

Understanding the Psychometric Properties of the Humor Assessment Instrument through an Analysis of the Relationships between Teacher Humor Assessment and Instructional Communication Variables in the College Classroom

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The purpose of this study was to examine the psychometric properties of the newly developed Humor Assessment (HA) instrument. Previous research (Wrench & McCroskey, 2001) noted a construct validity problem with the Humor Orientation (HO) scale created by M. Booth-Butterfield and S. Booth-Butterfield (1991). This study examined the relationships between the HA, which corrects the construct validity problem seen in the HO, and affective learning, nonverbal immediacy, cognitive learning, learning loss, student motivation, and teacher credibility.

Measuring people's perception and use of humor is a daunting task for behavioral scientists who rigorously explore the science of humor. In fact, hundreds of humor-oriented measures have been developed and used in research (Ruch, 1998). Zwerling (1955) and Goldsmith (1979) each created measures to examine an individual's joke telling techniques. Bell, McGhee, and Duffey (1986) created a tool to measure someone's tendency to initiate humor. Other researchers have developed various measures to examine what people perceive as humorous (Cattell & Tollefson, 1966; Köhler & Ruch, 1996; Lefcourt & Shepherd, 1995). Some scholars have developed measures to gage an individual's sense of humor (Almack, 1928; McGhee, 1999; Thorson & Powell, 1993; Svebak, 1996). Other scholars have examined humor as a personality characteristic (M. Booth-Butterfield & S. Booth-Butterfield, 1991; Cattell & Tollefson, 1966; Neemann &

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Harter, 1986; Ruch, 1998; Ruch & Carrell, 1998; Ruch & Kishler, 1999). Of this list of measures developed to examine humor in various forms, only M. Booth-Butterfield and S. Booth-Butterfield's (1991) measure examined humor as a phenomenon of human communication. The M. Booth-Butterfield and S. Booth-Butterfield (1991) Humor Orientation scale is not like other humor scales because it attempts to measure the extent to which people use humor instead of how people react to and/or perceive humor.

Examining the Humor Orientation Scale

The M. Booth-Butterfield and S. Booth-Butterfield (1991) Humor Orientation (HO) scale has been used to examine humor usage from a variety of different vantage points attempting to see how individuals differ in the enactment of humorous messages (M Booth-Butterfield & S. Booth-Butterfield, 1991; Wanzer, Booth-Butterfield, & Booth-Butterfield, 1995, 1996a, 1996b, 1997; Punyanunt, 2000; Wanzer & Frymier, 1999). The HO scale has been applied in both the health care industry (Wanzer, M. Booth-Butterfield, & S. Booth-Butterfield, 1996b, 1997; Wrench & M. Booth-Butterfield, 2003) and in the classroom environment (Punyanunt, 2000; Wanzer & Frymier, 1999).

According to M. Booth-Butterfield and S. Booth-Butterfield (1991), the Humor Orientation scale was developed as a "list of statements which directly reference the communicative use of humor in interpersonal situations..." (p. 208). Unfortunately, of the seventeen items generated for the HO, only the last question actually asks if someone uses humor to communicate. Of the remaining items on the HO, twelve questions ask if someone uses jokes or humorous stories during their communication and four questions ask whether others view them or they view themselves as being "funny."

The Need for a Different Scale

While the Humor Orientation scale has been a consistently reliable instrument for research in the area of humor and communication, Wrench and McCroskey (2001, p. 152) noted that the scale did not measure the "communicative use of humor in interpersonal situations," but primarily measured an individual's use of jokes and humorous stories. While joke telling and humorous story telling are clearly important characteristics of communicated humor, to rely solely on them to determine if someone uses humor as a communicative tool discounts a great deal of the humorous communication that actually occurs.

If we relied on the scale created by M. Booth-Butterfield and S. Booth-Butterfield (1991), great comedic figures like Charlie Chaplin or Mr. Bean would not be rated as highly humor oriented because they did not talk. Instead, these two men would score in the bottom third of the scale simply because they used nonverbal behaviors to create humor oriented messages. And according to nonverbal communication scholars, up to 93% of human communication could be nonverbal in orientation (Richmond & McCroskey, 1995). While the Humor Orientation scale clearly opened an avenue of research for communication scholars, to truly assess someone's "communicative use of humor in interpersonal situations" a more generalized scale needed to be developed, which was the purpose of the Humor Assessment instrument.

The Humor Assessment (HA) instrument was originally published by Richmond, Wrench, and Gorham (2001) as a self-report measure for teachers in a communication

education textbook. The researchers originally took out the references to joke telling and story telling because they saw the limitations of the Humor Orientation scale created by M. Booth-Butterfield and S. Booth-Butterfield (1991). The HA was designed to be a more generalized scale that does not restrict humor to joke and storytelling, but asks about an individual's overall use of humor as a communicative tool.

One of the initial concerns with the Humor Assessment was that the new measure simply re-invented the wheel and did not provide new knowledge worthy of publication. For this reason, the first study using the HA that examined the specific psychometric properties of the measure was not published initially. Instead, a secondary study was conducted to examine the need for the new measure, and demonstrate the clear difference between the HA and HO.

Wrench and McCroskey (2001) wanted to see the interaction between the HA and HO and McGhee's (1999) Sense of Humor scale with Eysenck's (1998) concept of extraversion. Using a canonical correlation procedure, the researchers found that an individual's humor orientation loaded higher than her or his humor assessment on the same variate as an individual's level of extraversion. Additionally, an individual's sense of humor did not load at all on the first variate. This finding suggests that humor orientation has a stronger biological foundation than humor assessment.¹ At the same time, the study found that an individual's level of humor assessment loaded higher on the second variate along with sense of humor. Since an individual's sense of humor is clearly associated with environmental factors, it would appear that a person's overall humor assessment is also associated with environmental factors not just biological ones. While this exact connection has not been explored in the research, it could be the basis for why people in different cultures find forms of physical comedy extremely funny or very annoying.

In essence, a person's humor assessment is impacted by both biological and environmental factors unlike a person's humor orientation, which is primarily biological in orientation. By being more general in the terminology used in the items, the HA taps into both the perception (sense of humor) and the action (joking, physical movement, facial expressions, etc...) of humor-oriented messages. The creators of the HA do not believe that the HO is a useless measure, just not the most accurate tool for measuring the "communicative use of humor in interpersonal situations."

Validating the Humor Assessment Instrument

To test the psychometric properties of the Humor Assessment instrument, it was decided that the scale should be administered in an educational setting since previous research has demonstrated that humor positively relates to a student's learning in the classroom environment. In fact, a teacher's use of humor in the classroom has been shown to impact teacher evaluations (Bryant, Cominsky, Crane, & Zillmann, 1980; Javidi, Downs, & Nussbaum, 1988); student learning (Ziv, 1988; Sachacht & Stewart, 1990; Gorham & Christophel, 1990); test anxiety (Townsend & Mahoney, 1981; McMorris, Urbach, & Connor, 1985); test scores (Kaplan & Pascoe, 1977; Sachacht & Stewart, 1990); student perceptions of nonverbal immediacy (Gorham & Christophel, 1990); and student affect (Wanzer & Frymier, 1999).

Testing the predictive validity of the Humor Assessment was conducted by determining if the HA could be used to accurately predict the relationship between the HA

and various instructional communication variables. At the same time, the researchers realized that the instrument should be tested using variables previously studied by Wanzer and Frymier (1999) that examined the Humor Orientation scale with three instructional communication variables (affective learning, immediacy, and learning) and new variables never examined by the Humor Orientation scale (student motivation and teacher credibility). The reason this study is partially a replication of Wanzer and Frymier's (1999) study is because the two scales are closely related² and therefore, the results on the three instructional communication variables should be similar for both the previously reported HO and the newly developed HA. If the HA can replicate the Wanzer and Frymier (1999) findings, the scale will have clear predictive validity. On the other hand, the HA should also be able predict logical relationships with instructional communication variables not previously examined (student motivation and teacher credibility).

Previously Studied Variables

Affective Learning. Bloom, Englehart, Furst, Hill, and Krathwohl (1965) purport that there are three primary domains in which learning occurs: affective, behavioral, and cognitive. According to McCroskey (1998), affective learning is a combination of a student's attitude towards the (1) instructor of a course (teacher evaluation), (2) content of the course (affective learning), along with measures of higher order levels of student affect, (3) the desire to take additional classes in the subject matter, and (4) the taking of additional classes with a teacher. Dimensions two and three are in congruence with Krathwohl, Bloom, and Masia's (1956) conceptualization of the affective domain in learning. In fact, McCroskey (1998) argues along with Bloom, Cruikshank, and Wittrock (2000) that affective learning is the most important aspect of learning in the classroom. Without affect, cognitive and behavioral learning will not easily occur (Richmond, Wrench, & Gorham, 2001). Previously, Wanzer and Frymier (1999) found that Humor Orientation and affective learning were positively related with each other, so we would expect to find a positive relationship between Humor Assessment and affective learning as well.

H1: There will be a positive relationship between a teacher's perceived humor assessment and a student's level of affective learning.

Nonverbal Immediacy. Mehrabian (1967) defined immediacy as the communication behaviors that make individuals feel physically and psychologically close. Previous research has shown that nonverbal immediacy is an extremely important part of the classroom environment. Plax, Kearney, McCroskey, and Richmond (1986) found that teacher nonverbal immediacy positively relates to a student's level of affective learning in the classroom. Since affective learning relates positively to humor, it should be no surprise that both Gorham and Christophel (1990) and Wanzer and Frymier (1999) found a positive relationship between teacher nonverbal immediacy and humor orientation. It is expected that a positive relationship would also exist between individual's humor assessment and nonverbal immediacy.

H2: There will be a positive relationship between a teacher's perceived hu-

mor assessment and a student's perception of that teacher's level of non-verbal immediacy.

Cognitive Learning and Learning Loss. According to Richmond, Wrench and Gorham (2001) cognitive learning is the "recall and recognition of knowledge and the development of intellectual abilities and skills" (p. 5). As previously noted, cognitive learning is one of the three forms of learning described by Bloom, Englehart, Furst, Hill and Krathwohl (1965). And Bloom, Cruikshank, and Wittrock (2000) and McCroskey (1998) believe that the affective domain of learning is the basis for the other two. So, if a teacher increases the affective domain of learning through humor, people will learn more cognitively and behaviorally. Wanzer and Frymier (1999) found that students who rated their teachers higher on the Humor Orientation scale perceived that they had cognitively learned more. Yet again, it is hypothesized that this same positive relationship that has previously been seen between humor orientation and cognitive learning will be seen between humor assessment and cognitive learning. As a follow up to this hypothesis, the current study is also going to examine the relationship between a teacher's humor assessment and a student's perceived learning loss, or the belief that someone has not learned as much as they could with an "ideal" teacher. If a teacher's humor assessment positively relates to student learning, then a teacher's humor assessment should be negatively related to a student's perceived loss of learning that results from not having an ideal teacher.

H3: There will be a positive relationship between a teacher's perceived humor assessment and a student's perception of cognitive learning, and a negative relationship between a teacher's perceived humor assessment and a student's perception of learning loss.

Variables Not Previously Studied

The three previous hypotheses were designed to specifically see whether the Humor Assessment could accurately predict relationships previously discussed by Wanzer and Frymier (1999). This section is going to demonstrate how the Humor Assessment instrument can also be used to make predictions about relationships between a teacher's use of humor and instructional communication variables not previously studied.

Student Motivation. To understand student motivation is to understand the difference between compliance and motivation (Richmond, 1990). Compliance is the extent to which an individual performs a behavior when being observed; whereas, motivation is the intrinsic desire to perform that behavior when being observed or not. Some students will only do their homework because of the fear of a grade (compliance); whereas, some students do their homework because they know it helps them to learn the material (motivation). Ultimately, students who are motivated to learn will learn more than those students who just comply (Richmond, Wrench, & Gorham, 2001). Teachers must think about how they can motivate their students to learn instead of just complying in the classroom. In motivation research, dynamic individuals are shown to be more motivating (Richmond, 1990; Walters, 2000). One aspect of dynamism has consistently been humor usage (Walters, 2000). In other words, we should see a positive relationship between a teacher's humor assessment and a student's level of moti-

vation in the classroom.

- H4:** There will be a positive relationship between a teacher's perceived humor assessment and a student's level of motivation in the classroom.

Teacher Credibility. The next variable being examined in this study is teacher credibility. Specifically, this study is examining whether a teacher's humor assessment is related to student perceptions of her/his credibility. Overall, credibility (ethos) has been shown to consist of three primary factors: competence, trustworthiness, and goodwill (McCroskey & Teven, 1999). Competence is the extent that an individual truly knows what he or she is discussing. The second component of ethos is trustworthiness, which is the degree to which one individual perceives another person as being honest. The final component of ethos, goodwill, is the perceived caring that a receiver sees in a source. Out of all of these, goodwill may be the most important aspect of ethos. If a student knows that her or his teacher truly cares about her or his welfare, then that student is going to be more likely to work harder in class. Goodwill is the basis for affinity, or liking, which strongly impacts an individual's level of affective learning in the classroom (McCroskey, 1998). As previously noted by Wanzer and Frymier (1999), affect and humor orientation are positively related. In fact, previous research in the medical context has shown that a physician's humor orientation is positively related to her or his patient's perception of her or his credibility (Wrench and M. Booth-Butterfield, 2003). It is expected that a teacher's humor assessment will be positively related to her or his student's perception of teacher credibility

- H5:** There will be a positive relationship between a teacher's perceived humor assessment and a student's perception of teacher credibility.

METHOD

Participants

Participants were first-semester students at a large Middle Atlantic public university taking an advanced communication course that enrolls students from all over the university. The sample consisted of 249 (55.6 %) males and 199 (44.4 %) females for a total of 448 participants. Participants were asked to think of the instructor they had for the class immediately before their communication class. This methodology was developed by Plax, Kearney, McCroskey, and Richmond (1986) in order to maximize the number and variety of instructors in the sample. The subjects reported that 225 (50.2 %) of the instructors observed were male and 223 (49.8 %) of the instructors were female. Data used in this study were collected during the 12th week of a 16-week semester. The participants all received extra credit for their participation in this study.

Measures

Humor Assessment. The Humor Assessment (HA) instrument was developed to measure an individual's predisposition to use humor as a communicative tool during interpersonal situations. As previously noted, the HA was created for the intended purpose of fixing the construct validity problem seen in M. Booth-Butterfield and S. Booth-Butterfield's (1991) Humor Orientation scale (Wrench & McCroskey, 2001). The

HA is a 16-item, self-report measure that uses a 5-point Likert format ranging from "strongly disagree" to "strongly agree." The HA was adjusted by the researchers in this study to fit the classroom context.

The dimensionality of the 16 items for the HA was analyzed using an unrotated principal component factor analysis. Four criteria were used to determine the number of factors to rotate: sampling adequacy, the priori hypothesis that the measure was unidimensional, the scree plot, and the interpretability of the factor solution. To examine sampling adequacy, Kaiser's Measure of Sampling Adequacy was used. The MSA obtained was .96, which is considered "marvelous" for conducting a factor analysis (Kaiser, 1974). The scree plot indicated that our initial hypothesis of unidimensionality was correct. The principal component analysis revealed a strong primary factor. The factor analysis can be seen in Table 1.

To score the HA, items that are negatively loaded on the factor are reverse coded. The items on the HA should be coded so that higher scores are given to those people who perceive their teachers as using more humorous communicative messages than those with lower scores. Once all of the items have been recoded, add the scores for each item on the survey to create a total sum. Scores for the HA can range from 16 to 80. In this sample, the range was from 16 to 80. The HA had an alpha reliability of .95 ($M = 53.93$; $SD = 13.71$).

TABLE 1
Principal Component Analysis of the Humor Assessment Instrument

1. My teacher regularly communicates with others using humor.	.71
2. People usually laugh when my teacher makes a humorous remark.	.80
3. My teacher is not funny or humorous.	-.81
4. My teacher can be amusing or humorous without having to tell a joke.	.74
5. Being humorous is a natural communication orientation for my teacher.	.80
6. My teacher cannot relate an amusing idea well.	-.73
7. My friends would say that my teacher is a humorous or funny person.	.74
8. People don't seem to pay close attention when my teacher is being funny.	-.71
9. Even funny ideas and stories seem dull when my teacher tells them.	-.78
10. My teacher can easily relate funny or humorous ideas to the class.	.82
11. My friends would say that my teacher is not a humorous person.	-.70
12. My teacher cannot be funny, even when asked to do so.	-.76
13. My teacher relates amusing stories, jokes, and funny things very well to others.	.83
14. Of all the people I know, my teacher is one of the "least" amusing or funny persons.	-.78
15. My teacher uses humor to communicate in a variety of situations.	.74
16. On a regular basis, my teacher does not communicate with others by being humorous or entertaining.	-.75

Note: Only factors with Eigenvalues greater than 1 were retained.

Student Affective Learning. The Student Affective Learning instrument was designed to mimic the objectives of the affective domain of learning originally discussed by Krathwohl, Bloom, and Masia (1956). The measure examines the level of affect a student has for (a) the course, (b) subject matter, (c) teacher, (d) the desire for further courses in the area, and (e) actually taking courses in the subject area. Each aspect of affective learning is measured by four 7-item bi-polar scales. For the purposes of this study, only those scores for the course affect and teacher affect were analyzed because they are the strongest indicators of course specific affect (McCroskey, 1998; Richmond,

Wrench, and Gorham, 2001). Scores for teacher evaluation can range from 4-28. The teacher evaluation section received an alpha reliability score of .87 ($M = 22.41$; $SD = 5.09$). Scores for affective learning can range from 4-28. The affective learning alpha reliability was .81 ($M = 21.43$; $SD = 4.74$). This reliability is consistent with that obtained by Plax, Kearney, McCroskey, and Richmond (1986).

Nonverbal Immediacy Measure . The version of the Nonverbal Immediacy Measure used in this study was McCroskey, Richmond, Sallinen, Fayer, and Barraclough's (1995) nonverbal immediacy measure tooled for the classroom environment. The original scale has fourteen items that uses a 5-point Likert format ranging from "strongly agree" to "strongly disagree." Scores for the Nonverbal Immediacy Measure can range from 14-70. Scores in this sample ranged from 26 to 69. The alpha reliability for the measure used in this study was .81 ($M = 53.28$; $SD = 8.28$).

Cognitive Learning. Using a method originally developed by Richmond, McCroskey, Kearney, and Plax (1987), students were asked to assess their perceptions of their own learning. Students were asked two questions related to their learning in a class on a 0-9 scale with "0" meaning nothing and "9" meaning more than any other class they had ever had. The first question asked, "How much did you learn in this class?" The second question asked, "How much do you think you could have learned in the class if you had an ideal instructor?" The first question is the measure actually used for perceived learning. The range for this question went from 0 to 9 with a $M = 5.86$ and a $SD = 1.76$. Learning loss was also accounted for in this study by subtracting the amount of learning that could have occurred with an ideal teacher from that of the teacher discussed in the participants' responses. With a possible range from -9 to +9, the study had a range from -6 to +6 with a $M = 1.01$ and a $SD = 1.67$.

Student Motivation. To measure student motivation, the participants were asked to provide responses to five, seven-step bipolar scales with reference to the statement "My feelings about studying the content in this class." The scales employed were: motivated-unmotivated, excited-bored, uninterested-interested, involved-uninvolved, and dreading it-looking forward to it. This instrument (created by Richmond, 1990) was an expansion of a previously used instrument employed by Beatty, Forst, and Stewart (1986) that employed a three-item measure for motivation that was not adequately reliable. Scores for the Student Motivation can range from 10-70. The alpha reliability for the measure used in this study was .89 ($M = 46.14$; $SD = 11.96$).

Credibility Measurement. To measure teacher credibility, an 18-item scale was created by McCroskey and Teven (1999) by looking at a student's feelings and perceptions of a teacher's competence, trustworthiness, and goodwill. Item measures were bi-polar with a range from one to seven. Scores for each of the subscales can run from 6-42, which was seen in this study. The alpha reliability for competence in this study was .80 ($M = 31.50$; $SD = 4.7$). The alpha reliability for trustworthiness was .86 ($M = 34.99$; $SD = 5.83$). And the alpha reliability for goodwill was .86 ($M = 31.24$; $SD = 7.04$). These reliabilities are consistent with reported alpha reliabilities in other articles (McCroskey and Teven, 1999).

RESULTS

The first hypothesis predicted that there would be a positive relationship between a teacher's perceived humor assessment and a student's level of affective learning. To

test this hypothesis, Pearson product moment correlations were calculated between the HA and affective learning. The two aspects of the instrument were both significantly correlated with the HA, (content) $r(439) = .28, p < .0001$ and (teacher) $r(440) = .52, p < .0001$.

The second hypothesis predicted that there would be a positive relationship between a teacher's perceived humor assessment and a teacher's perceived nonverbal immediacy. This hypothesis was supported in this study, $r(446) = .46, p < .0001$.

The third hypothesis predicted that there would be a positive relationship between a teacher's perceived humor assessment and a student's perception of cognitive learning, and a negative relationship between a teacher's perceived humor assessment and a student's perception of learning loss. This hypothesis was supported in this study, (cognitive learning) $r(446) = .28, p < .0001$ and (learning loss) $r(444) = -.32, p < .0001$.

The fourth hypothesis predicted that there would be a positive relationship between a teacher's perceived humor assessment and student motivation in the classroom. This hypothesis was supported in this study, $r(446) = .24, p < .0001$.

The fifth hypothesis predicted that there would be a positive relationship between a teacher's perceived humor assessment and a teacher's perceived credibility (competence, caring/goodwill, and trustworthiness). This hypothesis was supported in this study, (competence) $r(432) = .39, p < .0001$, (goodwill) $r(432) = .37, p < .0001$, and (trustworthiness) $r(434) = .28, p < .0001$.

DISCUSSION

The goal of this study was to determine the psychometric properties of the Humor Assessment Instrument (HA). While the construct validity of the instrument had been previously determined (Wrench & McCroskey, 2001), the testing and publication of the instrument's psychometric properties had not been completed. The five hypotheses in this study had firm grounding for their initial predictions out of the literature in both communication education and humor studies. As was expected, all five hypotheses were supported in this study.

The first three hypotheses demonstrated that the HA could be used to find similar results to M. Booth-Butterfield and S. Booth-Butterfield's (1991) Humor Orientation scale. Some may argue that since the HA and the HO were able to find similar results, then there actually is no problem with the Humor Orientation scale. The authors in this study could not disagree more. Obviously, the results will be similar because the HA encompasses the HO (measuring the use of verbal humor), but takes measurement a step further by measuring the communicative use of humor in general allowing for the study of both verbally and nonverbally communicated humor. Ultimately, the HA creates a more valid research tool for measuring the communicative use of humor in interpersonal situations.

The last two and a half hypotheses were generated to determine if the Humor Assessment instrument could be used to make new predictions not previously examined in the literature related to humor communication. Yet again these hypotheses were supported in this research project, so the HA can accurately be used to create logical hypotheses in future research.

Overall, the Humor Assessment instrument has been shown to have construct validity, predictive validity, and consistent internal reliability as seen in this study and

the Wrench and McCroskey (2001) study. One of the basic goals of communication researchers is the accurate measurement of communication related variables. While the authors of this study have seen a problem with the construct validity of the M. Booth-Butterfield and S. Booth-Butterfield (1991) Humor Orientation scale, we are thankful that they paved the way for humor oriented communication research.

NOTES

1. For an explanation of the biological nature of the supertrait extraversion, please read Eysenck (1998) or McCroskey, Beatty, and Valencic (2001).
2. The Humor Assessment instrument and Humor Orientation scale have been correlated at $r(225) = .51, p < .0001$ (Wrench & McCroskey, 2001). This relationship is to be expected since the two measures are attempting to measure the "communicative use of humor in interpersonal situations." The difference is that the Humor Orientation scale focuses primarily on verbal humor (joke telling and story telling); whereas, the Humor Assessment instrument allows for the respondent to evaluate both verbal and nonverbal humor.

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