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Assessing the Boundary-Spanning Roles of Cooperative Extension Professionals in Higher Education Community Partnerships

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Abstract

Cooperative Extension has a long-standing history of placing individuals in communities to lead community-wide change. These individuals are employees of the nation's land-grant universities, with significant roles and responsibilities working between and among institutions and their communities. They often must maintain dual identities and roles, bridging the university mission and community needs. This study examined the boundary-spanning behaviors and orientations of Cooperative Extension staff and found few personal or work characteristics correlated with boundary-spanning behaviors. We explain how this lack of correlation may serve to assuage concerns about objectivity in the boundary-spanning work of Extension professionals. Higher education administrators and community leaders can use this information to better orient, equip, and train these Cooperative Extension professionals to make a lasting impact through propelling objective community change.

Keywords: boundary-spanning, Cooperative Extension, competencies, boundary-spanning leadership

Higher education institutions involve numerous individuals in service, outreach, and engagement. One entity providing some consistency nationwide in higher education community partnerships is the Cooperative Extension Service. Within the modern university, the Cooperative Extension Service provides funding and a structure for engagement at federal, state, and local levels. The structure is important, as it provides the flexibility and speed to respond to needs at the most local levels yet also provides the infrastructure for statewide and national scaling of successful impact. Housed within the nation's 112 land-grant universities, Cooperative Extension employs thousands of individuals, with the majority located within the communities they serve.

The United States created the land-grant university as the "people's university and to make its knowledge and resources accessible to all" (Atiles et al., 2014, p. 60). The Cooperative Extension System provides the outreach or service component to complement land-grant universities' teaching and research missions, creating what is often referred to as the tripartite mission. Many land-grant institutions have dropped the "cooperative" and/or "service" monikers from the name of this third component of the tripartite mission. Perhaps this change is intended to modernize a dated name that no longer represents the organization's core. Perhaps the intention is to hide the critique of those in the higher education community engagement realm. Some appropriately critique Cooperative Extension as a one-way service rather than a two-way engagement (Weerts & Sandmann, 2008). The two-way engagement model is based on mutual relationships between the university and the community. Cooperative Extension began as a unidirectional approach, "a one-way process by which university researchers transferred new agricultural technologies to farmers" (Weerts & Sandmann, 2008, p. 78). Others contend that Extension, when

applying best practices, may engage in service to build trust in the community, and that, in turn, local Extension staff can be critical links to construct responsiveness in a higher education institution to support the community (Atiles et al., 2014).

In 21st-century Extension work, Extension staff bring the university and the community closer together. Some argue that the county Extension educator—the boundary spanner responsible for the relationship between the university and community in the Cooperative Extension System—is simply a university agent, ready to subsume the community in the university's interests. Others could view the county Extension educator as an unsuspecting pawn, innocently drawing in the community for the university to exploit in the interests of research and teaching. To determine how these individuals truly affect the community, we explore the behaviors and activities of Cooperative Extension boundary spanners.

The purpose of this work is to investigate the boundary-spanning activities and behaviors of land-grant university Cooperative Extension faculty and staff by answering three primary questions:

1. What boundary-spanning behaviors are prevalent in Cooperative Extension faculty and staff?
2. To what extent are boundary-spanning behaviors explained *individually* by personal or work/organizational characteristics?
3. To what extent are boundary-spanning behaviors explained *jointly* by personal or work/organizational characteristics?

Literature Review

In 1862 President Abraham Lincoln signed the first Morrill Act, which provided federal funding to support postsecondary education. The national system we know as land-grant colleges and universities is present in every U.S. state and territory, with a mission to bring education to communities (Bickell, 2022). As the 1800s ushered in a new century, grassroots efforts in pockets across the country integrated university efforts with local communities. Seaman Knapp, director of the Farmer's Cooperative Demonstration work at the United States Department of Agriculture (USDA), began building community connections by placing USDA employees locally to connect universities to the people (Mull & Jordan, 2014).

These USDA agents connected research to education in these new roles. At the same time, local school superintendents in areas of the United States looked to universities to help round out the education of their students through partnerships (Wessel & Wessel, 1982). The Boys Club work and Girls Club work became what is now known as 4-H and is one of the largest youth development organizations in the United States and the only one connected to land-grant universities advancing the field of youth development (Mull & Jordan, 2014). These federal employees, school administrators, and university researchers and teachers paved the way for the Cooperative Extension System. Created by Congress and Woodrow Wilson with the passage and signing of the Smith-Lever Act (1914), the Cooperative Extension Service is one of the largest providers of adult education in the country and links all communities with their land-grant universities.

Extension extends or brings the university to the people through not-for-credit workshops, lectures, field days, and other experiences (Rasmussen, 1989). Cooperative Extension is and always has been a team approach connecting local and state needs and resources to the land-grant institution. It is a symbiotic relationship providing a field laboratory for universities and providing the local community with access to up-to-date, reliable information and resources that may not be readily available otherwise. Supplanting those original USDA agents, the modern Extension agent is an employee of the land-grant institution whose position may be funded by a collection of federal, state, and local funds. The Cooperative Extension employee works for two leaders, balancing the needs and desires of both the community and the university, hence spanning boundaries of institutions and communities.

The Role of Boundary Spanners

The concept of boundary spanning is not new, though its application within the higher education domain has grown over the past 15 years. One of the first authors to address the concept of boundary spanning in the education domain was Miller (2007, 2008), who leveraged the organizational development literature of authors like Thompson (1967). Miller (2008) focused

on university–school partnerships and their leaders, aptly noting that "to varying degrees all educational leaders are called to serve as boundary spanners" (p. 356). Concurrently, Weerts and Sandmann (2008) were examining community engagement within the higher education realm, introducing the valuable role of boundary spanners in building, supporting, and maintaining higher education community engagement. Subsequently, others have examined the concept of boundary spanning within higher education and academic health care (Lander, 2016), industry (Comacchio et al., 2012; Julia Vauterin et al., 2012), faculty (Purcell et al., 2020), graduate students (Mars & Moravec, 2022; Wegemer & Renick, 2021), urban 4-H Extension programs (David, 2014), and community engagement from the community's perspective (Adams, 2014).

Scott (1992) defined boundary spanning as "the bridge between an organization and its exchange partners" (p. 196). Aldrich and Herker (1977) defined the behavior of boundary spanners as processing information from various environments and providing representation to stakeholders outside the organization. Williams (2011) cited boundary spanners as "individuals who have a dedicated job role or responsibility to work in a multi-agency and multi-sectoral environment and to engage in boundary-spanning activities, processes and practices" (p. 27). Adams (2014) defined boundary spanners as "leaders who are able to bring people together across boundaries to work towards a common goal" (p. 113). Throughout the course of Cooperative Extension Service history, the local university representative in a community—who may be called Extension agent, educator, or leader—is tasked with making connections, bringing the university and the people together, interpreting language and needs between the two entities, and negotiating the resources available based on the needs. Atiles et al. (2014) stated,

> Matching the university's resources with the needs and opportunities of communities it serves is one of the most important roles of Cooperative Extension. Cooperative Extension educators assist communities to envision and realize the most appropriate development that reflects their long- and short-term goals and values. (p. 71)

They further stated that educators "represent the land-grant university at the local level and serve as liaisons between individual clientele and district or state Extension specialists" (p. 69), who are faculty members on campus. Therefore, the Extension agent, educator, specialist, or manager has served as a boundary spanner since the inception of demonstration work in the late 1800s. Cooperative Extension arguably, then, employs the largest group of university–community boundary spanners—over 8,000 community-based educators and 2,000 campus-based academic professionals and faculty (Peters, 2017).

Weerts and Sandmann (2010) emphasized the importance of boundary-spanning actors in facilitating communication, collaboration, and the exchange of resources between the organization and external stakeholders. Boundary spanners become power brokers, managing relationships and the contexts that vary among institutions. Furthermore, Weerts and Sandmann assigned categories to the higher education boundary spanner: community-based problem solver, technical expert, engagement champion, or internal engagement advocate. When represented graphically, these four categories are shown as quadrants created by two axes that Weerts and Sandmann titled "task orientation" and "social closeness," illustrating the range of roles and areas in which boundary spanners work.

Extension educators play a significant role in bridging the gap between academic institutions and the communities they serve and may engage in tasks all along both axes. Aligning with the roles Weerts and Sandmann (2010) identified, Extension educators engage in several tasks:

1. Advocacy. Extension educators serve as advocates for their communities by identifying their specific needs and concerns. They act as intermediaries who bring these issues to the attention of academic institutions and researchers.

2. Networking. Extension educators are responsible for building and maintaining networks within their communities. They are local power brokers, connecting with local leaders, organizations, and individuals, creating a bridge between the community and the resources available at universities.

3. Information sharing. Extension educators disseminate valuable information and research findings from academic institutions to the community. They translate complex academic knowledge into practical, actionable information.

As Extension educators work with the needs of the community in roles that include community-based problem solver and engagement champion, they must balance their community roles with the needs and desires of the university. Exercising their skills as technical experts and campus-based engagement practitioners, Extension employees may find that not only may the technical-practical and social-emotional leadership tasks be in conflict, but also the interests and needs of the community and those of the institution (Weerts & Sandmann, 2010). Extension employees, employed by the university, often rely on local, community funding for their positions (Atiles et al., 2014; Franz & Townson, 2008). This multiplicity of funding sources creates an even more delicate balance in the relationship and a unique power dynamic.

The capacity for Extension educators to process and then act on the needs of both university and the community is key to providing quality programming (David, 2014). Maurrasse (2001) found that the historical relationship between partners, the power relationships between universities and communities, and the background of the individuals greatly impacted the success of the relationship. As a community partner with a long, strong history, the Cooperative Extension System should support the Extension employee boundary spanner and community. Communities, in turn, have collaborated for over a century with the universities and have had an opportunity to develop a healthy tension on their side for achieving balance in the power dynamic. Nevertheless, the Cooperative Extension educators must continually look for new information in both the university and the community and then synthesize and apply new knowledge to fill the learning gaps for both groups (Richardson & Lissack, 2001).

With such a depth and breadth of influence, Extension boundary spanners embody an effective sample to advance theory and practice in the fluid roles of boundary spanners to advance the identity and intersectionality of these actors. Although previous research has examined boundary-spanning in the Cooperative Extension Service (Uhlinger, 1979) or described Cooperative Extension as a boundary organization between universities and communities (Prokopy et al. 2015), most studies have focused on the relationships that cross boundaries or on describing the concept of boundary spanning, and not on the behaviors of individual actors. No research has studied the behaviors of boundary-spanning actors within the Cooperative Extension Service. Because of the historical tradition of boundary spanning and the role of Extension staff, these individuals are an appropriate group to examine for boundary-spanning behaviors.

Methodology

The authors developed a questionnaire-based instrument (Sandmann et al., 2014) to operationalize the Weerts and Sandmann (2010) framework. The data captured for this study served as the pilot data for the development of the questionnaire. The data were used to determine the validity and reliability of the instrument and have yet to be explored within the context of Cooperative Extension and its boundary-spanning actors and the questions posed for this study. The four constructs (technical-practical, socio-emotional, community, and organization orientations) derived from the Weerts and Sandmann framework yielded high reliability, with an alpha of .893, .839, .923, and .907, respectively. This high reliability led to this questionnaire being used in other studies of boundary-spanning behaviors. The Institutional Review Board approved the study.

The authors compiled 949 potential respondents with unique email addresses from a southern Extension region land-grant university that was ranked as a "highest research activity" university in the Carnegie Classification and had received the elective classification for community engagement. After solicitation, 377 individuals participated, achieving a 39.7% response rate. The collected responses were exported from Qualtrics into SPSS, the data were appropriately cleaned, and scales were created for each boundary-spanning behavior. A final analysis in data preparation included determining the intercorrelation among the four boundary-spanning scales. The correlation coefficient between each pair of scales was significant but not overly so, as shown in Table 1.

Table 1. Intercorrelations Among Orientation Construct Scales

	n	*r*	r^2
Technical-practical with socio-emotional	268	0.76	0.58
Technical-practical with community	268	0.63	0.39
Technical-practical with organizational	268	0.62	0.39
Socio-emotional with community	268	0.60	0.36
Socio-emotional with organizational	268	0.62	0.38
Community with organizational	268	0.88	0.77

In addition to the boundary-spanning behaviors and scales—the primary objective for the initial data collection—the authors collected limited personal and work characteristics that may correlate with specific boundary-spanning behaviors.

The personal characteristics included age, gender, race and ethnicity, educational attainment, length of employment, and faculty rank. We included age, gender, and race and ethnicity to capture aspects of the human experience that impact social conditions and cannot be examined independently. We accept two limitations of our research: We included only two genders, and we allowed individuals to select their race and ethnicity according to the options USDA's National Institute of Food and Agriculture (NIFA) uses for clientele. Because of some of the challenges of USDA's classification of race and ethnicity, we decided not to include this characteristic in our analyses. We captured educational attainment by asking respondents about their highest earned degree from a high school diploma or equivalent to a doctoral degree. We also allowed individuals to respond with an "other" degree. Respondents had five options to capture the length of their employment, using 5-year increments. We offered a series of personal and work roles within Extension to capture respondents' faculty rank. Based on these roles, we created six categories to capture each respondent's faculty rank: public service representative, public service assistant, public service associate, senior public service associate, tenure-track, or classified staff. The institution has a unique classification for outreach and engagement faculty, and we used these specific ranks. We did not explicitly collect the exact rank of tenure-track faculty. We arrived at this decision due to the large number of county-based faculty in the population who are not part of the tenure-track system, but are rather in the public service and outreach faculty system.

Work characteristics included the percentage of the respondent's salary from university, county, grant, or other funds; the work location; the work setting; and several possible roles. The role types included whether assigned to a county professional role, a state specialist role, a tenure-track role, a county Extension agent role, or a county Extension coordinator role. To collect the percentage of the respondents' salary from the university, county, grant, or other funds, respondents had a bar slider of each type to total 100%. For calculation, we examined only the percentage of salary from the county to capture the perceived social closeness to the county. To capture the work location, we asked respondents if they resided in the same county where they worked. We felt that individuals who lived and worked in the same county might be more likely to engage in boundary-spanning behaviors oriented toward the community where they lived and worked. To capture the work setting, we used modified options used by USDA-NIFA, resulting in the choices rural, suburban, or urban. Finally, we captured the possible roles an individual could have within the land-grant Extension system: county Extension coordinator (the county-level administrator/county department head for Extension), county Extension agent (county-based faculty member responsible for Extension work in their assigned area), state specialist (state-based faculty member), state specialist tenure-track (including only the state-based faculty members in a tenure-track position), and county professional (a recoded variable including the county Extension agents and the exempt employees located at the county level).

Data were analyzed using SPSS 29. Question 1 (What boundary-spanning behaviors are prevalent in Cooperative Extension faculty and staff?) was addressed by rank-ordering the 32 boundary-spanning items. We calculated the mean of each item and ranked them from highest to lowest. We also grouped by construct to provide a rank order of the most used boundary-spanning scales. Question 2 (To what extent are boundary-spanning behaviors explained *individually* by personal or work/organizational characteristics?) was addressed by bivariate analyses to determine the separate predictive power. Question 3 (To what extent are boundary-spanning behaviors explained *jointly* by personal or work/organizational characteristics?) was addressed by multivariate analysis to determine the separate and combined predictive power using a forward regression method. We used a forward-loading stepwise regression.

Limitations to these methods include the inability to return to the respondents for several clarifying questions. These data were collected initially to determine the validity and reliability of the boundary-spanning scales, and other possible predictive variables may have been excluded. Additionally, as stated previously, some variables—such as gender—should be adjusted to provide a more inclusive view. The initial instrument allowed only forced responses of male or female. Because of these limitations and using only one land-grant institution within the sample, individuals should be cautious in generalizing the findings beyond the original population.

Findings

The first question focused on boundary-spanning behaviors and their prevalence in Cooperative Extension faculty and staff. Table 2 outlines all 32 boundary-spanning behaviors and their high means. The item means ranged from 3.34 to 5.58 on a six-point scale, with 1 being *never* and 6 being *always*. Of the top eight behaviors, three were socio-emotional, two were technical-practical, two were organizational, and one was community focused. Of the bottom eight behaviors, four were organizationally focused.

In examining the boundary-spanning construct scales, the mean item mean ranged from 4.40 to 4.63. These item means were relatively high. Technical-practical orientation was the highest orientation, and organizational was the lowest. Interestingly, the socio-emotional behaviors were the top three behaviors, but the construct was not the top construct in rank order. Table 3 displays the results from the boundary-spanning construct scales.

Influencers of the Boundary-Spanning Construct Orientations

The second research question examined the personal and workplace characteristics and how these characteristics *individually* explain the boundary-spanning behaviors in the population of Cooperative Extension staff. Based on the predictor, we used simple correlation or *t*-tests to discover the bivariate relationships between the variables and the boundary-spanning construct scales. When the correlations were significant, we squared the correlation coefficients to receive the coefficients of determination. This statistic provides the proportion of variance in each dependent variable explained by each of the independent variables. Few of the personal or work characteristics were significant at the $p < .05$ level.

Table 2. Rank Order Listing of Boundary-Spanning Behaviors (n = 272)

Rank	Item language	*M*	*SD*	Construct
1	I maintain relationships with a variety of individuals.	5.58	0.82	Socio-emotional
2	I build trust with people I interact with.	5.47	0.69	Socio-emotional
3	I support others in their accomplishments and challenges.	5.29	0.92	Socio-emotional
4	I apply my skills to new situations.	5.05	1.04	Technical-practical
5	I utilize information to support the community.	4.80	1.16	Community
5	I utilize information to support the organization.	4.80	1.10	Organizational

Table continued on next page

Table 2. Continued

Rank	Item language	*M*	*SD*	Construct
7	I represent the organization's perspective.	4.79	1.14	Organizational
7	I determine solutions for challenges.	4.79	1.08	Technical-practical
9	I manage projects.	4.72	1.27	Technical-practical
9	I identify resources to support projects.	4.72	1.12	Technical-practical
11	I communicate the organization's interests to others.	4.70	1.12	Organizational
12	I translate organizational information to the community.	4.57	1.29	Community
13	I identify barriers to success.	4.54	1.14	Technical-practical
14	I develop partnerships that benefit the organization.	4.49	1.25	Organizational
15	I facilitate meetings between individuals and groups.	4.47	1.32	Technical-practical
15	I build capacity among individuals.	4.47	1.24	Socio-emotional
17	I advocate for organizational policy that supports the community.	4.46	1.36	Community
17	I develop partnerships that benefit the community.	4.46	1.28	Community
19	I identify issues in communication.	4.44	1.11	Socio-emotional
20	I identify expertise in individuals.	4.40	1.21	Socio-emotional
21	I communicate the community's interests to others.	4.38	1.23	Community
22	I design processes for projects.	4.33	1.41	Technical-practical
22	I represent the community's perspective.	4.33	1.22	Community
24	I identify expertise in the organization to support the community.	4.32	1.20	Community
25	I broker resources among individuals or groups.	4.30	1.38	Technical-practical
26	I find ways to meet community needs with organizational partners.	4.24	1.23	Community
27	I translate community information to the organization.	4.19	1.18	Organizational
28	I identify expertise in the community to support the organization.	4.09	1.23	Organizational
29	I find ways to meet organization's needs with community partners.	4.08	1.22	Organizational
30	I advocate for community policy that supports the organization.	4.06	1.43	Organizational
31	I resolve conflict among other individuals.	3.65	1.27	Socio-emotional
32	I negotiate power among individuals.	3.34	1.38	Socio-emotional

Table 3. Rank Order List of Boundary-Spanning Scales

Rank	Scale	# of items	*M*	*SD*	Mean item mean	Alpha
1	Technical-practical orientation	8	37.05	7.24	4.63	0.90
2	Socio-emotional orientation	8	36.52	6.15	4.56	0.83
3	Community orientation	8	35.58	7.99	4.45	0.92
4	Organizational orientation	8	35.17	7.55	4.40	0.91

Five of the predictor variables demonstrated a significant correlation with the technical-practical orientation construct. Age explained 2% of the observed variance in this construct. Other significant predictor variables included educational attainment, faculty rank, having the role of county Extension agent, and serving as a county professional. Four of the predictor variables demonstrated a significant correlation with the socio-emotional orientation construct. Significant predictor variables included faculty rank, having the county Extension coordinator role, having the county Extension agent role, and serving as a county professional. Four predictor variables demonstrated a significant correlation with the community orientation construct. Significant predictor variables included faculty rank, having the county Extension coordinator role, having the county Extension agent role, and serving as a county professional. Three of the predictor variables demonstrated a significant correlation with the organizational orientation construct. Significant predictor variables included faculty rank, having the county Extension agent role, and serving as a county professional. Tables 4, 5, 6, and 7 summarize the predictor variables by the orientation constructs. For simplicity and ease of reading, we include only the significant predictor variables, though the test statistics are available for each of the personal and work characteristics.

Table 4. Correlations of Predictor Variables With Technical-Practical Orientation

Personal characteristics predictor variable	Test statistic			
	Test	**Results**	***p***	***r²***
Age	Pearson	$r = -0.139$	0.024**	0.02
Gender	*t*-test	$t(264) = .026$	0.605	-
Educational attainment	Spearman	$r_s = .200$	0.001**	0.00
Length of employment	Spearman	$r_s = .004$	0.946	0.89
Faculty rank	ANOVA	$F(5, 274) = 5.543$	0.001**	-
Work characteristics predictor variable	**Test statistic**			
	Test	**Results**	***p***	***r²***
Percentage salary from university	Pearson	$r = -0.002$	0.97	0.00
Percentage salary from the county	Pearson	$r = -0.033$	0.60	0.00
Percentage salary from grants	Pearson	$r = 0.030$	0.62	0.39
Percentage salary from other	Pearson	$r = 0.021$	0.74	0.54
Residence in the county where you work	*t*-test	$t(265) = .026$	0.98	-
County Extension coordinator role	*t*-test	$t(269) = 1.682$	0.09	-
County Extension agent role	*t*-test	$t(269) = 2.195$	0.03**	-
State specialist role	*t*-test	$t(269) = 1.020$	0.31	-
State specialist tenure-track role	*t*-test	$t(269) = 1.167$	0.244	-
County professional	*t*-test	$t(150) = -4.914$	0.001**	-
Work setting	Spearman	$r_s = -.001$	0.99	0.98

** $p < .05$

Table 5. Correlations of Predictor Variables With Social-Emotional Orientation

Personal characteristics predictor variable	Test statistic			
	Test	Results	*p*	r^2
Age	Pearson	$r = -0.023$	0.716	0.00
Gender	*t*-test	$t(264) = .591$	0.082	-
Educational attainment	Spearman	$r_s = .099$	0.107	0.01
Length of employment	Spearman	$r_s = .120$	0.05	0.00
Faculty rank	ANOVA	$F(5, 124) = 3.625$	0.004**	-
Work characteristics predictor variable	**Test statistic**			
	Test	**Results**	***p***	r^2
Percentage salary from university	Pearson	$r = -0.028$	0.65	0.00
Percentage salary from the county	Pearson	$r = -0.053$	0.39	0.00
Percentage salary from grants	Pearson	$r = -0.030$	0.63	0.00
Percentage salary from other	Pearson	$r = 0.003$	0.96	0.00
Residence in the county where you work	*t*-test	$t(265) = .591$	0.56	-
County Extension coordinator role	*t*-test	$t(269) = 2.183$	0.03**	-
County Extension agent role	*t*-test	$t(269) = 2.512$	0.01**	-
State specialist role	*t*-test	$t(269) = -.804$	0.42	-
State specialist tenure-track role	*t*-test	$t(269) = 1.337$	0.182	-
County professional	*t*-test	$t(150) = -4.961$	0.001**	-
Work setting	Spearman	$r_s = .041$	0.504	0.25

** $p < .05$

The third question asked, "To what extent are boundary-spanning behaviors explained *jointly* by personal or work/organizational characteristics?" Several multivariable relationships were examined between the boundary-spanning orientation constructs and the significant predictor variables. We desired to find the "best" explanatory model for each of the constructs. To produce these models, we performed two linear regressions for each construct: Regression 1 included all the predictors, regardless of their significance in the bivariate analyses, and Regression 2 included only the significant predictors in the bivariate analyses. This forward multiple regression resulted in 1, 1, 3, 2 models for technical-practical, socio-emotional, community, and organizational orientation constructs, respectively. The maximum observed variance for each of the models was $R^2 = .156, .131, .264, .173$, respectively. The second linear regression included only the variables with $p < .05$ in the bivariate relationships.

In examining the technical-practical orientation, including all significant predictor variables, one model was returned explaining 15.6% of the variance. This model excluded age, educational attainment, rank, and the county Extension agent position. It kept only the county professional level variable. Table 8 presents the model with all the significant predictor variables.

In examining the socio-emotional construct regression with only significant predictor variables included, the linear regression returned one model. Similar to the technical-practical orientation, it included only the county professional level variable in the best model. The model explains 12.1% of the variance. Table 9 outlines the model for socio-emotional construct.

Examination of the community and organizational orientation construct models showed that they were like the technical-practical and socio-emotional models. Of the significant variables, only the county professional level remained in the forward linear regression method. In the community orientation model, 17.7% of the variance was explained compared to 12.5% in the organizational orientation model. Tables 10 and 11 show the models for the community orientation construct and the organizational orientation construct.

When including all the variables, whether significant or not, the coefficient of determination increased moderately. For the more inclusive linear regression, 25.4%, 26.2%, 34.8%, and 31.5% of the variance was explained by the model for technical-practical, socio-emotional, community, and organizational orientation constructs, respectively.

Table 6. Correlations of Predictor Variables With Community Orientation

Personal characteristics predictor variable	Test statistic			
	Test	Results	*p*	r^2
Age	Pearson	$r = -0.055$	0.372	0.00
Gender	*t*-test	$t(264) = .768$	0.788	-
Educational attainment	Spearman	$r_s = .175$	0.004	0.00
Length of employment	Spearman	$r_s = -.002$	0.971	0.94
Faculty rank	ANOVA	$F(4, 255) = 4.227$	0.001**	-
Work characteristics predictor variable	**Test statistic**			
	Test	**Results**	***p***	r^2
Percentage salary from university	Pearson	$r = -0.098$	0.11	0.01
Percentage salary from the county	Pearson	$r = 0.101$	0.10	0.01
Percentage salary from grants	Pearson	$r = -0.034$	0.58	0.00
Percentage salary from other	Pearson	$r = -0.044$	0.48	0.00
Residence in the county where you work	*t*-test	$t(265) = .768$	0.44	-
County Extension coordinator role	*t*-test	$t(269) = 2.031$	0.04**	-
County Extension agent role	*t*-test	$t(269) = 3.57$	0.00**	-
State specialist role	*t*-test	$t(269) = 1.042$	0.30	-
State specialist tenure-track role	*t*-test	$t(269) = .601$	0.548	-
County professional	*t*-test	$t(151) = -5.652$	0.001**	-
Work setting	Spearman	$r_s = -.016$	0.801	0.98

** $p < .05$

Table 7. Correlations of Predictor Variables With Organizational Orientation

Personal characteristics predictor variable	Test statistic			
	Test	Results	*p*	r^2
Age	Pearson	$r = -0.046$	0.461	0.00
Gender	*t*-test	$t(263) = 1.125$	0.232	-
Educational attainment	Spearman	$r_s = .113$	0.067	0.00
Length of employment	Spearman	$r_s = -.010$	0.876	0.77
Faculty rank	ANOVA	$F(5, 202) = 3.745$	0.003**	-

Work characteristics predictor variable	Test statistic			
	Test	Results	*p*	r^2
Percentage salary from university	Pearson	$r = -0.070$	0.26	0.00
Percentage salary from the county	Pearson	$r = 0.076$	0.22	0.01
Percentage salary from grants	Pearson	$r = -0.012$	0.85	0.00
Percentage salary from other	Pearson	$r = 0.021$	0.74	0.00
Residence in the county where you work	*t*-test	$t(263) = 1.125$	0.26	-
County Extension coordinator role	*t*-test	$t(267) = 1.366$	0.17	-
County Extension agent role	*t*-test	$t(267) = 3.388$	0.00**	-
State specialist role	*t*-test	$t(267) = .057$	0.95	-
State specialist tenure-track role	*t*-test	$t(267) = -.442$	0.659	-
County professional	*t*-test	$t(149) = -4.796$	0.001**	-
Work setting	Spearman	$r_s = -.007$	0.911	-

** $p < .05$

Table 8. Best Model for Technical-Practical Orientation

Parameter	Unstandardized coefficients (B)	Standardized coefficients (Beta)	*t*	*p*
Age	−0.115	0.064	−1.799	0.075
Rank	0.188	1.062	0.177	0.86
County professional level	8.542	3.574	2.39	0.019
County Extension agent role	1.357	3.21	0.423	0.673
Educational attainment	−0.586	0.584	−1.004	0.318

Note. Model statistic: $R^2 = .199$; $F = 4.817$; $p = 0.000$.

Table 9. Best Model for Socio-Emotional Orientation

Parameter	Unstandardized coefficients (B)	Standardized coefficients (Beta)	*t*	*p*
Rank	0.512	0.795	0.644	0.521
County professional level	7.938	3.471	2.287	0.024
County Extension agent role	0.609	2.45	0.249	0.804
Current Extension position	−0.365	0.481	−0.758	0.45

Note. Model statistic: R^2 = .133; F = 3.838; p = 0.006.

Table 10. Best Model for Community Orientation

Parameter	Unstandardized coefficients (B)	Standardized coefficients (Beta)	*t*	*p*
Rank	1.563	0.392	1.511	0.134
County Extension coordinator role	2.813	0.162	1.28	0.203
County Extension agent role	1.209	0.075	0.409	0.683
County professional level	15.229	0.945	3.64	0.001

Note. Model statistic: R^2 = .213; F = 6.830; p = 0.001.

Table 11. Best Model for Organizational Orientation

Parameter	Unstandardized coefficients (B)	Standardized coefficients (Beta)	*t*	*p*
Rank	0.669	0.179	0.685	0.495
County Extension agent role	0.077	0.005	0.027	0.979
County professional level	7.854	0.52	2.358	0.02

Note. Model statistic: R^2 = .131; F = 5.091; p = 0.003.

Discussion

Based on the findings, it is evident that Extension staff use boundary-spanning behaviors extensively. With the mean item means ranging from 4.63 to 4.40 on the boundary-spanning scales, respondents indicated they engage in the boundary-spanning orientations between often and usually. When looking at the individual behaviors, only two items' means were below the "often" response. The two behaviors occurring least were resolving conflict among other individuals and negotiating power among individuals. These boundary-spanning behaviors occurred throughout the organization of this southern Extension region land-grant university. Because of the high extent of boundary-spanning behaviors among Cooperative Extension staff, we assert that these individuals are boundary spanners at this institution.

We need more information to determine how these behaviors may influence the identity of these employees. With such high responses on both the organizational and community orientations, we profess Cooperative Extension employees have a dual identity. This finding is not surprising, as Extension

faculty and staff work geographically dispersed from their employer and reside in the communities in which they work. This result is consistent with prior studies of the dual identities of contract workers who identify with both their employing and client organizations (George & Chattopadhyay, 2005).

Surprisingly, few personal or work characteristics correlated with boundary-spanning behaviors. Additional information is needed, however, regarding the influence of the boundary-spanning behaviors because of the surprisingly low correlations of other variables. Of the personal characteristics, only faculty rank correlated with all four of the boundary-spanning orientations. It is logical that individuals at lower faculty ranks may engage in more technical-practical tasks, and that respondents of different faculty ranks may have different orientations toward the community or the organization. This finding is consistent with prior research indicating that the types of publicly engaged scholarship differ based on faculty rank (Glass et al., 2011). This study differs from Glass et al.'s in that it examined only Extension faculty and staff and concentrated on county-level faculty. As faculty ranks change, the balance of their work changes—perhaps they no longer are as engaged in the technical-practical tasks and move more toward socio-emotional behaviors such as mentoring and guiding others. Relatedly, some new tenure-track faculty inclined toward community-engaged scholarship are advised to wait until they have earned tenure. A similar undercurrent may occur even among non-tenure-track county-based faculty in Cooperative Extension, or the county faculty promotion process may encourage or discourage certain boundary-spanning behaviors.

Among the work characteristics, only roles placed on staff had a significant correlation to the boundary-spanning behaviors. If a respondent was classified as a county-based professional, their boundary-spanning behaviors and orientations were significantly correlated. County-based professionals include the county Extension agents (county faculty positions) as well as a limited number of county resource managers, a classified staff position in counties where budget limitations prevented more county-based faculty. County resource managers provided many of the same resources to the community, yet they did not have the same faculty-level job expectations such as evaluating and documenting impact. Those not included as county professionals included any county-based staff who were nonexempt employees—subject to overtime pay. These individuals typically had job titles such as administrative assistant or county program assistant. They are instrumental to a strong, functioning Cooperative Extension program, yet focused on support or direct delivery. Similar to the county resource managers, the nonprofessionals did not have responsibilities for need assessment, design, development, or evaluation of Extension programming.

For some of these same reasons, it is not surprising that the county Extension agent role was significantly correlated with each of the boundary-spanning orientations. More nuanced—and logical—was the significant correlation of the county Extension coordinator role with the socio-emotional and community orientations. The county Extension coordinator "is responsible for administrative duties such as managing the county Extension budget, coordination and oversight of the county educators and their programs, and an area of Extension programming" (Atiles et al., 2014, p. 69). The county Extension coordinator's additional responsibilities to lead and manage the county office explain the correlation with socio-emotional orientation. Likewise, the county Extension coordinator is typically dual-hatted as a county department head, which may explain the stronger community orientation. Certain positions or roles assigned within Cooperative Extension may greatly influence the social closeness. This relationship implies that these orientations may be learned rather than inherent within the individual. Previous scholarship using this same instrument indicated that boundary-spanning behaviors can be learned (Mull, 2016).

One surprising result was that resource allocation did not significantly impact the social closeness domain—the axis aligned with community and organizational orientations. A delicate balance and unique power dynamic for Extension employees who rely on local, community funding suggests that county Extension staff may be aligned more toward the community. Additionally, for decades Cooperative Extension has strived to be a *research-based, objective* source of information for individuals across the country. At times, the objectivity of Cooperative Extension staff has been questioned based

on the impact or influence of funding sources (Harris et al., 2007). Reynnells (1991) outlined several of the ethical challenges for Extension staff. For example, over the past three decades, the support from the public purse for Extension remained stagnant across the country despite significant differences among states (Perry, 2022), requiring more private support, often from large agricultural corporations or research alliances (Harris et al., 2007; Holt & Bullock, 1999). Ethical concerns emerge when private support directly for the Extension enterprise or indirectly through private, paid consulting that Extension staff may undertake may influence the objectivity of recommendations for policy, research, and practice. Our data indicate that the source of one's salary did not significantly correlate with any of the boundary-spanning construct orientations. Neither the community nor the institution orientation demonstrated significant influence. This finding bodes well for Cooperative Extension to continue broadcasting its ideal of providing research-based, objective information in the face of stagnant or changing budgets. Administrators, however, are cautioned that our results reflect only one institution, and it is unknown if more significant variations of resource allocations may influence Cooperative Extension staff.

The importance of the role of the Extension staff member—the county agent or the county educator—cannot be overstated. This study found that the role of those at the most local level within Extension embody what Hall and Broyles (2016) called "the critical link between higher education institutions and stakeholders in the community" (p. 187). Cooperative Extension staff exert influence within their community. They are significantly engaged in valuable boundary-spanning activities.

Potential exists to capitalize on these valuable boundary-spanning orientations and the evidence that boundary-spanning behaviors are learned. Investment of more significant resources in professional development may strengthen these behaviors, the orientations, and their effectiveness. Fortunately, several resources exist to support this professional development through several competency frameworks for Extension and community engagement professionals.

No consistent competencies for Extension staff exist. Donaldson and Vaughan (2022) provided the most recent compilation of Extension professional competencies from 97 prior studies. Through their scoping study, they outlined 15 Extension professional competency domains: communication, diversity and cultural competence, flexibility, interpersonal relations, knowledge of Extension, leadership, professionalism, program planning and evaluation, resource management, subject matter competence, teaching methodology and delivery, technology, thinking and problem solving, understanding community needs, and volunteer management. Recently, Dostilio et al. (2017) outlined a preliminary competency model for community engagement professionals with six domains: leading change within higher education, institutionalizing community engagement on a campus, facilitating students' civic learning and development, administering community engagement programs, facilitating faculty development and support, and cultivating high-quality partnerships. Atiles (2019) responded to Dostilio et al.'s description of the community engagement professional's competency model as fluid and preliminary by adding one additional area—working with a state's Cooperative Extension Service. Atiles supported the addition of this area by expanding on systems thinking, logic modeling, and action as needed competencies.

An examination of the competencies offered by Donaldson and Vaughan (2022), Dostilio (2017), and Atiles (2019) reveals that boundary-spanning behaviors are embedded in these competencies. Within Donaldson and Vaughan's study, boundary-spanning behaviors are in the competencies of communication (e.g., communicating an organization's interests to others, identifying issues in communications), diversity and cultural competence (e.g., translating community information to the organization), interpersonal relations (e.g., maintaining relationships with a variety of individuals), leadership (building capacity among individuals), program planning and evaluation (e.g., designing processes and developing partnerships that benefit the community), resource management (e.g., brokering resources among individuals or groups), thinking and problem solving (e.g., determining solutions for challenges), and understanding community needs (e.g., representing the community's perspective). For Dostilio et al. (2017), boundary-spanning behaviors are similarly embedded within the skills and abilities competencies of leading change within higher education,

institutionalizing community engagement on a campus, administering community engagement programs, and cultivating high-quality partnerships. Although Dostilio et al. explicitly included "able to communicate across boundaries and roles, and between internal and external stakeholders" (p. 51), we contend that the broader boundary-spanning behaviors are embedded across multiple domains.

Limitations

Because the goal of the initial data collection was to create a new instrument for boundary-spanning behaviors, the predictor variables probably do not encompass all possible or likely variables. Unfortunately, analyses will not recreate the ability to ask additional questions of the original respondents. This shortcoming highlights the importance of additional examinations using the instrument. The possible responses, too, do not allow for the most inclusive responses of variables such as a race and gender, as discussed previously. Topics of intersectionality are challenging to capture in a quantitative study, given the multidimensionality of categories such as race and gender (Bauer et al., 2021).

We restricted our study to a single land-grant university that uses a unique county-based faculty approach; however, we cannot assume that similar research with other Extension programs would have similar results. In our study, faculty rank had a significant correlation with all four boundary-spanning orientations, but we have little knowledge of what may occur in institutions where Extension staff are not in faculty roles or where county faculty have tenure-track roles.

Since data were collected, we have gained valuable insight to the boundary-spanning behaviors of those involved in higher education community engagement from the perspective of faculty members (Purcell et al., 2020), institutional leaders (Pilbeam & Jamieson, 2010; Prysor & Henley, 2017), and community members (Adams, 2014). The availability of this additional research would have enabled us to ask additional questions or to remove certain questions from this administration.

Implications for Research

More data are needed. This study focused on one land-grant university's Extension faculty and staff. Cooperative Extension, although a large organization funded nationally, is delivered through a decentralized method with 112 land-grant universities. Each institution's organizational structure is unique, and funding patterns are neither consistent nor equal across states or even within states. Prior research has highlighted changes in Extension staffing patterns (Wang, 2014), university structures surrounding county Extension staff and their tenure and promotions systems (Olsen, 2005), and varied perceptions toward scholarship (Berg et al., 2021). Future research should examine a cross-section of land-grant universities' Extension staff. In addition to possible geographic differences, comparing the boundary-spanning behaviors of Extension staff at 1862, 1890, and 1994 institutions could highlight differences, as 1890 and 1994 institutions were created specifically to support communities underserved or not served by 1862 institutions (Bracey, 2017; McDowell, 2003).

This examination found two consistent contributors to boundary-spanning orientations: faculty rank and professional level within the organization. Additional exploration is needed to ascertain the effects of faculty rank in other universities' Cooperative Extension faculty and staff. Data indicate that the higher the faculty rank, the more boundary-spanning behaviors occurred. What needs closer examination is the role of the tenure-track faculty. This study reflects this institution's unique public service faculty ranks and not the traditional tenure track. Some institutions do not have faculty members serving at the county level—do different staffing or organizational designs impact boundary-spanning orientations or behaviors? By using a national sample of Extension staff from multiple institutions, future research may uncover the relationship of boundary-spanning orientations and the various types of staffing models used nationwide.

Because no personal characteristic predictor variables other than age within the technical-practical orientation were significant, it appears that organizations can support and encourage boundary-spanning activities and that most in the role of Extension employee are going to actively engage in boundary-spanning to varying degrees.

This study also has examined only the perspective of the higher education Extension employee. It ignores the perspective of the

community. Adams (2014) highlighted four domains of the community aligned with the Weerts and Sandmann (2010) framework. A complement of this study could examine clientele of Extension and how they view their boundary-spanning Extension staff. This study found that as county faculty changed in their faculty rank, their boundary-spanning behaviors changed. Attaching a value—actual or perceived—to this change from the community's perspective could introduce several paths forward in strengthening the impact of Cooperative Extension to the community.

With the significant efforts occurring in competencies in both Extension professionals and community engagement professionals more broadly, research is needed on how administrators view these boundary-spanning behaviors, whether within these competency frameworks or as a separate competency domain. Professional development efforts like the Outreach and Engagement Practitioners Network (https://engagementscholarship.org/about/esc-partner-programs/outreach-and-engagement-practitioners-network) community of practice, a part of the Engagement Scholarship Consortium, bring awareness and an identity of boundary spanners among those who may not identify themselves that way. How does this opportunity and other efforts build awareness of the influence of boundary-spanning's continued behaviors, impact, and effectiveness? Future research should examine these opportunities and their influence on the identity of boundary spanners and boundary spanners' behaviors in bringing the university to the people.

Conclusion

Cooperative Extension remains the largest community engagement program provided solely by the nation's land-grant universities. Individuals are colocated in the community and in leading decision-making processes for programming, resource allocation, and support from the university. Some argue that staff members embedded in a community by the university may make decisions only for the university's interests; however, this study found that these Extension employees are not masked advocates only for the university in the community—driving decisions toward the organization's interests. And they are not necessarily ignorant of the power differential, innocently shepherding the community to be taken advantage of by the higher education community. Cooperative Extension staff were significantly engaged in boundary-spanning behaviors across the four domains of technical-practical, socio-emotional, community, and organizational orientations. Few personal, work, or organizational characteristics were significant in influencing these boundary-spanning behaviors. More data are needed to determine if there are other lurking variables influencing the behaviors of these Cooperative Extension staff and if other institutions would have varied responses, but at this point, through this study, it appears that the boundary-spanning behaviors of Cooperative Extension staff allow for individuals to have a dual identity, adequately representing both university and community interests.

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