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Conceptualizing and Operationalizing a Value of Communication Scale for Use in Training and Development Applications

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Communication permeates all aspects of our lives, which is likely why it is regarded as one of the most important and sought-after skills to develop across every industry and professional vocation (Pronovost et al., 2003; Rotthoff et al., 2011). Effective communication has been shown to impact a wide range of industries (e.g., education, business, science, and entertainment), with many studies consistently arriving at a fundamental outcome: developing effective communication skills and best practices are critical to both individual and group success (Barth & Lannen, 2010; Clarke et al., 2021; Maguire & Pitceathly, 2002). Individuals often value communication skills with varying degrees of importance. Assessing the value of communication can manifest in several ways, such as through seeking clarification and constructive feedback from others on their communication skills, or investing time and money into communication training and development.

Communication centers are uniquely positioned to provide quality communication training to students, faculty, and staff across a wide range of academic disciplines. These centers also illustrate the importance of developing effective communication at all career levels (Strawser et al., 2020). In addition to cultivating essential communication skills in student populations, the training and services provided by these centers impact a broad reach of stakeholders for local community engagement and national collaboration (Carpenter, 2019; Ellis & Stuart, 2021). As a result, communication skills have often been a focal point for student populations and professional development programs. Financial investments in such training have continued to rise over the past several decades (Pontefract, 2019). In fact, organizations spend billions of dollars (approximately $87 billion in 2018) on employee training each year (Freifeld, 2018). As a result, researchers have often focused on how the development or application of certain communication skills impacts specific desirable outcomes within academic settings and organizations. Examples of this are consistently seen in fields such as education (Polk, 2006), health care (Maguire & Pitceathly, 2002), and organizational management (Mikkelson et al., 2017).

However, a deeper review of communication literature from the broader scope of development shows that training programs primarily approach communication as a skill to be

developed and applied, but rarely ever consider the value an individual assigns to the concept prior to, as well as after, the formal training programs (Bylund et al., 2008; Deveugele, 2015; Rollnick et al., 2002; Salas et al., 2012). For example, a wide range of research has previously examined the application of specific communication skills and their role in an individual's ability to accomplish a particular goal or objective (Barth & Lannen, 2010; Blanchard et al., 2009; Zolnierek & DiMatteo, 2009). A review of these representative studies suggests that the primary focus in this context is on training individuals how to use or implement certain communication best practices, but there is no emphasis on examining core values and fully understanding the concept of communication. Thus, despite the inherent value that communication and its associated skills have on almost every other element of our lives, very little research exists that approaches the concept of communication as a core value in the same context as other widely studied values (de Beer, 2014; Lam et al., 2009; Meyer, 1995).

Approaching communication training only from a skills-based standpoint may present a challenge for communication centers and training facilitators alike in terms of predicting the degree to which communication-based skills training will be embraced, retained, and applied among learners (Deveugele, 2015; Heaven et al., 2006). In fact, training facilitators have previously acknowledged this gap in the professional development literature regarding their ability to predict and explain why communication skill-based training programs are more or less effective for certain individuals (Rees & Sheard, 2002; Wright et al., 2006). Researchers have also suggested that the ability to consistently evaluate one's core values or set of attitudes on specific training topics (e.g., communication) might provide important insights into the overall development process (Anvik et al., 2007; Cleland et al., 2005; Kruijver et al., 2000; Petty et al., 1997). Furthermore, for communication center programs and services to have meaningful transfer rates, the training professionals must be able to evaluate the effectiveness of programs relative to the trainees and their referent values for the training program itself (Aguinis & Kraiger, 2009; Grohmann & Kauffeld, 2013). Therefore, it is posited that a more comprehensive understanding of how an individual values communication may provide greater insight into how they will approach and respond to communication training and development efforts.

This study seeks to succinctly and reliably operationalize a value of communication (VOC) as it relates to the contextual setting of student and professional communication training. The VOC measure aims to offer trainers and coaches the ability to identify which individuals are more likely to value investment in their communication skills at the forefront of a program. In turn, this may provide critical information for whether the program should focus on developing specific skills or a deeper understanding of why certain communication skills are valuable. These unique but overlapping approaches can be tailored more effectively to audiences with higher or lower levels of VOC as needed. For example, individuals who express a relatively lower value of communication than their peers may be better served in programs that focus more on why communication and its related skills are relevant to a particular job or task. On the other hand, program participants who identify as having a high value of communication may be better served by development that focuses on how to approach or apply certain skills. In this case, there could

also be implementation of assessing what skills may require the most development for groups and individuals.

This study proposes a value of communication scale based on the construct of communication as a value. Following this, the construct is operationalized and subsequently analyzed for its internal reliability and external validity through a two-part study that utilizes exploratory and confirmatory factor analyses.

Establishing & Defining the Value of Communication

To understand communication as a core value, the concept of a value must first be addressed. Hitlin (2003) defines a conceptual value as fulfilling five criteria: 1) concepts or beliefs, 2) pertains to desirable end states or behaviors, 3) transcends specific situations, 4) guides selection or evaluation of behavior and events, and 5) are ordered by relative importance. Values are typically studied to better understand personal growth and development (Schwartz, 2012), whereby an individual is willing to invest time, money, and/or energy such that their actions reflect their values, producing desired outcomes (Roccas et al., 2002). Communication itself plays a central role in how we understand and develop values within our culture, especially within organizations. From an ideological perspective, communication helps to give structure to culture by providing a process for establishing and discussing norms, values, and beliefs (Mumby, 1989). In this way, values act as the framework for which people socially create meaning, and communication is the process by which values are shared and expressed. Therefore, the value of communication itself plays a direct role in the process by which we develop social and cultural values in a particular location.

For decades, researchers have sought to define and classify values so that they can be easily measured in scientific research to predict individuals' developmental behaviors (Beatty et al., 1985; Roccas et al., 2002; Schwartz, 1994). Research suggests that individuals place value on various factors, such as happiness, health, freedom, security, and self-respect (Davis, 2018; O'Connor, 2015; Rokeach, 1967). Schwartz (1994) defined values as: "desirable transsituational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity" (p. 21). Compared to other individual differences, values maintain a consistent yet unique characteristic in that they are inherently context-independent and can be applied in a wide variety of situations.

In 2010, Cheng and Fleishmann analyzed 12 value-based scales from a wide range of fields such as psychology, sociology, anthropology, science, and information science. They determined that values "serve as guiding principles of what people consider important in life" (Cheng & Fleishmann, 2010, p. 2) and subsequently created a framework for defining and classifying values measurements into three categories: rational-theoretical inventories, empirical-based inventories, and theoretical-empirical inventories. The proposed value of communication measure follows the theoretical-empirical inventory description, which is "developed through an initial rational or theoretical selection of items that can be put into an empirical test to get results" (Schwartz, 1994, p. 6). This framework is used to guide the

conceptual definition put forth here. Value of communication is conceptualized in this study as a stable and continuous value that an individual holds toward the concept of communication which guides the worth an individual may place on the development of related communication skills across a range of professional situations and contexts.

Operationalizing the Proposed Measure

A framework for operationalizing the proposed "value" of communication measure is put forth following the *Standards for Educational and Psychological Testing* framework (American Educational Research Association, American Psychology Association, & National Council on Measurement in Education, 2014). This framework, outlined in detail in previous works (Knekta et al., 2019; Reeves & Marbach-Ad, 2016), allows the proposed operationalization to be examined regarding the measure's test content, response processes, internal structure, and relation to other variables.

After review of the literature, we identified the core constructs that needed to be captured within the proposed measure (de Beer, 2014; Petty et al., 1997; Rokeach, 1973; Schwartz, 1992). The measurement development process for the initial VOC scale began with a review of work by Rokeach (1973) and Petty et al. (1997) to determine the primary elements that would comprise the foundations of a value-based scale. These sources provided context for conceptualizing and measuring a "value," determining item construction, and helped to differentiate between the conceptual framework associated with a value and those associated with attitudes, emotions, or behaviors.

Next in the process was a review of scales and measures that addressed concepts directly related to the concept of communication and its related outcomes (e.g., attitudes, behaviors, etc.). As a result of this review, we identified several manuscripts that would help guide the construct's overarching development (de Beer, 2014; Petty et al., 1997; Schwartz, 1992). We also specifically identified the Communication Skills Attitude Scale (Rees et al., 2002) as a valid measure that captured attitudes toward communication and skill development. Originally, Rees and colleagues (2002) developed the Communication Skills Attitude Scale (CSAS) to identify medical students' attitudes toward learning communication skills, capturing specific students' sentiments toward communication training. This scale provided a strong contextual framework for how communication could be measured as an attitude and was adopted as a guide for ensuring that our proposed value-based items were informed by applied outcomes related to attitudes towards communication skills. Additionally, studies in other training contexts that linked skill development to behavioral outcomes were reviewed and considered (Hameed & Waheed, 2011; Krishnan, 2001). Ultimately, these instruments (e.g., CSAS) and the aforementioned studies were comparatively used to guide the specific wording of the VOC proposed items to ensure that items were oriented and worded with a focus on value-based language over utilizing phrasing or terminology that pointed to attitudes and/or behaviors.

Research also suggests that the process of identifying appropriate construct items is informed and validated through the contributions of known subject matter experts (Andrews et

al., 2017; Reeves & Marbach-Ad, 2016). Therefore, feedback from such resources was solicited during the initial stages of item development. To ensure the items were worded in an approachable fashion, a series of previously validated communication trait scales were reviewed and utilized to inform the specific wording of the items proposed (Jolliffe & Farrington, 2006; Rees et al., 2002). Additionally, the initial measurement design followed best practices of item writing, including avoiding redundancy and double-barreled items as well as ensuring accessible language was used (Lavrakas, 2008).

The response set for the items was next considered during the initial design process. Relevant scales with similar conceptual goals were considered, given their establishment as reliable and valid measures (General Self-Efficacy Scale, Chen et al., 2001; Basic Empathy Scale, Jolliffe & Farrington, 2006; Dyadic Trust Scale, Larzelere & Huston, 1980). Given the self-reporting nature of this value measure, a five-item response set was selected. This was decided as previous research suggests that such a response set is best at improving response rates and quality, providing more efficiency for participants, stronger internal consistency, and increased reliability of measures (Babakus & Mangold, 1992; Lissitz & Green, 1975; Østerås et al., 2008; Revilla et al., 2014). The preliminary scale included 24 items and was presented as a Likert scale with a response set ranging from one (*strongly disagree*) to five (*strongly agree*).

Upon establishing the proposed items, the factor structure needed to be tested to "confirm empirically that the items indeed represent[ed] the construct(s) they are intended to represent" (Andrews et al., 2017, p. 3). Therefore, exploratory factor analysis was utilized to examine the intercorrelations between items to determine how the items grouped together (Reeves & Marbach-Ad, 2016). Given the goal of future applications for the proposed scale in a communication center training and development context, the following research question is proposed to guide the subsequent research methodology:

RQ1: How does the proposed "value of communication" scale group together?

In addition to this question, we also seek to determine if the proposed value of communication scale will produce significant relationships with other known trait communication variables as evidence of convergent validity (Andrews et al., 2017). Given that professional development in communication has often focused specifically on outcomes related to being more effective, the findings in this area dictated the inclusion of several key trait variables for evaluating the proposed measure's convergent validity (i.e., adaptability, communication competence, empathy, and listening). As noted, there are a wealth of related communication trait variables that might offer insight into the validity of the proposed value of communication measure, particularly due to the depth of research surrounding the concept of communication effectiveness (Blume et al., 2013; DeVito, 2013; Duran, 1983).

Communication effectiveness has been linked to an individual's adaptability and communication competence (Duran, 1992; Martin & Anderson, 1998). Further, adaptability has been labeled a component of communication competence and assists in successfully affecting

individuals' interactions (Duran, 1992). Researchers have recognized adaptability as being positively associated with multiple communication situations, particularly self-efficacy (Martin & Anderson, 1998). Payne (2005) found that individuals with greater communication competence "were more skilled at communicating empathy, adapting their communication, and managing interactions" (p. 72). Thus, it follows that adaptability and communication competence are related constructs to study one's value of communication.

Relatedly, empathy has also been positively associated with improved communication (Pistrang et al., 2001; Pistrang & Barker, 1998) such that communication has been linked to the ability to understand and respond to others with empathy (Jolliffe & Farrington, 2006). Finally, the act of listening has long been associated with effective communication (Bodie, 2011; Hirsch, 1979; Lloyd et al., 2017; Steil et al., 1983; Weaver, 1972) and even "has been considered one of the most important forms of communication behavior" (Davenport Sypher et al., 1989, p. 293). It follows that an individual who places worth on communication would recognize the importance of listening in their own communication. Thus, to test the proposed VOC scale's convergent validity, the following research question is posed:

> *RQ2: How well do VOC scores relate to measures of other communication traits (i.e., adaptability, communication competence, empathy, and listening)?*

Study 1
Methods

Sample

Participants in Study 1 consisted of undergraduate students recruited from a large northeastern public university (n = 543). A total of 75 survey responses were removed from the final data set as a result of not meeting several criteria including failing to respond to appropriate attention checks, completing the survey in fewer than five minutes for a study that was estimated to take an average of 15 minutes, and/or having a completion rate of less than 30%. As a result, the final sample included 468 participant responses. This sample size exceeded Kline's (1993) recommendation that a minimum of 200 participants are necessary to evaluate the initial reliability of a new scale.

The final sample (n = 468) included participants averaging 19 years of age (M = 19.361, SD = 1.53) with 51.5% of respondents identifying as female. A majority of participants also identified as white (67.3%), with the remainder of the sample identifying as Asian/Pacific Islander (15%), bi/multiracial (5.6%), African American/Black (5.3%), or Hispanic/Latino(a) (4.9%).

Procedure

A survey instrument was developed and distributed via an information sheet linked to the online survey hosted by Qualtrics. Upon entering the survey, participants were asked to provide their informed consent and were then asked to respond to each of the below measures.

Participants received course credit for completing the survey and were redirected to a separate survey to provide contact information after completing the questionnaire. All responses remained confidential and were not connected to participants' identifying information. The study's procedure and survey instrument were approved in advance by the university institutional review board.

Convergent Validity Measures

Adaptability

Adaptability was measured using Martin and Rubin's (1995) 12-item Cognitive Flexibility Scale. Examples include: "I can communicate an idea in many different ways" and "I have many possible ways of behaving in any given situation" (M = 3.84, SD = .50; α = .81). All items were measured using a 5-point Likert-type scale ranging from one (strongly disagree) to five (strongly agree).

Communication Competence

Participants' competence in communication was assessed using McCroskey's (1997) 12-item Self-Perceived Communication Competence Scale (M = 3.97, SD = .60; α = .89). Respondents were asked to indicate their level of competence in speaking in various situations on a 5-point Likert-type scale ranging from one (extremely incompetent) to five (extremely competent). Example situations of this measure include: "present a talk with a group of strangers" and "talk in a small group of friends."

Empathy

Empathy was measured using the 20-item Basic Empathy Scale by Jolliffe and Farrington (2006). The self-reported empathy measure was found to be reliable (M = 3.73, SD = .53, α = .88). Participants indicated their level of agreement using a 5-point Likert-type scale ranging from one (strongly disagree) to five (strongly agree). Example items include: "I get caught up in other people's feelings easily" and "Other people's feelings don't bother me at all."

Listening

Listening was assessed using the 20-item Active Listening Scale (Drollinger et al., 2006) and was found to be reliable (M = 3.99, SD = .48, α = .91). A 5-point Likert-type scale ranging from one (strongly disagree) to five (strongly agree) was used to capture this concept. Sample items of this measure include: "I am sensitive to what people are not saying" and "I listen for the tone of the conversation."

Results

Research question 1 (RQ1) asked if the proposed value of a communication instrument would produce a valid and reliable single-order factor. Before conducting an exploratory factor analysis on the instrument, the data were also examined for sampling adequacy. Using the Kaiser-Meyer-Olkin (KMO) measure, the instrument was found to be above the common threshold of 0.6 (KMO = .911)(Worthington & Whittaker, 2006), which indicates a high strength of relationship among the items. Bartlett's test of sphericity was also significant, χ^2 (276) =

4047.24, $p < .001$, indicating the overall significance of the correlations amongst all proposed items. The data were examined for univariate normality using a Shapiro-Wilk test, which revealed a moderate negative skew, $W(468) = .94$, $p < .001$. Given that all items of the VOC measure showcased a skewed distribution below |1.0| and kurtosis below |4.0|, as well as included the larger sample size, the assumption of univariate normality was met (Razali & Wah, 2011; Wrench et al., 2008). The initial VOC scale contained 24 items. Given the sample size of 468, there was a 19.5:1 subject-to-item ratio, which exceeded the commonly stated minimum ratio of 5:1 (Wolf et al., 2013). All items had results above 0.4, illustrating that each item had some common variance with the other items, lending support for a maximum likelihood extraction approach to the dimension reduction analyses.

As a result, a maximum likelihood exploratory factor analysis (EFA) using direct oblimin rotation was applied to the proposed VOC items to analyze their latent factor structure. Factor loadings of .10 or less were suppressed to provide a clear and apparent solution (Osborne, 2015). An analysis of the results from the initial EFA returned 5 factors with Eigenvalues over 1.0, with the first factor returning an Eigenvalue of 7.47 and accounting for 31% of the variance. The other four factors returned Eigenvalues ranging from 2.13 to 1.02. However, the literature suggests that relying solely upon the identification of Eigenvalues over 1.0 is an unreliable method for determining how many factors to retain (Velicer & Jackson, 1990). Thus, to further examine and determine if a reliable single-factor solution had been obtained amongst this sample, an inspection of the scree plot, a widely applied standard for "visually estimating the number of factors that are informative" (Knekta et al., 2019, p. 13), was applied. The scree plot revealed only one factor "above the break," with the remaining factors leveling off following the initial factor. See Figure 1 for scree plot.

Following this examination, the factor loadings were analyzed to determine which factors would be retained. Tabachnick and Fidell (2001) suggest .32 as a minimum loading for a single item on a given factor, with .50 being considered an adequate loading for an item to be retained on a given factor. A slightly more stringent set of cut-offs were applied in this study, with a priori factor loading cut-offs set at > .6 for primary loadings and <. 4 for any secondary loadings (Worthington & Whittaker, 2006). In addition to this, five items returned results that were less than .40 (original items: 2, 3, 11, 17, & 21). In re-evaluating these items, certain items were too close in meaning to other items, or it was determined that those items did not measure the value of communication directly and instead related outcomes and skills or perceptions of others' values, and thus were dropped as a result (Costello & Osborne, 2005). See Table 1 for details.

The five items that returned communalities less than .40 were excluded from this subsequent dimension reduction. The second EFA was conducted using maximum likelihood estimation and was constrained to a single-factor solution. This analysis identified eight items with factor loadings that met the a priori cut-offs (original item #s: 7, 8, 16, 18, 20, 22, 23, 24). See Table 2 for factor loadings.

The results of the EFA combined with our theoretically driven item design process indicated retention of a single-factor solution from this EFA analysis (see Table 3 for descriptive

statistics and correlations of reduced 8-item VOC measure). As a result, a reliability analysis was conducted on this 8-item measure to determine internal consistency. The obtained Cronbach's alpha suggested that the single-factor solution does produce a reliable scale to represent the construct of VOC, Cronbach's $\alpha = .872$ ($M = 4.30$, $SD = .50$).

Next, to examine the convergent validity of the proposed measurement scale, research question 2 asked which communication traits, known to be theoretically connected with effective communicators, would obtain a significant correlation with the VOC instrument. To examine this research question, bivariate linear correlations were performed between VOC and each of the previously validated trait communication measures: adaptability, communication competence, empathy, and listening, with an a priori significance level cut-off point of $p < .01$. The results of this analysis identified that VOC was significantly and positively correlated with each of the known communication trait variables included in the analyses: adaptability ($r = .50$, $p < .001$), communication competence ($r = .33$, $p < .001$), empathy ($r = .29$, $p < .001$), and listening ($r = .56$, $p < .001$). See Table 4 for the correlation matrix of the value of communication and trait instruments.

The single-factor 8-item VOC measure demonstrated: an ability to capture the concept of one's value of communication, satisfactory internal consistency above .80 (Bland & Altman, 1997), and appropriate convergent validity with known related variables. The final eight items could be described as capturing the value of communication beyond overtly specific situations. Despite these findings, additional research and instrument evaluation is needed to further investigate the reliability and validity of the newly established measure. The following study addresses this need with a sample from the professional workforce.

Study 2

Study 2 was designed to confirm the factor structure of the identified VOC instrument from Study 1, with the following research question:

> *RQ3: Does the proposed "value of communication" instrument produce a reliable single-order factor? If so, which items are included in the final measurement scale?*

Methods

Sample

Study 2 sought to examine the reliability of the proposed instrument amongst a sample of adult working professionals who belonged to a large for-profit organization and were enrolled in a relevant employee training program. Participants were recruited from a large (> 1000 employees) multinational Fortune 500 insurance company ($n = 40$) with offices in the northeast region of the United States. This sample was selected in an effort to capture a representative sample of a professional workforce that consistently offers employee training and development opportunities. The sample of participants included members of a claims account executive team with a range of professional experience (0 to 33 years), and an overall average of 10 years of

industry experience (M = 10.85, SD = 8.58). The sample size was deemed sufficiently large enough to identify a reliable single-factor solution, given that factor loadings for each item reached an a priori minimum cut-off of .80 (Knekta, et., al., 2019; Wolf et al., 2013).

Procedure

Participants within the organization were invited (by their managers) to attend a virtual workshop on the best practices of internal small-group communication facilitated by the Principal Investigator. Following approval by the University Institutional Review Board, an internal contact at the organization sent a survey link to the participants two weeks before the workshop. Attendees were not briefed on the details of the upcoming workshop before the survey distribution, and their answers were kept confidential to their employer while remaining anonymous to the researchers. Attendees were not compensated for completing the survey but were thanked for their time and contribution to this line of research.

Measures

Participants provided demographic information, including their age, years of experience, and sex. Additional variables were collected as part of the organization's evaluation of the workshop and are not included in this study at the participating organization's request.

In an attempt to confirm the VOC scale obtained from Study 1, the reduced 8-item measure was used in Study 2 (See Table 5 for items used). A 5-point Likert-type scale was used, ranging from one (*strongly disagree*) to five (*strongly agree*) to assess the participants' level of VOC. Further details on this measure's reliability are detailed in the results section below.

Results

Following the results from the EFA performed in Study 1, a confirmatory factor analysis (CFA) was selected to analyze the VOC scale using Amos v. 27. Given the findings from the data reduction analyses, coupled with the findings of significant convergent validity with other communication traits in Study 1, the CFA in Study 2 sought to determine if the proposed VOC scale would return a reliable single-factor solution amongst a sample of adult working professionals from the same organization within the same industry. The primary aim was to identify a single-factor solution that would allow for the items to be combined into a summed measurement scale and be applied confidently in future training and development applications where appropriate.

A Shapiro-Wilk test (W = .75, p < .01) was used to investigate univariate normality of the data due to the smaller sample size. Given that all items of the VOC measure had a negatively skewed distribution below |1.0| and kurtosis below |4.0|, the assumption of univariate normality was met (Razali and Wah, 2011; Wrench et al., 2008). Multivariate normality was examined using Mardia's skewness and kurtosis measure. The sample did not present multivariate normality for skew ($b_{1,2}$=66.11; Mardia, 1974) nor for kurtosis ($b_{2,2}$=146.28). Given the use of a Likert response set, along with the non-normal multivariate distribution of the VOC items, the

CFA was conducted using a maximum-likelihood estimation extraction method. There was no missing data to be accounted for in the CFA analysis. The tested VOC scale in Study 2 contained eight items, which offered a 5:1 subject-to-item ratio and satisfied the suggested sample size recommendations of Wolf and colleagues (2013).

The single-factor scale identified in the Study 1 EFA was tested in the CFA analysis. The eight items from the single-factor solution from Study 1 (original item numbers: 7, 8, 16, 18, 20, 22, 23, 24) loaded with a single factor, and for identification purposes, one of the factor loadings was set to one (original item 22), and the model was overidentified. The items are renumbered 1-8 for the subsequent analyses, and the corresponding Study 2 VOC scale (and corresponding item numbers) can be found in Table 5. A priori model fit indices were selected, along with corresponding cutoff values that would be used to determine a good fit for the model. According to Hu and Bentler (1999), a comparative fit index (CFI) with a cutoff value of > 0.95 along with a standardized root-mean-square residual (SRMR) of < 0.08, and a root mean square error of approximation (RMSEA) < 0.10 would serve as relative indicators of a well-fit model.

The initial testing of the model returned an SRMR that met the a priori cut-offs (SRMR = .0412), however, the other indices of fit did not meet their cut-offs (χ^2 = 92.46, df = 20, p < .00, CFI = .848, RMSEA = .305, pclose = .000). A subsequent investigation into the factor loadings did not signal that any of the items were ill-fitting for the model (factor loadings for all items ≥ 0.83). However, a review of the modification indices suggested a sizable covariance between the error terms for items 1 and 2 and between the error terms for items 2 and 3. A subsequent review of the correlation matrix suggested that these items shared a significantly high correlation (α = > .90, see Table 6 for the correlation matrix of items 1-8). Thus, it was posited that item 2 was capable of capturing this shared variance across these two items. Given the call for more time-efficient measures within the field of training and development (Aguinis & Kraiger, 2009) and the limited time with which communication centers have to conduct assessments (Davis et al., 2017), items 1 and 3 were determined to be theoretically and statistically redundant with item 2 and were trimmed from the scale to offer a more efficient scale without sacrificing accuracy.

The trimmed model (including items 2, 4, 5, 6, 7, 8) was re-tested and returned a good fit of the data as all the a priori cutoffs were met for each of the model fit indices (x^2 = 7.763, df = 9, p = .354, RMSEA = .053, pclose = .422, CFI = .997, SRMR = .0179). Factor loadings for each of the six items included in the final model were identified as significant (p < .001) indicators of the latent VOC factor. Factors loadings for all six items were equal to or greater than .80, suggesting that the latent factor explained a sizable portion of the variance in the factors. See Table 7 for the complete CFA details.

Discussion

This research aimed to operationalize a reliable measure for the concept of one's value of communication. The CFA results from Study 2 helped to bring a single-order factor into focus and identified a reliable six-item solution. Based on the empirical evidence obtained, as well as the satisfaction of validity evidence as outlined by Knekta and colleagues (2019; e.g., test

content, response process, internal structure, and relation to other variables), we believe that the scale holds validity across multiple points (e.g., test content, response processes, and relations to other variables). Additionally, previous literature suggests that unidimensional structures generally provide the advantage of simplicity in understanding, particularly in a training and development context where non-expert workshop participants view and interpret their own results (Bhattacherjee, 2012; Brenninkmeijer & VanYperen, 2003; Van Wingerden & Niks, 2017). In an application context, a single-dimensional structure measurement can also provide a general and clear starting point for examining the effects of different types of training (Brenninkmeijer & VanYperen, 2003). In presenting a measure for the value of communication, the resulting single-dimension structure can provide a simple and clear measurement that participants can easily interpret and trainers can use in evaluating training effectiveness. Thus, the final 6-item solution is put forth here for future use and application in relevant communication training and development centers. A review of these applications, as well as the limitations and future directions surrounding the continued development and refinement of this newly established measure, are offered.

Application of the VOC Scale

Given the central role that communication already plays in one's life, especially in the ability to portray, transfer, and demonstrate other learned skills, identifying a value of communication provides a way for communication centers to assess the importance and worth individuals are placing on communication. Given the nature of this work, the goal was to identify and confirm the proposed instrument to apply the instrument in future research in communication training centers. Integrating the VOC measure in communication centers may assist center staff and trainers in taking better stock of which individuals are likely to apply developmental materials and best practices. Additionally, implementing a values approach to communication training can aid communication centers' current efforts to promote student-centered training and professional development (Benedict et al., 2020; LaGrone & Mills, 2020). Future research that includes the VOC measure will be afforded the opportunity to examine whether significant correlations exist between an individual's VOC and their relative success in training programs related to increasing desirable communication outcomes.

As stated, communication skills are often cited as one of the most important characteristics of leaders within an organization (Zulch, 2014). If the VOC measure is capable of detecting or predicting relationships with desired communication outcomes within an organization, it may also serve as a proxy for helping to determine which individuals may have a value of communication that is beneficial to future leadership opportunities and positions. Taken together, these results suggest that communication centers may want to consider integrating a measure of participants' value of communication to improve their ability to apply the desired approach to development based on an individual's overall VOC.

Furthermore, in professional settings, the application of the scale may be utilized in conjunction with training and development programs surrounding the broader context of

communication, including but not limited to improving public speaking skills, building team rapport, and stronger team collaborations (Mathieu et al., 2020), improving group decision making, engaging in more active listening, and increased sales and business development. This premise is built on the foundation that a value of communication will have an intrinsic influence on an individual's behavioral decision-making. For example, just as valuing health might lead one to engage in more fitness-related activities, have more awareness of their approach to wellness, or help guide healthier eating habits, so too would placing value on communication likely impact other behaviors. Such behaviors may include seeking greater feedback on their communication skills, engaging in training or development opportunities to sharpen their skills, or further seeking out new opportunities to expand their perspectives on communication and its best practices. Thus, holding a high value of communication might suggest that an individual will retain feedback from others regardless of the nature of the relationship (peer to peer, supervisors, strangers, etc.), or they will seek to participate in communication-related events that they may feel are challenging and outside of their comfort zone.

Limitations

Despite the quality and value of data obtained in both studies, multiple limitations should be addressed and considered when moving forward with this instrument. First, research has suggested that individuals may find it challenging to address or have a clear awareness of their values (Rohan, 2000). Thus, the self-report nature of this study may pose a limitation regarding the accuracy by which participants were able to assess their personal value of communication. Next, Study 1 included students in an introductory communication course and, thus, may value communication higher than average, as seen by their choice to enroll in a communication course. Communication center trainers would benefit from understanding how students outside of the communication field value communication. However, students likely hold similar, if not the same, values as those outside a university setting. It can be argued that the student sample accurately reflects individuals in a professional setting (Towler & Dipboye, 2003).

Nevertheless, this limitation was addressed in Study 2 by obtaining a professional, non-student sample. While Study 2 provided us with a "real-world" professional sample to examine the value of communication in an organizational setting, there were several limitations such as the smaller sample size and limited generalizability. Additionally, the organization where the sample was recruited conducts annual employee training. It is plausible that these individuals have been exposed to more communication-related training than other working professionals. Participants in Study 2 may also have offered higher VOC responses because they may have felt that their responses would be evaluated, despite assurances that the data would remain confidential and anonymous. These sample and response biases can play a role in almost any scale development research, but future researchers must continue to consider these potential limitations in both their application and the development of the instrument.

Further, despite the researchers' attempt to draw influence from seminal work in the field of communication, we recognize that the values and definitions utilized within this study are not

universally applicable nor shared, particularly across cultures, languages, and societal views (Boroditsky, 2011). Future research should be conducted across broader, more diverse samples, which may help uncover or determine the relative universality of the proposed instrument, such as in the way language influences our values. This would expand our understanding of communication as a value and alter the instrument's overall structure and its use, such as in organizations in other countries and unique communication perspectives.

Future Research

Future research should continue evaluating the factor structure and reliability of the new VOC instrument. Efforts should be made to include the instrument in a wide range of communication center programming and should be tested across a broader range of populations. Efforts should also be made to identify additional samples drawn from a wide range of fields, cultures, and career contexts to evaluate the instrument's internal reliability while also beginning to capture how individuals within these domains value communication. The current study explored convergent validity by comparing known trait communication characteristics. Each communication trait included in this study returned a positive relationship with VOC. However, despite these positive findings, future research must attempt to identify trait variables that may provide divergent perspectives on the measure. Furthermore, future research should aim to incorporate mixed methods approaches with the measure to improve the instrument's overall quality and usefulness (Gibson, 2017).

In addition, we would like to see the scale utilized amongst samples of individuals who may have difficulty developing traditional communication skills. For example, individuals with communication disorders, learning disabilities, or those with high levels of communication apprehension might benefit from an increased awareness of how they value the concept of communication. As a result, this may provide a foundation for development in their communication skills and their overall understanding of how the concept fits into their larger value structures. Furthermore, researchers, facilitators, and communication center staff that focus on these groups may be able to use the VOC measure. Future studies should be conducted to assess the factor structure of the measure in these populations and further expand the use of VOC in different communication contexts.

Following the successful implementation of the aforementioned future research aims, the conceptual value of communication should also be used to predict future behaviors and evaluated in comparison to other known and validated measures. This initial research achieved three of the five steps from Hitlin’s (2003) value criteria. However, future research should seek to engage the remaining two criteria: (4) guide the selection or evaluation of behavior and events, and (5) are ordered by relative importance. In order to act on these future research aims, the concept will need to be integrated into formal training programs with an emphasis on value growth and evaluated for its ability to predict future communication skill development or application. Second, future participants will need to assess and compare the value of communication to other known values (e.g., happiness, health, freedom, security, etc.). Analyses can help to infer if

VOC-related training programs influence how the concept compares in ranking to these other common values.

Finally, VOC should be integrated into interdisciplinary fields to examine how changes in VOC can impact other factors such as an individual's relationships, career growth, health, and/or overall quality of life. Furthermore, training and development facilitators might consider offerings that focus primarily on increasing an individual's value of communication prior to focusing on specific contextual skill development to see if increased VOC leads to more positive attitudes towards developing communication skills, as well as more desirable outcomes in the behavioral application of skills. Implications for applying the VOC instrument are wide-reaching, and VOC-specific training could be implemented given the focus on developing communication skills in almost every field.

References

American Educational Research Association, American Psychological Association, and National Council for Measurement in Education (AERA, APA, and NCME). (2014). *Standards for educational and psychological testing.* Washington, DC.

Aguinis, H., & Kraiger, K. (2009). Benefits of training and development for individuals and teams, organizations, and society. *Annual Review of Psychology, 60*, 451-474. https://doi.org/10.1146/annurev.psych.60.110707.163505

Andrews, S. E., Runyon, C., & Aikens, M. L. (2017). The math–biology values instrument: Development of a tool to measure life science majors' task values of using math in the context of biology. *CBE—Life Sciences Education*, *16*(3), 1-12. https://doi.org/10.1187/cbe.17-03-0043

Anvik, T., Gude, T., Grimstad, H., Baerheim, A., Fasmer, O. B., Hjortdahl, P., Holen, A., Risberg, T., & Vaglum, P. (2007). Assessing medical students' attitudes towards learning communication skills–which components of attitudes do we measure? *BMC Medical Education, 7*(4), 1-7. https://doi.org/10.1186/1472-6920-7-4

Babakus, E., & Mangold, W. G. (1992). Adapting the SERVQUAL scale to hospital services: An empirical investigation. *Health Services Research, 26*(6), 767-786.

Barth, J., & Lannen, P. (2010). Efficacy of communication skills training courses in oncology: A systematic review and meta-analysis. *Annals of Oncology, 22*(5), 1030-1040. https://doi.org/10.1093/annonc/mdq441

Beatty, S. E., Kahle, L. R., Homer, P., & Misra, S. (1985). Alternative measurement approaches to consumer values: The list of values and the Rokeach value survey. *Psychology & Marketing, 2*(3), 181-200. https://doi.org/10.1002/mar.4220020305

Benedict, B. C., Shields, A. N., Wieland, M., & Hall, J. (2020). Recommendations for communication centers based on student and tutor reflections: Insights about students' reasons for visiting, session outcomes, and characteristics of the tutoring approach. *Communication Center Journal*, *6*(1), 79-93.

Bhattacherjee, A. (2012). *Social science research: Principles, methods, and practices.* Textbooks Collection. 3. http://scholarcommons.usf.edu/oa_textbooks/3

Blanchard, V. L., Hawkins, A. J., Baldwin, S. A., & Fawcett, E. B. (2009). Investigating the effects of marriage and relationship education on couples'; communication skills: A meta-analytic study. *Journal of Family Psychology, 23*(2), 203-214. https://doi.org/10.1037/a0015211

Bland, J. M., & Altman, D. G. (1997). Statistics notes: Cronbach's Alpha. *BMJ, 314*(7080), 570-572. https://doi.org/10.1136/bmj.314.7080.572

Blume, B. D., Baldwin, T. T., & Ryan, K. C. (2013). Communication apprehension: A barrier to students' leadership, adaptability, and multicultural appreciation. *Academy of Management Learning & Education, 12*(2), 158-172. https://doi.org/10.5465/amle.2011.0127

Bodie, G. D. (2011). The understudied nature of listening in interpersonal communication: Introduction to a special issue. *The International Journal of Listening, 25*(1-2), 1-9. https://doi.org/10.1080/10904018.2011.536462

Boroditsky, L. (2011). How language shapes thought. *Scientific American, 304*(2), 62-65. https://www.jstor.org/stable/26002395

Brenninkmeijer, V., & VanYperen, N. (2003). How to conduct research on burnout: Advantages and disadvantages of a unidimensional approach in burnout research. *Occupational and Environmental Medicine*, *60*(suppl 1), i16-i20. http://dx.doi.org/10.1136/oem.60.suppl_1.i16

Bylund, C. L., Brown, R. F., di Ciccone, B. L., Levin, T. T., Gueguen, J. A., Hill, C., & Kissane, D. W. (2008). Training faculty to facilitate communication skills training: Development and evaluation of a workshop. *Patient Education and Counseling*, *70*(3), 430-436. https://doi.org/10.1016/j.pec.2007.11.024

Carpenter, R. (2019). Editorial introduction: Communication centers spanning campus and communities. *Communication Center Journal*, *5*(1), 1-2.

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods, 4*(1), 62-83. https://doi.org/10.1177/109442810141004

Cheng, A. S., & Fleischmann, K. R. (2010). Developing a meta‐inventory of human values. *Proceedings of the American Society for Information Science and Technology, 47*(1), 1-10. https://doi.org/10.1002/meet.14504701232

Clarke, J. S., Llewellyn, N., Cornelissen, J., & Viney, R. (2021). Gesture analysis and organizational research: The development and application of a protocol for naturalistic settings. *Organizational Research Methods, 24*(1), 140-171. https://doi.org/10.1177/1094428119877450

Cleland, J., Foster, K., & Moffat, M. (2005). Undergraduate students' attitudes to communication skills learning differ depending on year of study and gender. *Medical Teacher, 27*(3), 246-251. https://doi.org/10.1080/01421590400029541

Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation*, *10*(7), 1-7. https://doi.org/10.7275/jyj1-4868

Davenport Sypher, B., Bostrom, R. N., & Hart Seibert, J. (1989). Listening, communication abilities, and success at work. *The Journal of Business Communication (1973), 26*(4), 293-303. https://doi.org/10.1177/002194368902600401

Davis, T. (2018, July 12). *39 core values—and how to live by them*. Psychology Today. https://www.psychologytoday.com/us/blog/click-here-happiness/201807/39-core-values-and-how-live-them

Davis, A., Linvill, D. L., & Jacobs, M. E. (2017) Communication center effectiveness: The impact of tutoring on speech performance. *Communication Center Journal, 3*(1) 23-33. http://libjournal.uncg.edu/ccj/article/view/1581

de Beer, E. (2014). Creating value through communication. *Public Relations Review, 40*(2), 136-143. https://doi.org/10.1016/j.pubrev.2014.02.024

Deveugele, M. (2015). Communication training: Skills and beyond. *Patient Education and Counseling*, *98*(10), 1287-1291. https://doi.org/10.1016/j.pec.2015.08.011

DeVito, J. A. (2013). *The interpersonal communication book* (13th ed.). Pearson Education, Inc.

Drollinger, T, Comer, L. B., Warrington, P. T. (2006). Development and validation of the Active Empathetic Listening Scale. *Psychology & Marketing, 23*(2), 161-180. https://doi.org/10.1002/mar.20105

Duran, R. L. (1983). Communicative adaptability: A measure of social communicative competence. *Communication Quarterly, 31*(4), 320-326. https://doi.org/10.1080/01463378309369521

Duran, R. L. (1992). Communicative adaptability: A review of conceptualization and measurement. *Communication Quarterly, 40*(3), 253-268. https://doi.org/10.1080/01463379209369840

Ellis, J. B., & Stuart, E. (2021). The science behind learning: Practical applications of curiosity, sociality, and emotion in communication center consultations. *Communication Center Journal*, *7*(1), 3-13.

Freifeld, L. (2018, November 6). 2018 Training industry report. *Training Magazine*. https://trainingmag.com/trgmag-article/2018-training-industry-report/

Gibson, C. B. (2017). Elaboration, generalization, triangulation, and interpretation: On enhancing the value of mixed method research. *Organizational Research Methods, 20*(2), 193-223. https://doi.org/10.1177/1094428116639133

Grohmann, A., & Kauffeld, S. (2013). Evaluating training programs: Development and correlates of the Questionnaire for Professional Training Evaluation. *International Journal of Training and Development, 17*(2), 135-155. https://doi.org/10.1111/ijtd.12005

Heaven, C., Clegg, J., & Maguire, P. (2006). Transfer of communication skills training from workshop to workplace: The impact of clinical supervision. *Patient Education and Counseling, 60*(3), 313-325. https://doi.org/10.1016/j.pec.2005.08.008

Hirsch, R. O. (1979). *Listening: A way to process information aurally.* Gorsuch Scarisbrick.

Hitlin, S. (2003). Values as the core of personal identity: Drawing links between two theories of self. *Social Psychology Quarterly, 66*(2), 118-137. https://doi.org/10.2307/1519843

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence, 29*(4), 589-611. https://doi.org/10.1016/j.adolescence.2005.08.010

Kline, P. (1993). *The handbook of psychological testing*. Routledge.

Knekta, E., Runyon, C., & Eddy, S. (2019). One size doesn't fit all: Using factor analysis to gather validity evidence when using surveys in your research. *CBE—Life Sciences Education*, *18*(1), 1-17. https://doi.org/10.1187/cbe.18-04-0064

Kruijver, I. P., Kerkstra, A., Francke, A. L., Bensing, J. M., & van de Wiel, H. B. M. (2000). Evaluation of communication training programs in nursing care: A review of the literature. *Patient Education and Counseling, 39*(1), 129-145. https://doi.org/10.1016/S0738-3991(99)00096-8

Lam, D., Lee, A., & Mizerski, R. (2009). The effects of cultural values in word-of-mouth communication. *Journal of International Marketing, 17*(3), 55-70. https://doi.org/10.1509/jimk.17.3.55

LaGrone, T., & Mills, L. A. (2020). The communication center as a resource for professional development. *Communication Center Journal*, *6*(1), 109-111.

Larzelere, R. E., & Huston, T. L. (1980). The dyadic trust scale: Toward understanding interpersonal trust in close relationships. *Journal of Marriage and the Family, 42*(3), 595-604. https://doi.org/10.2307/351903

Lavrakas, P. J. (2008). *Encyclopedia of survey research methods.* Sage Publications. https://dx.doi.org/10.4135/9781412963947

Lissitz, R. W., & Green, S. B. (1975). Effect of the number of scale points on reliability: A Monte Carlo approach. *Journal of Applied Psychology, 60*(1), 10-13. https://doi.org/10.1037/h0076268

Lloyd, K. J., Boer, D., & Voelpel, S. C. (2017). From listening to leading: Toward an understanding of supervisor listening within the framework of leader-member exchange theory. *International Journal of Business Communication, 54*(4), 431-451. https://doi.org/10.1177/2329488415572778

Maguire, P., & Pitceathly, C. (2002). Key communication skills and how to acquire them. *BMJ, 325*(7366), 697-700. https://doi.org/10.1136/bmj.325.7366.697

Mardia, K. V. (1974). Applications of some measures of multivariate skewness and kurtosis in testing normality and robustness studies. *Sankhyā: The Indian Journal of Statistics, Series B (1960-2002), 36*(2), 115–128. https://www.jstor.org/stable/25051892

Martin, M. M., & Anderson, C. M. (1998). The cognitive flexibility scale: Three validity studies. *Communication Reports, 11*(1), 1-9. https://doi.org/10.1080/08934219809367680

Martin, M. M., & Rubin, R. B. (1995). A new measure of cognitive flexibility. *Psychological Reports, 76*(2), 623-626. https://doi.org/10.2466/pr0.1995.76.2.623

Mathieu, J. E., Luciano, M. M., D'Innocenzo, L., Klock, E. A., & LePine, J. A. (2020). The development and construct validity of a team processes survey measure. *Organizational Research Methods, 23*(3), 399-431. https://doi.org/10.1177/1094428119840801

McCroskey, J. C. (1997). Self-report measurements. In J. A. Daly & J. Ayers (Eds.), *Avoiding communication: Shyness, reticence, & communication apprehension,* (pp. 191-216). Hampton Press.

Meyer, J. (1995). Tell me a story: Eliciting organizational values from narratives. *Communication Quarterly, 43*(2), 210–224. https://doi.org/10.1080/01463379509369970

Mikkelson, A. C., Hesse, C., & Sloan, D. (2017). Relational communication messages and employee outcomes in supervisor/employee relationships. *Communication Reports, 30*(3), 142-156. https://doi.org/10.1080/08934215.2017.1300677

O'Connor, R. (2015, April 30). Better Life Index: Infographic shows what people around the world value most. *The Independent*. https://www.independent.co.uk/news/world/better-life-index-infographic-shows-what-people-around-world-value-most-10213938.html

Osborne, J. W. (2015). What is rotating in exploratory factor analysis? *Practical Assessment, Research, and Evaluation, 20*(1), 1-7. https://doi.org/10.7275/hb2g-m060

Østerås, N., Gulbrandsen, P., Garratt, A., Benth, J. Š., Dahl, F. A., Natvig, B., & Brage, S. (2008). A randomised comparison of a four-and a five-point scale version of the Norwegian Function Assessment Scale. *Health and Quality of Life Outcomes, 6*(1), 1-9. https://doi.org/10.1186/1477-7525-6-14

Payne, H. J. (2005). Reconceptualizing social skills in organizations: Exploring the relationship between communication competence, job performance, and supervisory roles. *Journal of Leadership & Organizational Studies, 11*(2), 63-77. https://doi.org/10.1177/107179190501100207

Petty, R. E., Wegener, D. T., & Fabrigar, L. R. (1997). Attitudes and attitude change. *Annual Review of Psychology, 48*(1), 609-647. https://doi.org/10.1146/annurev.psych.48.1.609

Pistrang, N., Picciotto, A., & Barker, C. (2001). The communication of empathy in couples during the transition to parenthood. *Journal of Community Psychology, 29*(6), 615-636. https://doi.org/10.1002/jcop.2000

Pistrang, N., & Barker, C. (1998). Partners and fellow patients: Two sources of emotional support for women with breast cancer. *American Journal of Community Psychology, 26*(3), 439–456. https://doi.org/10.1023/A:1022163205450

Polk, J. A. (2006). Traits of effective teachers. *Arts Education Policy Review, 107*(4), 23-29. https://doi.org/10.3200/AEPR.107.4.23-29

Pontefract, D. (2019, September 15). The wasted dollars of corporate training programs. *Forbes*. https://www.forbes.com/sites/danpontefract/2019/09/15/the-wasted-dollars-of-corporate-training-programs/#6e13e52a71f9

Pronovost, P., Berenholtz, S., Dorman, T., Lipsett, P. A., Simmonds, T., & Haraden, C. (2003). Improving communication in the ICU using daily goals. *Journal of Critical Care, 18*(2), 71-75. https://doi.org/10.1053/jcrc.2003.50008

Razali, N. M., & Wah, Y. B. (2011). Power comparisons of Shapiro-wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-darling tests. *Journal of Statistical Modeling and Analytics, 2*(1), 21-33.

Rees, C., & Sheard, C. (2002). The relationship between medical students' attitudes towards communication skills learning and their demographic and education‐related

characteristics. *Medical Education, 36*(11), 1017-1027. https://doi.org/10.1046/j.1365-2923.2002.01333.x

Rees, C., Sheard, C., & Davies, S. (2002). The development of a scale to measure medical students' attitudes towards communication skills learning: The Communication Skills Attitude Scale (CSAS). *Medical Education, 36*(2), 141-147. https://doi.org/10.1046/j.1365-2923.2002.01072.x

Reeves, T. D., & Marbach-Ad, G. (2016). Contemporary test validity in theory and practice: A primer for discipline-based education researchers. *CBE—Life Sciences Education*, *15*(1), 1-9. https://doi.org/10.1187/cbe.15-08-0183

Revilla, M. A., Saris, W. E., & Krosnick, J. A. (2014). Choosing the number of categories in agree–disagree scales. *Sociological Methods & Research, 43*(1), 73-97. https://doi.org/10.1177/0049124113509605

Roccas, S., Sagiv, L., Schwartz, S. H., & Knafo, A. (2002). The big five personality factors and personal values. *Personality and Social Psychology Bulletin, 28*(6), 789-801. https://doi.org/10.1177/0146167202289008

Rohan, M. J. (2000). A rose by any name? The values construct. *Personality and Social Psychology Review, 4*(3), 255-277. https://doi.org/10.1207/S15327957PSPR0403_4

Rokeach, M. (1967). *The Rokeach Value Survey Form D.* Halgren Tests.

Rokeach, M. (1973). *The nature of human values.* Free press.

Rollnick, S., Kinnersley, P., & Butler, C. (2002). Context‐bound communication skills training: Development of a new method. *Medical Education*, *36*(4), 377-383. https://doi.org/10.1046/j.1365-2923.2002.01174.x

Rotthoff, T., Baehring, T., David, D. M., Bartnick, C., Linde, F., Willers, R., Schäfer, R. D., & Scherbaum, W. A. (2011). The value of training in communication skills for continuing medical education. *Patient Education and Counseling*, 84(2), 170-175. https://doi.org/10.1016/j.pec.2010.07.034

Salas, E., Tannenbaum, S. I., Kraiger, K., & Smith-Jentsch, K. A. (2012). The science of training and development in organizations: What matters in practice. *Psychological Science in the Public Interest*, *13*(2), 74-101. https://doi.org/10.1177/1529100612436661

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology,* (pp. 1-65). Academic Press.

Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues, 50*(4), 19-45. https://doi.org/10.1111/j.1540-4560.1994.tb01196.x

Schwartz, S. H. (2012). An overview of the Schwartz theory of basic values. *Online Readings in Psychology and Culture, 2*(1), 1-20. http://dx.doi.org/10.9707/2307-0919.1116

Steil, L. K., Barker, L. L., & Watson, K. W. (1983). *Effective listening: Key to your success.* Addison-Wesley.

Strawser, M. G., Apostel, S., Carpenter, R., Cuny, K. M., Dvorak, K., & Head, K. (2020). The centrality of the center: Best practices for engaging students on campus. *Communication Center Journal, 6*(1), 94-102.

Tabachnick, B. G., & Fidell, L. S. (2001). Principal components and factor analysis. *Using Multivariate Statistics, 4*(1), 582-633.

Towler, A. J., & Dipboye, R. L. (2003). Development of a learning style orientation measure. *Organizational Research Methods, 6*(2), 216-235. https://doi.org/10.1177/1094428103251572

Van Wingerden, J., & Niks, I. M. (2017). Construction and validation of the perceived opportunity to craft scale. *Frontiers in Psychology*, *8*(573), 1-9. https://doi.org/10.3389/fpsyg.2017.00573

Velicer, W. F., & Jackson, D. N. (1990). Component analysis versus common factor analysis: Some issues in selecting an appropriate procedure. *Multivariate Behavioral Research, 25*(1), 1-28. https://doi.org/10.1207/s15327906mbr2501_1

Weaver, C. H. (1972). *Human listening: Processes and behavior.* Bobbs-Merrill.

Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models: An evaluation of power, bias, and solution propriety. *Educational and Psychological Measurement*, *73*(6), 913-934. https://doi.org/10.1177/0013164413495237

Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist*, *34*(6), 806-838. https://doi.org/10.1177/0011000006288127

Wrench, J. S., Thomas-Maddox, C., Richmond, V. P., & McCroskey, J. C. (2008). *Quantitative research methods for communication: A hands-on approach.* Oxford University Press, Inc.

Wright, K. B., Bylund, C., Ware, J., Parker, P., Query, J. L., & Baile, W. (2006). Medical student attitudes toward communication skills training and knowledge of appropriate provider-patient communication: A comparison of first-year and fourth-year medical students. *Medical Education Online, 11*(1), 4594-4603. https://doi.org/10.3402/meo.v11i.4594

Zolnierek, K. B. H., & DiMatteo, M. R. (2009). Physician communication and patient adherence to treatment: A meta-analysis. *Medical Care, 47*(8), 826-834. https://doi.org/10.1097/MLR.0b013e31819a5acc

Zulch, B. (2014). Leadership communication in project management. *Procedia-Social and Behavioral Sciences*, *119*, 172-181. https://doi.org/10.1016/j.sbspro.2014.03.021

Table 1

Factor Loadings and Communalities for Value of Communication Instrument with Maximum Likelihood Extraction with Direct Oblimin Rotation tested in Study 1.

Item	Factor Loading					Communalities
	1	2	3	4	5	
22. I value communication	.770	-	-.110	-.376	.127	.765
23. Valuing communication is important in all areas of my life	.714	-	-	-.134	.113	.544
8. Valuing communication improves my communication with others	.709	-	-.305	.134	-.117	.637
7. Valuing communication significantly influences team/group work outcomes	.684	-.120	-.300	.225	-.189	.658
20. Valuing communication holds lifelong importance	.672	-	-	-.145	.100	.493
24. Communication is important even when I lack communication skills	.662	.258	-	-.140	-	.529
18. Having a value of communication is helpful for learning other skills	.612	-	-.131	-	-	.400
16. It's useful to value communication for my job/career/degree	.610	-.236	-.153	-	-	.455
4. Valuing communication helps me respect others	.589	.148	-	.245	.149	.454
9. I enjoy developing my value of communication	.578	-.169	-.208	-	-	.412
19. I find it difficult to care about my value of communication	.565	-	.246	-	-	.400

10. Developing my value of communication is unnecessary	.544	-.309	.201	-	-	.432
15. I don't need to value communication to be successful	.542	-.144	.274	.241	.235	.503
12. Valuing communication leads to predictable outcomes in the workplace	.538	.361	-	.187	-	.462
5. I make time to develop my value of communication	.498	.494	.243	-	-.253	.615
14. Valuing communication is only important in certain situations	.483	-.404	.318	-	-	.503
6. I don't take advantage of opportunities to improve my value of communication	.428	.201	.408	-.133	-.280	.487
3. Communication values are just as important as other values (e.g., religious, relational, financial, etc.)	.331	.217	.114	.133	.185	.222*
21. It is more important for others than it is for me to develop my value of communication	.315	-.304	.225	-	-	.245*
2. Nobody is going to fail (in life/at their job) for not valuing communication	.298	-	.177	.136	.171	.169*
13. Valuing communication is only important as it relates to your career	.436	-.497	.234	-	-.151	.518
11. Valuing communication has helped me respect others	.230	.395	-.154	.259	-	.303*

17. Other values (e.g., religious, relationship, financial, etc.) are more important than communication values in my job/school/relations	.214	-	.273	-	.229	.176*
1. In order to be a good (person/insert profession here), I must value communication	.306	.310	-	.282	.356	.402

Note: Factor loadings < .10 suppressed

* Item not included in second EFA due to low communality < .40

Table 2

Factor Loadings for Value of Communication Instrument, with Maximum Likelihood Extraction, Constrained to One Factor Solution in Study 1.

Item	Factor 1
22*	.749
23*	.719
8*	.708
20*	.678
7*	.676
24*	.648
16*	.623
18*	.623
9	.591
4	.581
19	.554
10	.539
15	.525
12	.523
14	.473
5	.461
13	.430
6	.400
1	.291

* Item included in final instrument for Study 1

Table 3

Factor Loadings, Descriptive Statistics, and Correlations for EFA Reduced 8-item VOC Measure in Study 1.

Item	Factor Loading	*M*	*SD*	22	23	8	20	7	24	16	18
22	.749	4.40	.72	-	.62*	.50*	.59*	.45*	.57*	.45*	.45*
23	.719	4.26	.77		-	.50*	.54*	.45*	.50*	.40*	.40*
8	.708	4.36	.66			-	.50*	.66*	.46*	.47*	.44*
20	.678	4.37	.71				-	.41*	.40*	.44*	.42*
7	.676	4.40	.64					-	.36*	.53*	.46*
24	.648	4.33	.67						-	.28*	.39*
16	.623	4.49	.66							-	.48*
18	.623	4.23	.64								-

Note: N = 468, * $p < .001$

Table 4

Correlation Matrix for Value of Communication and Convergent Trait Variables in Study 1.

	VOC	Listening	Adaptability	Empathy	Communication Competence
VOC	–	.564*	.504*	.286*	.325*
Listening		–	.563*	.394*	.449*
Adaptability			–	.279*	.577*
Empathy				–	.266*
Comm. Competence					–

* $p < .001$

Table 5

Single-Factor 8-item Value of Communication Instrument Tested in Study 2.

Please read the following statements about communication and indicate whether you agree or disagree with the statements using the following scale. 1 = strongly disagree, 2 = somewhat disagree, 3 =neutral, 4 = somewhat agree, 5 = strongly agree
7. (1) Valuing communication significantly influences team/group work outcomes.
8. (2) Valuing communication improves my communication with others.*
16. (3) It's useful to value communication for my job/career/degree.
18. (4) Having a value of communication is helpful for learning other skills.*
20. (5) Valuing communication holds lifelong importance.*
22. (6) I value communication.*
23. (7) Valuing communication is important in all areas of my life.*
24. (8) Communication is important even when I lack communication skills.*

Note. First number indicates item from the initially proposed scale while *(#)* corresponds to the CFA analyses.

* indicates the items retained for final 6-item VOC scale for Study 2

Table 6

Descriptive Statistics and Correlations for Reduced 8-item VOC Measure in Study 2.

Item	*n*	*M*	*SD*	7 (1)	8 (2)	16 (3)	18 (4)	20 (5)	22 (6)	23 (7)	24 (8)
7 (1)	40	4.43	.75	-	.95*	.90*	.74*	.78*	.81*	.81*	.79*
8 (2)	40	4.43	.75		-	.90*	.78*	.78*	.81*	.81*	.84*
16 (3)	40	4.55	.75			-	.82*	.88*	.86*	.81*	.84*
18 (4)	40	4.43	.78				-	.89*	.86*	.82*	.78*
20 (5)	40	4.58	.71					-	.88*	.75*	.81*
22 (6)	40	4.55	.75						-	.90*	.75*
23 (7)	40	4.40	.81							-	.75*
24 (8)	40	4.40	.74								-

Note. First number indicates item from the initially proposed scale while *(#)* corresponds to the CFA analyses.

* $p < .001$

Table 7

Confirmatory Standardized Factor Loadings for 6-Item Value of Communication Instrument Tested in Study 2.

Study 1 Item # (Study 2 #)	Regression Weights	S.E.
22 (6)	.943*	-
18 (4)	.906*	.09
23 (7)	.932*	.09
8 (2)	.842*	.10
24 (8)	.837*	.10
20 (5)	.950*	.08

* $p < .001$

Figure 1

Scree Plot from EFA conducted in Study 1.