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ABSTRACT

To provide an assessment of current instruments being used by communication scholars, investigators examined and identified the most frequently used instruments that had been published in the past five years in the nine major speech communication journals. Each article was examined for the identification of the instruments used, constructs measured, reliability and validity tests completed on the instruments, and the type of subjects incorporated to test the instrument. Correlation with other instruments, use as an independent or dependent variable, and the original citation for the report of the development of the instrument were noted. The data were sorted by the name of the instrument used, the construct studied, publication location of the article, and the publication location of the original instrument. The analysis revealed that among the most popular instruments were (1) the Personal Report of Communication Apprehension (PRCA)-College; (2) PRCA-25; (3) Communicator Style; (4) Interpersonal Attraction Style; (5) Bem's Sex Role Inventory; (6) International Communication Association Audit Survey; (7) State-Trait Anxiety Inventory; and (8) Job Description Index. Six pages of references are appended. (HOD)

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The Most Frequently Used  
Self-Report Instruments in Communication

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THE MOST FREQUENTLY USED  
SELF-REPORT INSTRUMENTS IN COMMUNICATION

Abstract

This research examines the use of self-report paper-and-pencil instruments used in communication journals and assesses their value. The investigators identified and examined the most frequently used instruments that had been published in the past five years in the nine major speech communication journals. Among the most popular instruments were the PRCA-College, PRCA-25, Communicator Style, Interpersonal Attraction Style, Bem's Sex Role Inventory, ICA Communication Audit Survey, State-Trait Anxiety Inventory, and Job Description Index.

## THE MOST FREQUENTLY USED SELF-REPORT INSTRUMENTS IN COMMUNICATION

In the sciences. . .it is often better to do one's best with the tools at hand than to pause for contemplation of divergent approaches.

--Thomas S. Kuhn, 1970

If we are to heed Kuhn's advice, a careful examination of the strength of the current "tools" in a discipline is critical. One type of research tool frequently used to examine communication variables is the self-report paper and pencil instrument. This paper examines the most frequently used self-report paper and pencil instruments used in communication journals and assesses their value. As researchers, we feel that a careful assessment of current instruments being used by communication scholars is long overdue. It was our intent to begin to answer that need.

### CRITERIA FOR INSTRUMENT ASSESSMENT

The goal of communication inquiry is to test hypothetical propositions about relationships between, and among, variables or constructs. Often those constructs are

operationalized through paper-and-pencil self-report instruments. One criterion that ought to be applied to such instruments is the use of a strong theoretical base from which to select appropriate constructs. A clear statement of what an instrument is intended to measure and how the specific scaling technique (i.e. Likert, Guttman) will accomplish that goal is needed. The formation of questions should follow Babbie's (1983) recommended guidelines: mutually exclusive statements, avoidance of double barreled questions, clear items, competency of respondent to answer, relevance, unbiased terms, and avoidance of negatively worded items.

Reliability and validity must be assured. A variety of reliability tests can be applied: odd/even, first half of test compared with second half of test (split half) or matched random subsets. A measure of the instruments' internal consistency is also critical. The researcher needs to perform these reliability tests regardless of previous reliability tests completed on the same instrument.

Validity data should meet minimal standards of instrument acceptance. Appropriate use of construct validity measures is frequently overlooked. The researcher needs to justify the type of validity, such as convergent, divergent, criterion, and construct validity, that has been used. Some researchers have suggested a multitrait-multimethod validity test which matches many ways of measuring the same variable with many ways of analyzing the data. Factor analysis is frequently used to determine the strength of variables

that the instrument claims to measure. At the very least, it is our contention that any instrument used should at least have internal validity tests completed with the current sample under investigation.

Previous tests for reliability as well as validity may not be appropriate for the specific population being studied. When new instruments are developed, they ought to be subjected to the most rigorous examination of their ability to measure what they purport to measure as well as their reliability over time if appropriate. Too frequently communication researchers have developed single item responses, and self-report measures without appropriate reliability and validity testing. In some cases, no testing of this nature is reported at all. One must assume that either these authors are unaware of basic instrument development techniques or that the time needed to complete such tests is viewed as too arduous.

#### METHOD

One hundred and eighty journals from 1979 to 1983 were examined which generated 199 studies that included at least one self-report paper and pencil test. Single item instruments were not included in the analysis. Each article was examined for the identification of instruments used, constructs measured, reliability and validity tests completed on the instruments, and the type of subjects incorporated to test the instrument. Correlations with other instruments, use as an independent or dependent variable, and the original

citation for the report of the development of the instrument were noted. This data was sorted according to the name of the instrument used, by the construct studied, by publication location of the article, and finally by the publication location of the original instrument. Frequency of use by the type of instrument, as well as range and mean of subjects used across all instruments, was calculated. Range and mean of reliability, percentage of validity type, and subject type were determined.

## RESULTS

### Total Instruments used

A total of 209 instruments were used in these studies. The vast majority of the instruments were used once (out of 209 instruments reported, 74% were used only one time during the period of time studied). The most frequently used instruments were: PRCA (McCroskey, 1970) used in 20 articles; Communicator Style Measure (Norton, 1978) used in 11 articles; the PRCA-25 (McCroskey, 1978) used in 7 articles; Interpersonal Attraction Scale (McCroskey & McCain, 1974) cited in 8 articles; Bem Sex Role Inventory (Bem, 1974) used in 7 articles; ICA Communication Audit Survey Instrument (Goldhaber, Yates, Porter & Lesniak, 1978) identified in 7 articles; State-Trait Anxiety Inventory (Spielberger, 1973) used in 6 articles; Job Description Index (Smith, Kendall & Hulin, 1969) used in 5 studies; Source Credibility Scale (McCroskey, Jensen, & Todd, 1972) used in five studies; Role Category Questionnaire (Crockett, 1965) used in 4 studies;

Receiver Apprehension Test (Wheless, 1975) used in 4 studies; Unwillingness to Communicate (Burgoon, 1976) used in 4 studies; Ethos Scale (McCroskey, 1966) used in 4 studies; and the Dyadic Adjustment Scale (Spanier, 1976) used in 4 studies. Five other instruments were used three times in research: Homophily with Public Figures (Andersen & Todd de Mancillas 1975); I-E Scale (Rotter, 1966); Supervisor-Subordinate Openness (Jablin, 1978); and Verbal Reticence Scale (Lustig, 1974) and the PRCA-24 (McCroskey, 1977).

#### Most Frequently Used Instruments

The eight most frequently used instruments were examined in detail. Two of the most frequently used instruments, as well as the most frequently measured construct, were two versions of the PRCA measuring communication apprehension. These instruments were developed by McCroskey to measure what he defined as "an individual's level of fear or anxiety associated with either real or anticipated (oral) communication with another person or persons" (McCroskey, 1970, p.57). The original form of the PRCA (McCroskey, 1970) was used most frequently, appearing in 20 different research studies (Beatty, Behnke, & McCallum, 1978; Bradac, Tardy & Hasman, 1980; Daly, 1978a; Daly, 1978b; Greenblatt, Hasenauer & Freimuth, 1980; Jablin, 1981; Jablin, Sorenson, & Seibold, 1978; Kelly, Phillips, & McKinney, 1982; Lashbrook, Lashbrook, Bacon & Salenjoir, 1979; Lustig & King, 1980; McCroskey & Richmond, 1982; McCroskey & Sheahan, 1978; McDowell & McDowell, 1978; Parks, 1980; Porter, 1981; Powers

& Smythe, 1980; Richmond, 1978; Richmond, McCroskey & Davis, 1982; Watson & Krayner, 1980; and Zakahi & Duran, 1982). The PRCA in its earlier form includes 20 items measuring apprehension across a variety of communication situations. The original title for the instrument was the PRCA-College. The items focus on apprehension about communicating in the following situations: interpersonal communication, small group communication, and a "few extreme public speaking situations" (McCroskey, 1970, p. 272). There are also some items that do not relate exclusively to any one context (i.e. "I dislike to use my body and voice expressively"). Based on a factor analysis of the instrument, McCroskey concludes, "...it is more defensible to conclude that the PRCA-college is unidimensional than that it is multidimensional" (p. 273). Original reliability results indicated internal consistency estimates (odd-even) that ranged from .92 to .94. Test-retest reliability over a ten day period (n=769) was .83. The scale uses a 5-point response format, traditionally summed across items on the basis of raw responses.

Of the research articles using this instrument, and completing reliability tests on the instrument, the average alpha reliability score was .92 (based on 8 articles). Average split-half reliability on the instrument was .93 (based on two articles). Finally, the average odd-even reliability score was .93 (based on 4 articles). One article also reported Winer ANOVA reliability to be .89, unbiased estimate .74, and average inter-item correlation to be .35.

No validity tests were reported. The subjects used to measure this construct ranged from 60 to 852 with an average subject pool of 222. With two exceptions, all of the studies incorporating this instrument used undergraduate students for their subjects.

A more recent version of the PRCA was also one of the most frequently used instruments (McCroskey, 1978). This version consists of 25 items which are placed on 5-point likert-type scales which range from "strongly agree" to "strongly disagree." The instruments includes public speaking and interpersonal communication situations. Seven studies were conducted using the PRCA-25 (Beatty & Behnke, 1980; Daly & Friedrich, 1981; Daly, Richmond & Leth, 1979; Friedrich, 1981; McCroskey, Simpson & Richmond, 1982; Parks, Dindia, Adams, Berlin & Larson, 1980; Porter, 1982; Talley & Richmond, 1980). Data was reported for a total of 4,612 subjects; the subjects ranged from 160 to 884 per study, with a mean of 329 subjects. All seven studies used undergraduate students as subjects while one study used a combination of undergraduate students and teachers. Cronbach's coefficient alphas were determined in many studies and ranged from .93 to .95. Split-half reliability estimates were offered between .72 and .94. The validity of the PRCA was carefully considered by McCroskey (1978), and most subsequent researchers relied upon the information that McCroskey summarized.

The Communicator Style instrument was created by Norton (1978) who defined communicator style as "the way one

verbally and paraverbally interacts to signal how literal meaning should be taken, interpreted, filtered, or understood." (p. 99). Communicator style thus concerns the manner in which things are communicated rather than the content of communication. The communicator style measure includes nine variables: dominant, dramatic, contentious, animated, impression-leaving, relaxed, attentive, open, and friendly. These nine variables are measured with 45 items, placed on 7-point scales that range from "very strong agreement" to "very strong disagreement."

The Communicator Style instrument was used in 11 studies reported in 9 journal articles (Andersen, Norton & Nussbaum, 1981; Andersen & Whithrow, 1981; Infante & Gordon, 1981; Miller, 1980; Montgomery & Norton, 1981; Porter, 1982; Stohl, 1981; Talley & Richmond, 1980; and Whaley, 1982). The number of subjects ranged from 51 to 736, with a mean of 300. All of the subjects, with the exception of 52 children between the ages of 3 years and 5 years, 5 months, were undergraduate students. Most of the authors determined their own reliability information, relying upon Cronbach's coefficient alpha or another measure of internal reliability. Only three studies report validity information. These include canonical correlation between how one sees his/her own style and how others see it (Andersen, Norton & Nussbaum, 1981), cluster analysis which demonstrated the dimensionality of the subconstructs (Andersen, Norton & Nussbaum, 1981); and the determination of correlations between one's perceived degree

of effort and his/her communicator style (Porter, 1982).

McCroskey and McCain developed the Interpersonal Attraction Scale in 1974. The instrument measures three dimensions of attractiveness: physical, task, and social. Each of these dimensions is represented with five items on the measure, resulting in a total of fifteen items. The interpersonal Attraction Scale uses a 7-point likert-type scaling method. Researchers who have used this scale have used all, or parts of it.

The Interpersonal Attraction Scale was used in eight studies reported in seven publications (Andersen & Kibler, 1978; Bradley, 1981; Burgoon & Markel, 1980; Cupach & Spitzberg, 1981; Hill & Courtright, 1981; Hurt & Cook, 1979; and Stacks & Burgoon, 1981) The number of subjects ranged from 50-350, with a mean of 151. Six of the studies used undergraduate students as subjects; one study used a telephone survey technique and included Tallahassee, Florida residents, and one study used secondary school teachers. Most of the authors determined their own reliability information, relying upon Cronbach's coefficient alpha, odd-even reliability, or simply reporting that they did internal reliability tests. The reliability ranged from .67 for task attraction in one study, to .89 for social attraction in another. Only two studies report validity information. These include a factor analysis with an oblique rotation with credibility measures which demonstrate that the Interpersonal Attraction Scale is sufficiently correlated with them (Hurt & Cook, 1979). Andersen and Kibler (1978) state that the

instrument has construct validity through prior use and they correlate the measure with credibility and homophily.

The Bem Sex Role Inventory (Bem, 1974) provides a useful alternative to the traditional sex-role model as it allows one to categorize four psychological sex-types on the basis of a comparison between an individual's self-ratings of feminine and masculine traits. The instrument consists of 60 adjectives which subjects rate on a 7-point scale ranging from "never or almost never true of me" to "always or almost always true of me." Twenty of the items are masculine, twenty are feminine and 20 are neutral.

In our survey, seven studies, reported in six separate journal articles, used the the BSRI (Fitzpatrick & Indvik, 1982; Greenblatt, Hasenauer, & Freimuth, 1980; Isenhardt, 1980; Talley & Richmond, 1980; Wheelless & Dierks-Stewart, 1981; and Wheelless & Duran, 1982). The range of subjects was from 106 to 882, the mean number of subjects used was 440, and six studies used undergraduate students while one study used adults. Reliability was determined for the BSRI using Nunnally's internal reliability estimate (Wheelless & Duran, 1982), Cronbach's coefficient alpha (Greenblatt, Hasenauer & Freimuth, 1980); and split-half reliability (Talley & Richmond, 1980). Reliability estimates ranged from .84 to .90 for masculinity and from .74 to .91 for femininity. Most authors did not report validation of the instrument, however, Wheelless & Dierke-Stewart (1981) report construct validity as they analyzed the responses of a second group of subjects

about the desirability of each item on the instrument for women and for men.

The International Communication Association (ICA) Communication Audit Survey Instrument (Goldhaber & Rogers, 1979) was used in seven research projects (Daniels & Spiker, 1983; Goldhaber, Yates, Porter & Lesniak, 1978; Gorden, Tengler & Infante, 1982; Infante & Gorden, 1981; Murray, 1983; and Spiker & Daniels, 1981). Of the seven individual scales in the ICA survey instrument, three scales were used: the relationship scale which measures an individual's satisfaction with communication with supervisor, top management, co-workers, and individual influence in the organization; the outcomes scale which measures satisfaction with the job, and the amount of information received scale which measures amount of current information received on various job related issues against the amount of information desired. All scales use a 5 point Likert-like scale. Four of the studies reported using the ICA data bank on the relationship scale, the outcome scale, and the information received scale. Two additional studies used the relationship scale to collect current data. Of those that used the data bank subject pool the number of subjects selected from the pool for analysis ranged from 600 to 2,959. Of the two studies that collected data with the instrument an average of 232 subjects were used. Without exception, the subjects used for these instruments were organizational employees. Reliability, determined by coefficient alpha, averaged .90 on the relationship scale and .76 on the organizational

outcomes scale.

The State-Trait Anxiety Inventory (STAI) Spielberger, 1973 is an inventory which measures both state anxiety and trait anxiety. Trait anxiety refers to relatively stable individual differences in anxiety proneness, i.e. to differences among people in disposition or tendency to perceive a wide range of situations as threatening and to respond to these situations with differential elevations in state anxiety. The A-trait section of the inventory is composed of 20 items, scored on a one to four scale with one being "almost never" and four being "almost always". Subjects are asked to respond as to how they "generally" feel. The rating of each item is added together to obtain a single score. Scores may range from 20 to 80. Test-retest reliability for the trait portion of one hour, 20 days, and 104 days ranged from .73 to .86 while coefficient alpha exhibited a range of .86 to .92 in the original testing (Spielberger, Gorsuch & Lushene, 1968). Concurrent validity is evidenced by a correlation of .75 between the A-trait and the IPAT, .90 with the Manifest Anxiety Scale, and .53 with the Affective Adjective Checklist. These are all measures of trait anxiety.

Seven articles reported using this instrument (Beatty & Behnke, 1978; Beatty, Behnke, & Henderson, 1980; Behnke & Beatty, 1978; Behnke, Beatty & Kitchens, 1978; Greene & Sparks, 1983; Hurt & Cook, 1979; Kase, Sikes & Spielberger, 1978). Of those articles in the current study reporting

reliability tests on this instrument, coefficient alpha reliability averaged .86 (based on 4 articles) and odd-even reliability is .89 (based on one article). No validity data was reported. Subjects used with this instrument ranged from 32 to 205. The average number of subjects used was 105. Forty-five per cent were undergraduate student, 35% were teachers, and 20% were school children.

The Job Description Index (JDI) is a measure of job satisfaction that includes items covering attitudes about work, supervision, pay, promotions, and co-workers. The scale uses a yes-no response for 73 adjectives describing work conditions. Internal consistency was originally reported as the following: work .73, pay .67, promotions .75, supervision .77, and co-workers .78.

Five studies used the JDI (Jablin, 1980; Jablin, 1981; Richmond & McCroskey, 1979; Richmond, McCroskey, & Davis, 1982; Richmond, McCroskey, Davis & Koontz, 1980). The average reliability score using coefficient alpha, among the articles in this survey, was .86 (based on five articles). No validity testing was reported. The average number of subjects used was 219, ranging from as few as 23 to as many as 385. Seventy-five percent of the subjects were organizational members, 18% were teachers, and 7% were undergraduate students.

#### CONCLUSIONS

The communication field has provided an abundance of self-report paper-and-pencil instruments to assess communication constructs. Many instruments have been

developed, but have never been utilized after their inception. In addition, a large number of instruments have not been adequately developed according to standard guidelines. Finally, researchers have sometimes relied on self-report instruments in an overly trusting way, failing to conduct their own reliability and validity tests.

What constructs do we study with paper-and-pencil measures? A great deal of our time and energy has been devoted to the study of communication apprehension. This construct is measured with the widely used PRCA-25, PRCA-College, the Receiver Apprehension Test, the Unwillingness to Communicate scale, and the Verbal Reticence Scale to name a few. Interest in organizational communication issues is evident in the ICA Communication Audit Survey, the Job Description Index, and the Supervisor-Subordinate Openness instrument. Recent interest in psychological sex roles is demonstrated in the recurrence of the Bem Sex Role Inventory. Other instruments suggest the importance of communicator style, interpersonal attraction, role categories, ethos, dyadic adjustment, homophily, and personality traits.

The communication discipline is over due for an integration of its varied constructs and corresponding instruments. This preliminary study may be the beginning of a cataloging of such instruments with relevant data for the communication scholar. The communication field could benefit from Kuhn's advice to work with the tools at hand rather than continuing to contemplate divergent approaches to the study of human communication.

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