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Measuring Boundary-Spanning Behaviors in Community Engagement

Lorilee R. Sandmann, Jenny W. Jordan, Casey D. Mull, and Thomas Valentine

Abstract

Community engagement professionals and partners serve as, work with, study, and build the capacity of boundary spanners. To augment knowledge about these functions, the Weerts–Sandmann Boundary Spanning Conceptual Framework (*2010*) has been operationalized through a survey instrument to examine community engagement boundary-spanning behaviors by campus-based actors—leaders, faculty, staff, and students—as well as by community-based spanners in different contexts. This article provides an explication of the underlying theoretical constructs and the development and testing process of the instrument, along with applications for multiple audiences. Implications are presented concerning contextual issues of boundary spanning and generalization of boundary-spanning roles across a variety of potential subjects.

Introduction

Hermes, the mythical Greek god who served as a messenger between humans and the gods, was one of the first recorded boundary crossers *(Sandy, 2011)*. In our highly networked, transdisciplinary, global society, the ability to span boundaries is increasingly critical. Community engagement professionals and partners serve as, work with, study, and build the capacity of boundary spanners. Investigating and measuring these boundary-spanning behaviors will enable better understanding and improved practices for these vital roles. Since a measurement instrument for this application did not exist, this work describes the theoretical underpinning for and the process of developing an instrument to measure boundary-spanning behaviors and roles of a variety of professionals and volunteers connecting organizations and communities. Using the previous conceptual work of Weerts and Sandmann *(2010)* as our basis, in this article we review the relevant literature, present a theoretical framework, and describe the process completed by two advanced graduate students and two faculty members. In order to make the instrument more robust, the researchers collaborated to design and test an instrument applicable to multiple audiences to measure boundary-spanning

behaviors among varied organizational and community environmental contexts.

Background

From the first colonial colleges to today's institutions of higher education, connecting with and serving the people has been a mission of education. As Boyer *(1996)* observed, "Higher learning and the larger purposes of American society have been inextricably interlocked" *(p. 11)*. As part of their collective civic mission, universities and other institutions of higher education are increasingly challenged to partner with communities, organizations, schools, businesses, and government to address societal problems and support the democratic system *(Glass & Fitzgerald, 2010)*.

The Carnegie Foundation for the Advancement of Teaching (*n.d.*) defined community engagement as the "collaboration between institutions of higher education and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity" (*"Classification Definition," para. 1*). Driscoll *(2009)* indicated further scholarship is needed for community engagement's potential to be reached as authentic reciprocal partnerships.

Prior research has examined what constitutes community engagement; how to institutionalize engagement; and how engagement contributes to student, faculty, and community learning and understanding. Scholars, however, have focused less attention on how community engagement is nurtured and developed at the individual level among faculty, staff, students, and community partners. Individuals serve an essential role in navigating the waters of community engagement, lending an ear to the community voice, and sharing the community's thoughts and ideas with the university. Certain individuals in the community serve a parallel role in representing the university within the community. These individuals perform a variety of tasks formally and informally. Weerts and Sandmann *(2010)* described these individuals as boundary spanners.

Boundary spanners engage in unique behaviors that occur at the periphery of groups, organizations, and institutions. Boundary spanning can be described as "the bridge between an organization and its exchange partners" *(Scott, 1992, p. 196)*. Aldrich and Herker *(1977)* further defined the behavior of boundary spanners as processing information from various environments and providing

representation to stakeholders outside the organization. Boundary spanners engage stakeholders, negotiate power dynamics, communicate expectations, and build connections *(Fariar, 2010)*.

Each of these activities can occur at the individual level, at the departmental or group level, and at the organizational level. Tushman and Scanlan *(1981a, 1981b)* found that some boundary spanners act within organizations and cross-pollinate ideas and information internally, and others share ideas and information with external individuals or other organizations. Researchers vary in who is considered a boundary spanner. Tushman and Scanlan *(1981a, 1981b)* found that many types of employees engage in boundary-spanning behaviors; other researchers have focused on boundary spanners who interact with external individuals as a part of their formal job role *(Kim, Murrmann, & Lee, 2009)*. These types of positions include hotel front desk employees, waiters, and similar service industry positions.

Boundary spanning as a theory is emerging. Using systems theory as a basis, multiple disciplines have examined boundary spanners and their competencies, purpose, and successes in organizations. The earliest quantitative studies of boundary spanning focused on knowledge diffusion and communication between and across organizations *(Aldrich & Herker, 1977)*. More recently, Williams *(2011)* used a survey to identify, describe, and categorize boundary-spanning competencies and effective collaborative behavior. Despite the appeal of this theoretical work and the strength of previous empirical studies, an instrument to measure boundary-spanning behaviors and activities among these diverse individuals has not been developed.

Purpose of the Project

The purpose of this work is to describe the methodology used by a team of researchers to develop a robust instrument to investigate boundary-spanning roles and activities among a variety of individuals working in organizations. We developed the instrument to investigate research questions such as:

1. What specific boundary-spanning behaviors are more prevalent in a particular population?
2. To what extent are boundary-spanning behaviors explained by personal characteristics such as race, gender, age, community, or organization position or status?

3. What contextual factors predict an individual's boundary-spanning behaviors?

The instrument was designed to be effective in the context of any group working to connect communities and organizations. In particular, in its inaugural applications, the instrument will be used for researching the roles of community engagement boundary spanners, specifically adult volunteers working in youth organizations as well as higher education faculty and staff members serving the military community. The overall instrument development process is summarized in Table 1, which outlines the organization of the article. The methodology used to guide the process and develop the instrument is consistent with Spector (*1992*).

Table 1. Instrument Development Process

Process Steps	Activity
Clarification of the theoretical framework	Reclassification of the Weerts and Sandmann (*2010*) model
	Concept clarification
Item pool development	Research development of possible items & constructs
	Elimination of duplicate items and clarification of items
Item pool refinement	Review of items by 5 advanced students for clarity and purpose
	Validity sort conducted by 21 students
	Refinement of item pool
Construction of response scale	Identification of three response scales
Pilot test	Draft recruitment materials
	Receipt of administrative approval
	Institutional Review Board approval
	Data collection
Data analysis	Data cleansing
	Reliability analysis
	Interitem correlation

Clarification of the Theoretical Framework

The logical model for this development work is an extension of a boundary spanners model proposed by Weerts and Sandmann *(2010)*. Weerts and Sandmann's qualitative study relied on the seminal research of Aldrich and Herker *(1977)* in identifying and describing boundary-spanning behaviors. The quantitative focus

of this study generalizes their model for use in other boundary-spanning research contexts.

Along two perpendicular axes, as illustrated in Figure 1, Weerts and Sandmann *(2010)* proposed task orientation and social closeness as the two domains differentiating the ways boundary spanners "reduce conflict and facilitate spanning goals" *(p. 708)*. Task orientation "relates to an individual's formal job role and how it influences that person's relationship with external constituents" *(p. 709)*. Those serving as boundary spanners may take a leadership or advocacy role for boundary spanning, resulting in a socioemotional or leadership task orientation. Others will focus on technical, practical tasks. The tasks that spanners complete may also be influenced by personal characteristics and skillsets of individuals in relation to others around them. These differences may influence variation along the scale.

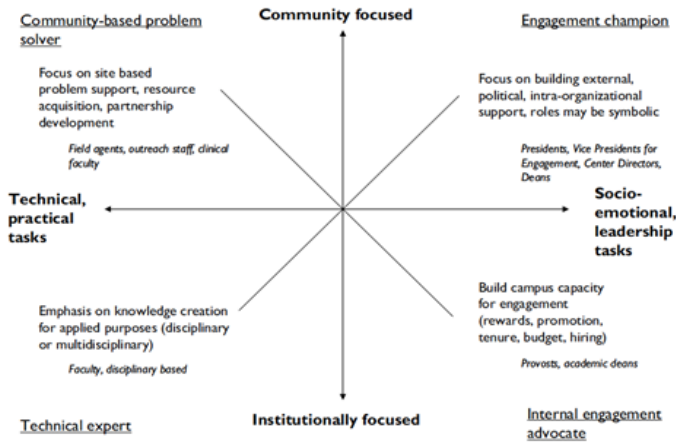

Figure 1. University–community engagement boundary-spanning roles at public research universities *(Weerts & Sandmann, 2010)*.

The second domain, social closeness, is "the degree to which the spanner is aligned with the external partner [vis-à-vis] the organization that he or she represents" *(Weerts & Sandmann, 2010, p. 709)*. As in task orientation, an individual's position influences social closeness, but other personal and organizational characteristics—including personal and professional background, experience, disciplinary expertise *(Weerts & Sandmann, 2010)*, and loyalty *(Miller, 2008)*—play roles as well.

The two domains create four quadrants within which boundary spanners may find themselves aligned. Weerts and Sandmann

(2010) classified the individuals in these quadrants: (1) community-based problem solvers, (2) technical experts, (3) internal engagement advocates, and (4) engagement champions. The model is not predictive of future roles but rather examines the current roles individuals play when organizations engage with others.

As we worked to operationalize Weerts and Sandmann's (*2010*) framework based on their qualitative data, it became apparent to us through our brainstorming and both formal and informal critique panels that using the two domains, task orientation and social closeness, may be inadequate. As we studied the model, we realized we had two significant choices. The first choice was determining whether we were measuring types of people, those who found themselves inside the four quadrants Weerts and Sandmann defined, or measuring behaviors engaged in by those types of people identified in the model as they span boundaries. We decided to measure behaviors. These behaviors included both observable actions and cognitive processes. We included cognitive aspects because a growing body of research indicates that cognitive and affective processes influence observable behaviors *(Chisholm, Risko, & Kingstone, 2013)*. This choice offered us more flexibility in measurement and provided data most relevant to researchers and practitioners working with boundary spanners.

The second choice we faced was deciding whether to maintain the two axes of the model. Through discussion, we discovered that the two ends of the axes may not be inversely related. For example, individuals' behaviors and activities could be classified as both high in community orientation and high in organizational orientation. Because we wanted to measure this possibility, we reconstructed these two bipolar dimensions into four independent constructs.

After deciding to use four constructs to measure a boundary spanner's social closeness and task orientation, the research team derived definitions (Table 2) from the literature for the four orientations: (1) technical-practical orientation, (2) socioemotional orientation, (3) community orientation, and (4) organizational orientation.

We then standardized terminology of organizational orientation. Because we wanted our instrument to have applicability outside institutions of higher education, we used the broader, less formal term organization to include voluntary associations of community based on interests and proximity.

Table 2. Constructs of Boundary-Spanning Behaviors Based on the Weerts and Sandmann (*2010*) Model

Constructs	Definition
Technical-practical orientation	The degree to which an individual's behaviors focus on transforming inputs into outputs in a way that enhances the performance of an organization or group
Socioemotional orientation	The degree to which an individual's behaviors support developing the knowledge, skills, abilities, and needs of others as well as the reward system and authority structures that exist in a group or organization
Community orientation	The degree to which an individual is aligned with the interests of the community, a unified body of individuals with common interests, external to the individual's organization
Organizational orientation	The degree to which an individual's behaviors are aligned with their own organization's overarching mission, vision, and interests

Several relationships are key contributors in correlation with boundary-spanning behaviors. These relationships include

- the individual's relationship to the organization, which encompasses the individual's current relationship, previous experience, and proximity, and
- the individual's relationship with the community, including the community's type and the individual's proximity to and experience with the community.

The variables relevant to the study also follow factors related to both the participants and the organization. These variables include

- how frequently participants exhibit boundary-spanning behaviors, and
- the prevalence of boundary-spanning roles in the organization, as well as organizational components relevant to boundary spanning. These include policies and guidelines that influence organizational support

through training, recruitment, or orientation to specific boundary-spanning roles.

These relationships can be characterized using the variables personal characteristics and organizational characteristics that may predict the outcome variable boundary-spanning behaviors. These relationships are depicted in Figure 2 for the study of community engagement boundary spanning.

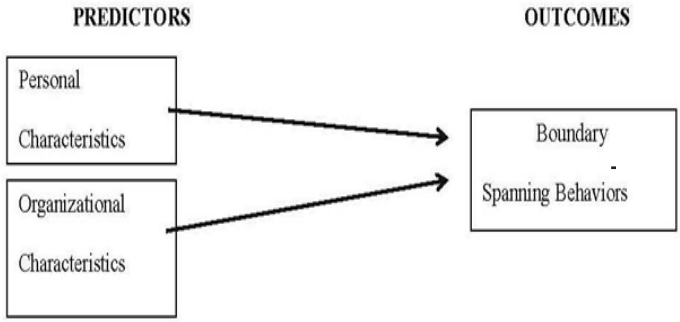

Figure 2. Proposed model in the study of boundary-spanning behaviors.

Item Pool Development

After concept clarification, we identified a preliminary list of items for measuring boundary spanning roles. The research team drew on the work of a larger group of emerging scholars studying boundary spanning and community engagement that included representation from multiple universities. Working with a larger research team made it possible to develop a summation of a larger pool of items measuring boundary-spanning behaviors and levels of participation. Sources for the preliminary items included extensive literature review, preliminary data from current research of doctoral students studying boundary spanning at the University of Georgia, and data from the emerging scholars studying boundary spanning and community engagement at other universities. Any item describing boundary-spanning behavior was included in the preliminary list and keyed to a potential construct. The initial item pool included 60 technical-practical items, 52 socioemotional items, 48 community orientation items, and 34 organizational orientation items. These 194 items were coded by source so that further clarification or review would be possible.

Item Pool Refinement

Each item was redefined within the four constructs of boundary spanning from Weerts and Sandmann *(2010)* with consideration for content and construct validity. Through further refinement of both the original research and the applicable construct, the research team of graduate students and tenure-track faculty members evaluated the item lists. We refined the individual behavior items, combined duplicate items, and removed or clarified items that could be classified in more than one of the orientations. Each item was assigned to one possible construct.

In order to remove, consolidate, or change an item from the initial item pool, both graduate students had to agree. After several iterations, the graduate students scheduled an item-critique session with one of the faculty members and advanced doctoral students who had experience in boundary spanning, quantitative measurement, or both areas. In this 2-hour session, five advanced doctoral students provided feedback on unclear items, items possibly not fitting the assumed constructs, and readability of items. The reviewers analyzed 16 technical-practical items, 16 socioemotional items, 17 community orientation items, and 16 organizational orientation items. The feedback provided through this session enabled the graduate students to reconsider items, combine like items, and remove those that were unclear.

The graduate students worked together and in consensus to refine and clarify the pooled items. The faculty member on the research team who was serving as the methodologist challenged these students to ensure that the items offered flexibility among contexts for administration of the survey but were not so vague as to allow multiple interpretations.

Validity Sort

Having created a 40-item instrument, the research team conducted a validity sort to establish the validity of the items. Because some of the concepts were closely related, it was important to be sure that all items measured different concepts. The methodologist offered the participants in this project the opportunity to work with graduate students in his construct and survey development class. This enabled the research team to have the items validated to the constructs and also enabled students in the class to practice a real-world technique for surveys and to experience the process of survey and instrument development.

Kits were developed for this activity, with each kit containing instructions for the process; four colored envelopes labeled with a construct and definition on each; and 40 index cards, each with an item from the instrument. Each item on a card had been randomized and numbered for tracking. Each student received a kit to use for the sort.

The students were introduced to the process by the methodologist. One graduate student from the team explained the research, including the basic framework for boundary spanning. This student further described the purpose of the instrument being developed and the goals of the two graduate students' research.

During the class period, construct and survey development class students individually reviewed the definitions, asked limited questions for clarity, sorted the items and reviewed the sort, and placed items in an identified constructs envelope. Each student then placed all four envelopes in a larger white envelope. Students had the option of noting their reactions to the process.

Following the sort, the research team recorded each student's placement of the items in a matrix table in Qualtrics. The use of Qualtrics as an electronic collection tool allowed the research team to review an individual's placements across several items as well as reviewing the total placement of the items.

The validity sort involved 21 participants. In considering the participants' responses, the research team established 15 accurate placements of the identified construct as a threshold for definite inclusion of the item in the final instrument. In order to determine the final items for the pilot study, the graduate students included all items for which 15 or more individuals correctly identified the construct. Fifteen was selected because it represents a greater than 70% placement of the item in the appropriate construct. In evaluating the items against the standard of 15, the graduate students identified several trends.

First, in examining the community orientation and organizational orientation constructs, the research team identified five items in the community construct and one item in the organizational construct that met the standard for inclusion in the pilot study. The research team decided that in some instances the phrasing "individual or groups" had led a number of individuals to incorrectly identify an item as a socioemotional behavior rather than a community or organizational behavior. These phrases repeatedly skewed the placement in a way that differed from the

research team's initial consideration. In response, these items were rephrased but not removed.

For socioemotional and technical-practical orientations, the graduate students were faced with fewer than eight valid items in each orientation from the validity sort. The graduate students looked to those items with responses closest to the standard of 15 correctly identified and determined which were best aligned with items in the literature. The language of these items was refined based on the literature to more accurately describe the behaviors.

One item resulted in validity sort participants dividing the item evenly between socioemotional and technical-practical orientation. This item was removed. After completing the validity sort of the items in all the constructs, the team finalized the eight (8) items for each construct for inclusion in the instrument (Table 3).

Table 3. Item Pool Contents by Stage

	Initial item pool	Refined item pool	Pre-validity sort pool	Final item pool
Technical-practical orientation	60	16	10	8
Socioemotional orientation	52	16	10	8
Community orientation	48	17	10	8
Organizational orientation	34	16	10	8
Total Items	194	65	40	32

Construction of Response Scale

The next stage of the instrument development process was construction of the response scale. During the initial item pool development, two possible response scales were created and examined. One was a Likert 6-point agreement scale from *strongly disagree* to *strongly agree*. The team chose an even-point scale to remove the neutral option from respondents. Because boundary spanners perform a variety of tasks and behaviors, the team assumed that respondents could use the neutral response to signify both agreement and disagreement with the items. The second response scale explored was a frequency scale. The team experimented with frequency scales by altering the item stems to include simple statements and participle phrases to indicate importance.

After the item critique session, the research team concluded that a 6-point agreement scale might not accurately reflect the

amount of variation. The research team agreed that a frequency scale could indicate the level of importance an individual attaches to certain activities based on how frequently the respondent engages in those activities. A frequency scale would give adequate variation and could be scaled appropriately for the respondents by altering the items in the community and organizational orientations.

At this time as well, the team decided to alter the items for community and organizational orientation, making them parallel with almost identical items. This occurred because the team realized items in the socioemotional and technical-practical categories could reflect very different behaviors, but behaviors related to community and organizational orientation were identical except for the word community or organizational. This factor had become particularly evident in the validity sort. A boundary spanner may self-identify as high in both community orientation and organizational orientation; however, the behaviors themselves support either organizations or communities. The graduate students took each item in both community orientation and organizational orientation and redesigned them so that each one had both a focus on community and a focus on organization. These items became dyads, forming eight dyads from the 16 items.

Pilot Study

The purpose of the pilot study was to test and refine the survey instrument designed to identify the boundary-spanning behaviors of individuals working with communities. Specifically, the pilot study attempted to answer the following research questions:

1. Do the proposed data collection methods work?
2. Is the survey instrument reliable and valid?

To answer these questions, a pilot study was conducted with Georgia Cooperative Extension faculty and staff representing two land-grant universities in the state. This audience was selected because it shares certain characteristics with the populations slated for eventual study but remains distinct from them. Additionally, we settled on using the Georgia Cooperative Extension faculty and staff because the diversity of individuals in this sample would align to the Weerts and Sandmann *(2010)* descriptors. The 48-item questionnaire was administered through Qualtrics. The questionnaire included informed consent followed by the survey items and

demographic information specific to this audience. Institutional Review Board approval was secured.

For preparation of the pilot instrument, the graduate students separated all the questions into three sections: (1) tasks and activities, (2) perspectives toward community and organization, and (3) program and personal information. This allowed the community and organization statements to be paired together for clarity and enabled survey participants to focus on each topic more easily in completing the survey.

The demographic and predictor variables identified for this audience attempted to mirror similar predictor variables for the researchers' final studies. The demographic and predictor variables included county work setting, residence of the employee, length of employment, current position and rank, percentage of time budgeted by program area, estimated percentage of time spent by program area, estimate of salary source, gender, highest degree obtained, race/ethnicity, and year of birth.

The research team used a list of Georgia Cooperative Extension faculty and staff provided by and with the permission of the associate dean for Extension at the University of Georgia. The list encompassed all e-mail addresses of the EXTALL e-mail list for Cooperative Extension in Georgia. The research team removed duplicate addresses and approximately 140 generic county extension office addresses. The generic county office e-mail addresses are intended to serve as a generic e-mail address for the local office, and the county secretary typically forwards e-mail from these addresses to the individuals intended to receive the information. This yielded 949 potential participants with unique e-mail addresses.

The data collection plan for the pilot study mirrored each respective research team member's final research study. Members of the EXTALL list received a prenotification from the associate dean for Extension. Each individual then received a unique invitation from the graduate students through Qualtrics to complete the survey. The survey included one follow-up reminder, which was sent 8 days after the initial request. Of the 949 potential respondents, 377 participated. This achieved a 39.7% response rate. Because this population does not represent the populations we will eventually study, we cannot assume the response rate will hold across the other groups.

Pilot Data Analysis

For the pilot study, the research team decided the instrument was technically adequate. In a review of the data, a few suspicious entries appeared. The researchers noticed that several individuals who skipped certain portions of the survey may have believed that the questions did not apply to their positions. For example, several Extension faculty serving in a scope beyond a county skipped the community and organizational orientation questions (Section II). The two graduate students—who are also Extension faculty—felt that the district- and state-level Extension educators may have excluded themselves from completing parts of the survey because some standard procedures within Extension call for the exclusion of district and state faculty since their community is not defined by county lines. For future studies, it is recommended that the instructions emphasize the importance of completing each section, regardless of whether the respondent feels a section directly applies to him or her. Additionally, clarifying how community is defined as it relates to the respondent would be helpful. The researchers did not use a descriptor or limiter for the community in the instructions or overview. In order to prevent this possible confusion, the researchers will make changes in each final instrument to clarify community for the specific sample of future respondents. The team discussed defining a community of impact in the instructions but felt this might not provide the needed clarity.

In the first analysis we examined the item distribution in order to ensure that the constructs would capture enough variance and the response scale was utilized appropriately. As depicted in Table 4, all items performed well. Of the individual items, 29 of the 32 items used all six points on the response scale. Respondents did not use all six points for three items: (1) I support others in their accomplishments and challenges, (2) I identify issues in communication, and (3) I build trust with people I interact with. Issues of communication used five of the points on the scale; the other two items used four points on the scale. After examining the minimum and maximum responses, the researchers examined the frequencies of each response for each item. Many showed evidence of a normal distribution. Overall, the items' frequencies were distributed fairly evenly with a slight shift toward the points on the response scale representing greater frequency. The researchers determined that this is acceptable based on the formal boundary-spanning roles these employees engage in as a part of their positions. Eight (8) of the 32 items had frequencies with the top point on the response scale receiving the greatest number of responses. Eleven (11) indi-

viduals responded with no variance to the socioemotional orientation and community orientation items, 12 respondents had no variance among their organizational orientation items, and 13 individuals responded with no variance to the technical-practical orientation items. Consequently, we did not alter any item.

Table 4. Distributions and Reliability of Key Measures

Measure	Number of items	*M*	*SD*	Mean item mean	Coefficient alpha
Technical-practical orientation (*n* = 281)	8	37.1	7.2	4.6	0.893
Socioemotional orientation (*n* = 280)	8	36.5	6.3	4.6	0.839
Community orientation (*n* = 277)	8	35.5	8.1	4.4	0.922
Organizational orientation (*n* = 2.75)	8	35.2	7.6	4.4	0.905

The four dependent variables, the central variables of the study, were highly intercorrelated. Through discussion, the researchers determined that this, in itself, was not detrimental to the study because the essence of boundary-spanning activities brings about the interrelated nature of the constructs. To reach this conclusion, the researchers examined the interitem correlation among all 32 items collectively by creating a 32 × 32 matrix. This was done to ensure that no duplicate or overly correlated items appeared in the questionnaire. Any items with a correlation coefficient of .70 or higher, which would indicate 49% shared variance (coefficient of determination), were examined by the research team to determine whether those pairs of items were, in fact, conceptually different (see Table 5). Of the 496 interitem correlations, 13 were cause for concern. In all 13 cases, the researchers agreed that the correlations were high but reasonable. Thus, no items were changed.

Table 5. Interitem Correlations with 49% Shared Variance

Item 1	Item 2	*r*	r^2
I identify expertise in individuals.	I build capacity among individuals.	.727	.529
I design processes for projects.	I manage projects.	.802	.643
I determine solutions for challenges.	I design processes for projects.	.719	.517

I apply my skills to new situations.	I determine solutions for challenges.	.725	.526
I negotiate power among individuals.	I resolve conflict among other individuals.	.735	.540
I identify barriers to success.	I identify resources to support projects.	.697	.486
I find ways to meet organization needs with community partners.	I find ways to meet community needs with organization partners.	.819	.671
I identify expertise in the organization to support the community.	I find ways to meet community needs with organization partners.	.800	.640
I identify expertise in the community to support the organization.	I find ways to meet organization needs with community partners.	.741	.549
I identify expertise in the community to support the organization.	I identify expertise in the organization to support the community.	.726	.527
I develop partnerships that benefit the community.	I communicate the community's interests to others.	.697	.486
I develop partnerships that benefit the organization.	I develop partnerships that benefit the community.	.793	.629
I advocate for community policy that supports the organization.	I advocate for organizational policy that supports the community.	.727	.529

We calculated the intercorrelation of the four scales to determine divergent validity. As Table 6 shows, all display moderate to high intercorrelation. Based on closer examination of the interitem correlation among the constructs, the researchers determined that this intercorrelation is understandable as the levels are reasonable though the constructs are different.

Table 6. Construct Intercorrelation Matrix

	Technical-practical orientation	Socio-emotional orientation	Community orientation	Organizational orientation
Technical-practical orientation	1.000	.635	.626	.629
Socioemotional orientation	.635	1.000	.961	.929
Community orientation	.626	.961	1.000	.880

Organizational orientation	.629	.929	.880	1.000

The final analysis examined the reliability of the central variables. The four constructs yielded a high reliability. The technical-practical and socioemotional items had an alpha of .893 and .839, respectively. The community orientation and the organizational orientation items had a reliability of .923 and .907, respectively. In reviewing the reliability of each item within a construct, removing any item did not significantly increase the reliability of the construct. In looking at the technical-practical orientation construct, only one item's removal resulted in increasing the reliability an insignificant amount. In the socioemotional, community, and organizational orientations, no item's removal resulted in increasing reliability. The reliability was adequate to extremely high. Therefore, no changes were made.

Tailoring the Instrument

The research team determined that although the core instrument would go unchanged, the survey should be adapted for specific contexts. This research team encourages future researchers to retain the core items and constructs in their current form and to tailor the instrument for their specific research questions using the methods described below.

Language may be changed to clarify the instrument. For example, a definition of community may be offered in the instructions to help respondents understand that community may be a community of place or a community of interest. This is especially helpful in that some contexts may involve employees and others may involve volunteers. Additionally, the phrase "your work" may lead volunteers to consider employment rather than volunteer roles. As volunteer roles are not considered employment, a language change is needed in those instructions as well.

Future researchers will benefit from the use of predictor and outcome variables. These variables, including age, gender, and other descriptors for sample and external reliability, not only will assist researchers in responding to specific research questions but also will ensure external reliability among new and diverse audiences. Demographic variables as well as other construct variables, scaled or indexed, may be appropriate.

This tailoring of the instrument will not alter the underlying items and constructs. The goal of tailoring the instrument is to

provide for a wide and diverse environment in which to apply this questionnaire to build a robust and generalizable understanding of boundary spanning behaviors. Results of the pilot study analysis and the other activities performed to establish the instrument's validity and reliability, as well as the encouraging results from the pilot data, indicate that this instrument is ready to use in a variety of settings.

Applications and Implications From Measurement of Boundary-Spanning Behaviors

This survey instrument was developed to operationalize the Weerts–Sandmann Boundary Spanning Framework *(2010)* to measure community engagement boundary-spanning behaviors of campus-based actors—leaders, faculty, staff, and students—as well as those of community-based spanners in different contexts. It is a multifaceted, researcher team-designed electronic online self-completion survey that was constructed and pilot tested for that purpose. Instrumentation included a process of concept clarification, item identification, and response scale construction. The instrument was designed to examine areas such as predictor variables, personal and program characteristics, and the four constructs of the boundary-spanning activities and entities. The constructs of boundary-spanning activities were the primary measurable constructs of the instrument. The other constructs were included to measure predictors and the resulting networks formed by the boundary-spanning activities. The use of the instrument can result in both theoretical and practical applications.

Applications and Use of the Instrument

The instrument has been developed to offer flexibility of application among boundary spanners that connect communities to organizations without specific limitations regarding the types of boundary spanners, communities, and organizations. This flexibility is one of the greatest strengths and greatest limitations of the instrument. As the measured behaviors are very general boundary-spanning behaviors, the instrument does not address those behaviors that may be specific to a role or community. For example, the instrument will be used with volunteers who connect youth-serving organizations with communities, yet none of the measured behaviors are specific to roles that boundary spanners may play within youth organizations. Therefore, the instrument

may not specifically address behaviors unique to the roles required in a particular organization.

Because of its flexibility, the instrument can be used in a variety of contexts. The pilot test examined roles of public service faculty and staff representing a land-grant institution. Future studies will focus on volunteers representing a youth-serving organization and military contractors in institutions of higher education. The variety reflected in these organizations represents just one aspect of this instrument's flexibility as a tool for measuring behaviors. Furthermore, the communities relevant to these surveys represent a variety of community types. The community for most Extension staff members is a community of place and tied directly to a location with physical boundaries. This parallels the youth-serving organization volunteer's community in most cases. However, the military contractor community is by definition a community of employment or interest and may not have physical boundaries. This variety of community types illustrates the complexity confronted by research concerning boundary spanners and their communities, which the instrument addresses. The research team designed this instrument to provide for this flexibility in addressing what is a community, and what is an organization. The instrument attempts to measure boundary-spanning behaviors between two specific boundaries. Even an organization can have similar challenges of identifying the boundary. Boundaries exist within organizations at departmental, functional, geographic, and other levels; boundary spanners may define their organization as a subunit of a larger organizational entity.

The instrument has been developed so that boundary spanners can be studied in a variety of contexts to inform both scholarly research and the practice of those working with spanners. This includes but is not limited to community leaders, faculty and staff in higher education, volunteer managers, and even those in the field of business.

Augmenting Scholarly Theoretical Knowledge

Community engagement professionals and partners serve in a number of roles associated with the function of boundary spanning. Given the importance of these vital linking roles, research is needed beyond anecdotal or narrative studies. Larger scale investigating and measuring of these boundary-spanning behaviors will enable better understanding and improved practices of boundary spanning. Although it contributes to our understanding

of the underlying constructs, this work also points to areas needing future theoretical and empirical work, such as those indicated by Leifer and Delbecq *(1978)*, including the relationship between boundary-spanning activity and organizational effectiveness or the knowledge diffusion between and among groups, organizations, and the external environment through the intervening variable of boundary-spanning behaviors. Other salient issues relate directly to the boundary spanners themselves around issues of motivation and power, participation in decision making, and feelings of stress and satisfaction.

Improving Practical Knowledge to Benefit Practitioners and Those Who Work With Them

Working from the Weerts and Sandmann *(2010)* model also can assist practitioners in developing the skills and abilities of individuals performing these boundary-spanning roles. Thus, in addition to augmenting the theoretical base of understanding for boundary spanners, results from this instrument can inform practice. Understanding boundary-spanning behaviors can direct practitioners in leading, training, supporting, and mentoring boundary spanners, whether community engagement professionals, volunteer managers, human resource directors, or other partners perform this role.

Specifically, the four constructs of organizational and community orientations and socioemotional and technical-practical orientations serve as key components of training and orientation programs. These components when matched with behaviors can better prepare developers to meet the needs of boundary spanners. Understanding boundary-spanning behaviors may also assist boundary spanners in developing their own skills and meeting the goals of their boundary-spanning roles.

Conclusion

As community engagement scholars and practitioners, the research team sought to operationalize the conceptual Boundary Spanning Framework of Weerts and Sandmann *(2010)* with a survey instrument to examine boundary-spanning behaviors. This team designed an instrument that is flexible in nature yet valid and reliable in measuring these behaviors. The instrument provides a method to further expand the theoretical understanding of boundary-spanning behaviors as well as a source of information that practitioners can apply to better support boundary spanners

in connecting communities and organizations. Hermes would be pleased to know that efforts are still being made to improve the understanding and practice of boundary spanning!

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About the Authors

Lorilee R. Sandmann is a professor in the Department of Lifelong Education, Administration and Policy and fellow in the Institute of Higher Education at the University of Georgia. Her research interests include actors in community engagement, including faculty's work in community-engaged scholarship; leaders of community engagement; and those in boundary spanning roles. She holds a Ph.D. from the University of Wisconsin–Madison in Adult Education and Business Management.

Jenny W. Jordan is a senior public service faculty member at the J. W. Fanning Institute for Leadership Development at the University of Georgia. Her research interests include boundary spanning, community engagement, and volunteer development. She holds degrees from the University of Georgia and Georgia College and State University. She is a Ph.D. candidate in Adult Education, Learning and Organizational Development.

Casey D. Mull is an Extension faculty member in the College of Agricultural and Environmental Sciences at the University of Georgia. His research interests include military programming, boundary spanning, community engagement, and the nexus of public and private organizations. He will complete his Ph.D. in Adult Education, Learning and Organizational Development in Fall 2014 at the University of Georgia.

Thomas Valentine is a professor of adult education at the University of Georgia. His teaching and research interests are in adult literacy and survey research. He holds an Ed.D. from Rutgers University, Graduate School of Education.