed to load at least .50 on a factor and not more than .30 on one of the other factors. Oblique rotation resulted in five argumentativeness-approach items, eight argumentativeness-avoidance items, and six verbal-aggressiveness items. The factorial loadings supported the hypothesis that VA and argumentativeness are distinct constructs (Infante & Rancer, 1982).

The second study involved administering a 37-item scale, consisting of items that loaded on the avoidance and approach dimensions of argumentativeness. Verbal-aggressiveness items were also included in the test. The scale was administered to 139 undergraduate students. Factor analysis results revealed 10 items for measuring argumentativeness approach and 10 items measuring argumentativeness avoidance (Infante & Rancer, 1982). These 20 items formed the Argumentativeness Scale. The researchers did not indicate how the 37 items were created, except to state that 19 items that loaded on the three factors in the first study were included. The number of items concerned with argumentativeness approach and avoidance, and the number of verbal-aggressiveness items, was not given. The type of factor analysis performed, whether varimax or oblique rotation and the loadings of factors items were not included. Additionally, all of the validity limitations of the first study apply to the second study. The factorial-analytical approaches used in both studies can help explain the high internal reliabilities reported for the Argumentativeness Scale.

The third study involved the administration of the 20-item Argumentativeness Scale, developed in the second study, to 692 undergraduates. Factor analysis was used to analyze the results. The analysis demonstrated that the 10 argumentativeness-approach items loaded from .57 to .85, and .29 was the highest secondary

loading. Eight of the argumentativeness-avoidance items loaded from .52 to .83, with the highest secondary loading at .16. Item 5 loaded .46, with a secondary loading of .19; and Item 1 loaded .49, with a secondary loading of .11. Oblique rotation factorial tests demonstrated that argumentativeness approach and avoidance were independent. The Argumentativeness Scale (Infante & Rancer, 1982), consisting of 10 argumentativeness-approach and 10 argumentativeness-avoidance items, was based on the three studies discussed above (final version is presented in Appendix B).

RELIABILITY OF THE ARGUMENTATIVENESS SCALE

Research using the Argumentativeness Scale has consistently reported high levels of reliability. Rancer et al. (1985) studied 138 subjects and reported coefficient alpha of .84 for argumentativeness-avoidance items and .86 for argumentativeness-approach items. Nicotera and Smilowitz (1988) reported Cronbach reliabilities of .88 for argumentativeness avoidance and .87 for argumentativeness approach. The coefficient alpha reliability for argumentativeness approach and argumentativeness avoidance has been at least .85 in studies reviewed by Infante, Trebing, Shepherd, and Seeds (1984).

Two tests of reliability for the scale were reported by Infante and Rancer (1982). Internal consistency of the measure was determined by calculating the coefficient alpha of the results of the third study. Additionally, test-related reliability was assessed in a separate study involving 35 undergraduates. Cronbach's coefficient alpha was used to determine the reliability of the whole test, because it is appropriate for measures that do not have parallel halves or unequal variance (Allen & Yen, 1979; Infante & Rancer, 1982). The reliability coefficient for the 10 ARGap items was .91, and the coefficient for the 10 ARGav items was .86 (Infante & Rancer, 1982, p. 76). The reliability of the test is high because coefficient alpha tends to be a conservative measure of test reliability (Allen & Yen, 1979).

Test-retest reliability was conducted with 35 students not previously tested. Tests were administered one week apart. Test-retest reliability for the ARGap was .87, and the reliability of the ARGav was .86 (Infante & Rancer, 1982). Test-retest was also computed

for the subjects' argumentativeness scores ($ARG_{gt} = ARG_{ap} - ARG_{av}$), which revealed reliability of .91. On the basis of that result, Infante and Rancer (1982) wrote, "This suggests that the measure of the individual's general trait to be argumentative tends to be highly stable" (p. 77). The researchers did not address the potential problem of carryover effects from the test-retest (Allen & Yen, 1979), especially after only one week had elapsed. Internal-consistency reliability and test-retest reliability both demonstrated high levels of reliability.

VALIDITY

The validity of a scale requires tests over a period of time. Validity of the scale was assessed through several tests of construct validity, concurrent validity, convergent validity, and discriminant validity. Construct validity, the degree to which the construct (Argumentativeness Scale) corresponds to behavior (argumentativeness) was first assessed. Construct validity is an ongoing validation process (Allen & Yen, 1979) of the construct under study.

To test construct validity, the researchers correlated Argumentativeness Scale scores of subjects with the perceptions of the subjects' argumentativeness by their friends. Thirty-four undergraduates completed the Argumentativeness Scale. A close friend of each undergraduate completed a modified Argumentativeness Scale on the undergraduate. Pearson r was calculated for each subject's score and their friend's score. Reliability of the scores for argumentativeness approach was .54 ($p < .001$), and the reliability of the scores for argumentativeness avoidance was .42 ($p < .02$; Infante & Rancer, 1982).

The level of correspondence between subjects' scores and the perception of the subjects' friends was significant, though the researchers failed to establish a theoretically based constitutive definition of argumentativeness. In establishing construct validity, the researchers should have first provided a theoretical foundation to determine what was being measured (Rubin, 1985). The construct did not correspond to possible dimensions of argumentativeness, other than approach or avoidance tendencies that exist in

argumentation. The sample size ($N = 34$) was small to serve as a basis for construct validity. This measurement of construct validity was limited to a comparison of two sets of perceptions. Determining the impact of a measure on actual behavior is a superior form of criterion-related predictive validity (Allen & Yen, 1979). The correspondence of scores on the Argumentativeness Scale, in relation to actual argumentative behavior, was not assessed in this study.

Concurrent validity is a form of criterion-based validity involving the correlation of a test with a criterion score of behavior (Allen & Yen, 1979). The criterion and test measures should be administered at the same time. The second study was based on the assumption that argumentativeness should be related to other measures of communication predispositions. In this study, 44 undergraduates completed measures of argumentativeness; communication apprehension (McCroskey, 1977); predisposition toward verbal behavior (Mortensen, Arnston, & Lustig, 1977); and unwillingness to communicate (Burgoon, 1976). The results supported the hypothesis of the researchers that argumentativeness and communication apprehension would have a moderate relationship ($r = -.45$ for ARGap and $r = .41$ for ARGav, $p < .05$). Moderate relationships were found between argumentativeness and predisposition toward verbal behavior ($r = .32$ for ARGap and $r = -.38$ for ARGav, $p < .05$) and avoidance-approach dimensions of unwillingness to communicate ($r = -.35$ for ARGap and $r = .47$ for ARGav, $p < .05$). The reward dimension of unwillingness to communicate did not have significance ($r = -.22$ for ARGap and $r = -.17$ for ARGav). The results support the concurrent validity of the scale because correlations were in the expected direction (Infante & Rancer, 1982). This study more accurately tested discriminant validity by demonstrating that measures of communication apprehension, verbal behavior, and unwillingness to communicate share some variance with argumentativeness and that argumentativeness is a distinct construct.

Convergent and discriminant validity of the Argumentativeness Scale were tested by measuring the reliability of the scale as a predictor of subjects' desire to be involved in debates and unwillingness to participate in activities related to argumentativeness. Convergent validity is a correlation of scores that measure the same

trait using different methods. Discriminant validity measures a trait against unrelated traits to demonstrate that the trait discriminates between the constructs (Allen & Yen, 1979). To test discriminant and convergent validity, 51 undergraduates were asked to complete the Argumentativeness Scale. One week later the subjects were measured for their desire to engage in a debate with another student, to watch and rate a television program, to discuss their life goals with another student, and to deliver a speech. Infante and Rancer (1982) reasoned that argumentativeness should be related to the desire to be in a debate and should not be related to the other behaviors assessed. The results found the desire to participate in a debate was positively related to ARGap ($.30, p < .05$) and negatively related to ARGav ($-.37, p < .05$). The desire to watch TV programs, engage in a conversation, and deliver a speech were not significantly related to argumentativeness avoidance or approach. The researchers concluded that because the expected relationships of argumentativeness and debate were the only significant relationships, convergent and discriminant validity of the Argumentativeness Scale were supported (Infante & Rancer, 1982). An assumption of convergent validity is that two instruments measure the same trait. The researchers failed to support the assumption that *debate and argumentativeness measure the same trait*. Desire to participate in debate and argumentativeness may not be the same trait. This would violate convergent validity. Debating is conceptualized as a subset of argumentativeness in debate textbooks. "Convergent validity is demonstrated by high correlations between scores on tests measuring the same trait by different methods" (Allen & Yen, 1979, p. 110).

The final convergent validity test measured the Argumentativeness Scale with state argumentative conditions (Infante & Rancer, 1982). *State* refers to a temporary behavior versus *trait*, which refers to a more permanent personality variable. The first part of the study involved administering the Argumentativeness Scale to 50 undergraduates. It was predicted that argumentativeness trait scores should be related to state argumentativeness. Additionally, resultant motivation for argumentativeness in a particular situation (RMArg) should be a better predictor of argumentativeness than

the argumentativeness trait measured by the Argumentativeness Scale.

The second part of the study, conducted one week later, measured how the subjects would respond to an argumentative situation. The situation involved arguing with another student in class about a controversial issue. After the argumentative situation was introduced, subjects completed an eight-question semantic-differential scale to measure their attitude toward the argumentative situation. The subjects did not actually engage in argumentation. Reliability of the attitude scale was .91. Additionally, subjects completed a measure of Ps (probability of success; $r = .90$), Pf (probability of failure; $r = .60$), Is (importance of success; $r = .86$), and If (importance of failure; $r = .89$). The results confirmed that the argumentativeness trait, measured by the Argumentativeness Scale, was significantly related to subjects' attitudes toward the argument situation ($r = .36, p < .02$). RMArg (the combined state and trait measures; $r = .56$) accounted for more variance than the trait measure alone ($r = .36$).

CRITIQUE

The scale's consistent high reliability is a powerful argument for the strength of the scale but may be attributed to the method of developing the scale. The factor-analytic approach used in the three studies that developed the scale resulted in items being kept that highly correlated with each other. The result of the factor-analysis process is a scale to measure argumentation in a simplified format, essentially determining like or dislike of argumentativeness. The 20 items in the scale do not measure distinct domains of argumentativeness, other than the tendency to approach and avoid argumentative situations. Because the 10 items in each of the two categories of the scale are extremely similar, high levels of reliability would be expected.

The scale may be an indicator, as opposed to an attribute, of the construct. The generation of the items was not based on an analysis of construct dimensions. In developing the initial 45 items used to measure argumentativeness as well as VA, Infante and Rancer

(1982) failed to clarify the procedure used, other than to write items that appeared to have face validity. The 45 items were factor analyzed to develop argumentativeness-approach and argumentativeness-avoidance items. Because there is a lack of a theoretical base, the items may simply be indicators of attitudes toward argumentativeness. Recently, work has been completed on belief structures and argumentativeness (Rancer & Baukus, 1987; Rancer, Baukus, & Amerto, 1987; Rancer et al., 1985).

SUMMARY

Infante and Rancer (1982) and Infante (1987) have consistently maintained that argumentativeness and verbal aggression are two separate personality traits that do not overlap (Infante, Trebing, Shepherd, & Seeds, 1984). They have been defined as follows: Argumentativeness is "a trait that predisposes the individual to recognize controversial issues in communication situations, to advocate positions on the issues, and to attempt refutation of the positions taken by other people on the same issue" (Infante & Rancer, 1982, p. 72). Verbal aggression is "a trait to attack the self-concept of another person instead of, or in addition to, the person's position on a topic of communication" (Infante & Rancer, 1982, p. 74).

Recent research has challenged that assumption. Gibson (1989) used a multitrait-multimethod design to test for the interrelationships between these two variables. She concluded that

argumentativeness and verbal aggression, contrary to published research, do not occupy two, separate personality dimensions. Convergent validity was not proven for one of the two traits, discriminant validity was unsupported in two of four tests. Given the moderate correlation coefficients definite statements of independence cannot be substantiated. (pp. 56-57)

Nicotera (1990) has also tested for social desirability of the Argumentativeness Scale and found that the words *argue* and *argument* caused significant differences between perceptions of males and females. She called for vigilance in the use of the scale.

In another study subjects indicated their regard for argumentativeness as a negative trait by writing comments such as "I don't argue, I discuss" (Nicotera & Smilowitz, 1988).

Given the issues reviewed above, we would recommend use of the VAS versus the Argumentativeness Scale. The evidence in the literature cannot conclusively support the position that the Argumentativeness Scale discriminates argumentativeness from verbal aggression. If this discrimination is crucial to an investigation, the Argumentativeness Scale should be used in conjunction with the VAS, so that the researcher may test for this difference. Finally, some assessment of social-desirability bias should be included in the research design.

Conceptualization of these constructs remains strong, while operationalization still needs to respond to issues raised in this article. If these issues are taken into account by the researcher, then the instruments can be used as a measure of important communication traits.

APPENDIX A

Verbal Aggressiveness Scale

This survey is concerned with how we try to get people to comply with our wishes. Indicate how often each statement is true for you personally when you try to influence other persons. Use the following scale.

- 1 = almost never true for you
- 2 = rarely true for you
- 3 = occasionally true for you
- 4 = often true for you
- 5 = almost always true for you

- ___ 1. I am extremely careful to avoid attacking individuals' intelligence when I attack their ideas.
- ___ 2. When individuals are very stubborn, I use insults to soften the stubbornness.
- ___ 3. I try very hard to avoid having other people feel bad about themselves when I try to influence them.
- ___ 4. When people refuse to do a task I know is important, without good reason, I tell them they are unreasonable.
- ___ 5. When others do things I regard as stupid, I try to be extremely gentle with them.
- ___ 6. If individuals I am trying to influence really deserve it, I attack their character.
- ___ 7. When people behave in ways that are in very poor taste, I insult them in order to shock them into proper behavior.
- ___ 8. I try to make people feel good about themselves even when their ideas are stupid.
- ___ 9. When people simply will not budge on a matter of great importance, I lose my temper and say rather strong things to them.
- ___ 10. When people criticize my shortcomings, I take it in good humor and do not try to get back at them.
- ___ 11. When individuals insult me, I get a lot of pleasure out of really telling them off.

- ___ 12. When I dislike individuals greatly, I try not to show it in what I say or how I say it.
- ___ 13. I like poking fun at people who do things which are very stupid in order to stimulate their intelligence.
- ___ 14. When I attack a person's ideas, I try not to damage their self-concepts.
- ___ 15. When I try to influence people, I make a great effort not to offend them.
- ___ 16. When people do things that are mean and cruel, I attack their character in order to help correct their behavior.
- ___ 17. I refuse to participate in arguments when they involve personal attacks.
- ___ 18. When nothing seems to work in trying to influence others, I yell and scream in order to get some movement from them.
- ___ 19. When I am not able to refute others' positions, I try to make them feel defensive in order to weaken their positions.
- ___ 20. When an argument shifts to personal attacks, I try very hard to change the subject.

APPENDIX B

Argumentativeness Scale

Instructions

This questionnaire contains statements about arguing controversial issues. Indicate how often each statement is true for you personally by placing the appropriate number in the blank to the left of the statement. If the statement is *almost never true* for you, place a "1" in the blank. If the statement is *rarely true* for you, place a "2" in the blank. If the statement is *occasionally true* for you, place a "3" in the blank. If the statement is *often true* for you, place a "4" in the blank. If the statement is *almost always true* for you, place a "5" in the blank.

- ___ 1. While in an argument, I worry that the person I am arguing with will form a negative opinion of me.
- ___ 2. Arguing over controversial issues improves my intelligence.
- ___ 3. I enjoy avoiding arguments.
- ___ 4. I am energetic and enthusiastic when I argue.
- ___ 5. Once I finish an argument I promise myself that I will not get into another.
- ___ 6. Arguing with a person creates more problems than it solves.
- ___ 7. I have a pleasant, good feeling when I win a point in an argument.
- ___ 8. When I finish arguing with someone, I feel nervous and upset.
- ___ 9. I enjoy a good argument over a controversial issue.
- ___ 10. I get an unpleasant feeling when I realize I am about to get into an argument.
- ___ 11. I enjoy defending my point of view on an issue.
- ___ 12. I am happy when I keep an argument from happening.
- ___ 13. I do not like to miss the opportunity to miss a controversial issue.
- ___ 14. I prefer being with people who rarely disagree with me.
- ___ 15. I consider an argument an exciting intellectual challenge.
- ___ 16. I find myself unable to think of effective points during an argument.
- ___ 17. I feel refreshed and satisfied after an argument on a controversial issue.

- ___ 18. I have the ability to do well in an argument.
- ___ 19. I try to avoid getting into arguments.
- ___ 20. I feel excitement when I expect that a conversation I am in is leading to an argument.

Scoring Instructions

Tendency to approach argumentative situations: add scores on items 2, 4, 7, 9, 11, 13, 15, 17, 18, 20.

Tendency to avoid argumentative situations: add scores on items 1, 3, 5, 6, 8, 10, 12, 14, 16, 19.

Argumentativeness trait: subtract the total of the 10 tendency-to-avoid items from the total of the 10 tendency-to-approach items.

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