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Keywords

capacity assessment; extension networks; organizational development

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Abstract

This study expands on previous research within an international extension context with a particular focus on identifying the capacities associated with effective organizational functioning. A panel composed of 31 experts participated in a three-round Delphi process and identified a list of 38 specific capacities associated with effective organizational functioning related to extension networks. Among the 38 specific items, five primary themes emerged: (1) an extension network should be transparent about its policies, procedures, and organizational intent; (2) knowledge sharing and collaboration within an extension network is critical; (3) general policies and management guidelines should be in place; (4) the development and maintenance of intentional, long-term relationships with various actors in extension, including stakeholders, policy-decision makers, and the private sector is critical; (5) reasonable expectations and guidelines should be established for both extension network officers and network members. The study's results provide a guide within which extension networks and organizations may evaluate current capacities from both a developmental and strengths perspective.

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Introduction

Since their inception, rural advisory services (RAS), synonymous with extension services, around the world have undergone several paradigm shifts (Faure et al., 2012; Swanson & Rajalathi, 2010). For example, technology transfer, advisory services, non-formal education, and facilitation extension are examples of major paradigm shifts in extension education (Swanson & Rajalathi, 2010). These paradigms can be explained in the terms of purpose and process of communication (Röling & de Jong, 1998).

During the early stages of agricultural extension development, a top-down approach called technology transfer – based on persuasive method of communication primarily aimed at improving food productivity – was adopted. With the increase in food production, a rise in inquiries occurred regarding specific issues of next level production, e.g. supply of inputs and crop management. These inquiries resulted in a persuasive and participatory paradigm called advisory services. Simultaneously in developed regions, a demand in educational and training aspects resulted in a paternalistic paradigm termed non-formal education. This approach focused on equipping farmers with specific skill sets related to management or technical knowledge. Similar to non-formal education but more participatory in approach, a different paradigm, facilitation extension, has evolved (Swanson & Rajalathi, 2010).

Public funding shifted in the 20th century to be more supportive of industrial and technological advancement rather than agricultural production with a decrease in public funding noted for RAS (Umali-Deininger & Schwartz, 1994). Even with dwindling financial resources, RAS continue to be relevant and play a critical role in agriculture development and food security by providing rural communities with current information on agriculture (Davis et al., 2014). This relevance continues today as RAS shift to assist in sustainable agriculture development. For example, a positive relationship has been found between extension training programs and increased farmer adoption of agricultural best management practices in several studies (Dillon et al., 2016; Farzam et al., 2015; Kondylis et al., 2014).

Effective organizational functioning of RAS systems is essential for their providers to be efficient in serving the agricultural community (Maddy et al., 2002). Public investments have been focused on the development and implementation of technologies to improve agricultural production and productivity, but it is difficult to attribute how much of the increase in production is due to RAS efforts ensuring integration, rather than the technology itself (Kimani & Ruigu, 2017). The lack of ability to quantify the effectiveness and impacts of RAS efforts has led to decreased funding for such globally (Kimani & Ruigu, 2017; Mukherjee, 2012; Ragasa et al., 2016). However, sustained funding is one of the critical factors for effective organizational functioning and the advancement of RAS (Ragasa et al., 2016). Due to the reduced public funding for RAS, fewer opportunities have occurred for RAS providers and the systems that support them to improve performance (Paul et al., 2016a, 2016b).

At the same time, private and non-governmental organizations (NGOs) have become actively involved in agricultural production education resulting in the advent of pluralistic RAS (Christoplos, 2010). These groups tend to be more market-oriented than production-focused (Christoplos, 2010) and concentrate in a specific agricultural area of financial interest, e.g. fertilizer or seed sales. The addition of new and different key actors with diverse goals and intent in the RAS networks has initiated concerns related to the coordination of efforts and consistency of RAS advisory performance (Phillipson et al., 2016). Operating individually, private RAS providers have found success due to effective networking, strong linkages, and availability of

funds within their areas of operation (Mengal et al., 2016), but are not necessarily cooperative in their intentions.

At the global organizational level, the effectiveness of private RAS providers and NGOs has been found to be inconsistent and at times ineffective due to their isolated and focused interests (Labarthe & Laurent, 2013). In fact, a rise in the number of market and system failures were observed due to a lower coordination of the decentralized units within RAS networks (Faure et al., 2012). A need, therefore, exists for RAS networks to change their organizational and funding structures to bring these actors together and move forward in a more coordinated manner (Nettle et al., 2017). To begin the process of developing organizational and institutional functioning of RAS networks that can bridge this gap, their network capacities need to be identified.

Conceptual Framework

The network perspective of social capital theory was selected as a conceptual framework for the purpose of addressing the study's research objectives (Woolcock & Narayan, 2000). The term social capital represents networks formed between people and institutions within a community (Woolcock & Narayan, 2000). The networks are a result of established connections (Scott, 2017). But any connection can only be identified as a potential social capital when trust exists between the members of the network and when it enables people or institutions access to available resources (Budai, 2011). These potential networks within organizations may be stimulated to gain understanding on issues that require scrutiny and further improvement (Nahapiet & Ghosal, 1998). The value of social capital may be estimated based on the cultural and social factors of the organizations comprising a network (Boutilier, 2017; Jordan, 2015). As Coleman (2003) elaborated, social capital is a function of the relationships between people or institutions which facilitates action to achieve a common goal and enables organizations to connect and bring together human capital from various specializations. Studies have shown that social capital has the capacity to anchor and enhance the connections in organizational networks by increasing efficacy and resource mobilization (Uzzi & Gillespie, 2002). This is possible for social capital because it creates teams based on reciprocity and mutual contribution through and due to networking (Hu & Randel, 2014).

Although a vast amount of research has been conducted in the field of organizational development (Burke & Noumair, 2015; Cummings & Worley, 2014), limited research exists outlining the capacities needed for achieving those outcomes in different organizational settings (Mendenhall et al., 2017; Lamm et al., 2019). This disparity may be attributed to low prioritization of the organizational issues and allocation of insufficient resources for identifying solutions prior to specific needs (Doherty & King, 2001; Taylor et al., 2010). The failure to identify specific organizational needs early may be due to the disconnect between stakeholders, which reduces the effectiveness and value for the entire organization (Goetsch & Davis, 2014), and is another crucial issue within RAS networks that should be addressed (Davis & Sulaiman, 2014).

Two factors, external (Fligstein, 1985) and internal (Boies & Prechel, 2002), usually influence an organization's functioning and development (Gunasekaran et al., 2005). The internal factors that may influence this outcome are culture, competition, and values of the organization. The external factors can be operationalized as technical advancements, financial support, public policy, and collaboration between organizations from different sectors (Pfeffer & Salancik, 2003). The issue of managing factors that affect organizational development has been a

consistent challenge, resulting in slower organizational development (Cummings & Worley, 2014). For example, a high percentage of issues involving resource management are associated with structure and type of culture within networks (Budai, 2011).

For stabilizing the effect of various influencing factors on the organization, a higher amount of organizational capacity must exist or be created (Ulrich & Lake, 1991). In management terms, organizational capacity is the capability of an organization to manage resources efficiently (Andrews et al., 2015). Helfat and Peteraf (2003), in their research on capacity lifecycle, described organizational capacity as “the capability of an organization to perform a coordinated set of tasks, utilizing organizational resources” (p.999). Achieving organizational capacities is a collective process dependent on the individual knowledge held among the members of an organization (Nahapiet & Ghoshal, 1998). Applying this concept, the need for increasing organizational efficiency for network development can be facilitated by adopting a social capital theory lens (Coleman, 2003; Woolcock & Narayan, 2000). Using this theory, the capacities needed for organizational development of RAS networks were identified.

Purpose and Research Objectives

The purpose of this study was to identify the capacities needed for an RAS network to be effective in organizational functioning. The study was operationalized by two research objectives:

1. Identify potential capacities necessary for an RAS network to be effective in organizational functioning.
2. Determine a consensus of agreement among expert panelists regarding the specific capacities necessary for an RAS network to aid in effective organizational functioning.

Methods

The present study was conducted as part of a larger project that analyzed RAS networks from multiple perspectives. The data collection and analysis were completed in a manner consistent with methods described in previous research. According to recommendations by Zhang et al. (2013), a summary of the methods used are provided. Nevertheless, readers are strongly encouraged to review the source manuscript (Lamm et al., 2017) for additional details regarding the study's research methods.

The study employed a modified Delphi method design to address the research objectives. The Delphi method was deemed appropriate to address the research objectives based on its usefulness in international contexts where participants are geographically dispersed (Humphrey-Murto et al., 2017). In particular, the Delphi approach provides an opportunity for a breadth of expert opinions to be solicited and considered in the pursuit of consensus of opinion (Garson, 2014). The Delphi method has been empirically shown to be a useful tool in international agricultural and extension education research (e.g. Conner et al., 2017; Warner et al., 2016; Gombe et al., 2015; Conner & Roberts, 2013; Morgan et al., 2012; Shinn et al., 2009; Ricketts & Morgan, 2009).

Skinner et al. (2015) stated that experts in Delphi panels should be individuals at the top of their field in technical knowledge with the ability to draw connections between national and international development as well as present and current development. Additionally, these individuals should possess the ability to consider issues from both traditional and unconventional viewpoints (Skinner et al., 2015). Since these experts need to possess the greatest knowledge and experience in their fields, panels generally remain small, ranging between 10-30 members

(Skinner et al., 2015). Dalkey (1975) found that an engaged panel of 13 members who truly represented the expert community in their field would provide a reliability coefficient of 0.9.

For this study, the expertise criteria included active involvement with RAS, organizational maturity, and experience. Individuals were nominated to serve on the expert panel based on their association and participation within Global Forum for Rural Advisory Services (GFRAS) (Okoli & Pawlowski, 2004). GFRAS was determined to be an appropriate source for identifying potential expert panelists based on the group's international coverage and the distinct experiences within the population of interest. To minimize bias, individuals representing various geographic locations, experiences, organizational structures, and perspectives were nominated for the panel. A group of 31 RAS network experts were asked to identify the capacities necessary for an RAS network organization to function effectively. Details regarding the panel members is outlined by (Lamm et al., 2017):

The 31 experts that participated in the panel represented RAS practitioners, funding organizations, farmer and advocacy groups, academic institutions, research institutes, policy makers, and other affiliated RAS support organizations (for example consultants and agricultural supply companies). Panelists had a range of experience with RAS exposure ranging from four to 45 years, with an average tenure of 18 years. Panelists represented the following countries: Bangladesh, Belgium, Bulgaria, Ecuador, Fiji, Georgia, Ghana, Guyana, India, Ireland, Italy, Lao People's Democratic Republic, Malawi, Nicaragua, Nigeria, Pakistan, Philippines, Samoa, Solomon Islands, South Africa, Switzerland, Uganda, United States of America, and Uzbekistan (p. 97).

An approval from the Internal Review Board at the Florida was obtained prior to the research process. The three rounds of the Delphi process were conducted online according to Dillman et al.'s (2008) Tailored Design Method recommendations. First, a pre-notice email was sent to all expert panelist members prior to the beginning of the research. An email invitation to complete the first round of the process was sent to panelists approximately two days after the pre-notice message. Each of the three Delphi rounds included at least three reminder messages in addition to the original invitation. The response rates for the process were as follows: round one – 94% ($n = 29$); round two – 87% ($n = 27$); and round three – 94% ($n = 29$). Based on previous Delphi process research, responses rates of 70% or greater per round were deemed acceptable (Keeney et al., 2011).

Data were collected based on recommendations in the literature concerning the Delphi process, particularly from within RAS or extension contexts (Delbecq et al., 1975; Lamm et al., 2017, 2018; Nistler et al., 2011). Specifically, the process included three rounds of input from the expert panel. During the first round, panelists were asked to provide up to five of the most important capacities an RAS network should have to be effective in organizational development (Gliddon, 2006) using a word or short phrase. Following the first round, responses were collated and analyzed. During the analysis process, duplicate entries were eliminated and minor wording changes were made to improve clarity (Garson, 2014; Gliddon, 2006). Entry analysis was completed using the Dedoose qualitative analysis software package (SocioCultural Research Consultants, 2016). A total of 46 responses collected in the first round were used to develop the second round questionnaire.

Panelists' level of agreement for the capacities identified in the first round were captured during the second round of the process. Specifically, panelists were asked to indicate their levels of agreement or disagreement with each item. A five-point, Likert-type scale was used to rate items on *1-Strongly Disagree*, *2-Disagree*, *3-Neither Agree nor Disagree*, *4-Agree*, or *5-Strongly*

Agree. Frequencies were calculated and reported for each item. Additionally, mean scores were calculated to establish thresholds as a heuristic approach commonly adopted in Delphi research (see Nistler et al., 2011; Lamm et al., 2017; Forno et al., 2019). Data were analyzed using the SPSS version 21 software package. Items with a mean score of 3.25 or higher were retained for the third and final round. This threshold value of 3.25 was established *a priori* according to recommendations in the literature (Garson, 2014). A total of 45 items were retained for the final round of the process.

The third round of the process was conducted to establish a consensus of agreement amongst the panelists regarding the capacities necessary for effective RAS network organizational functioning. For each item, panelists were asked to use a dichotomous scale to indicate whether or not they agreed the item should be retained. For each item, a percentage of consensus among the expert panelists was calculated. For example, if an item achieved an 88% consensus agreement in the third round, then 88% of the expert panelists agreed the item should be retained. To be retained, an item required a 75% level of agreement. This threshold value was determined *a priori* and is based on previous studies which found that a threshold level for consensus agreement between 70-80% is sufficient for Delphi research (Humphrey-Murto et al., 2017; Morgan et al., 2012; Ricketts & Morgan, 2009; Simon et al., 2005). Data were analyzed using the SPSS version 21 software package. A total of 38 items were retained following the final round of the process.

Results

At the end of round one, the expert panelists identified 46 capacities, which are outlined in Table 1. In round two, expert panelists rated the level of agreement they associated with each of the 46 capacities. Mean capacity scores ranged from 3.04 to 4.78. The highest mean level of agreement was associated with the statement “a country fora or regional RAS network should use funds transparently.” The lowest mean level of agreement was associated with the statement “a country fora or regional RAS network should communicate in English.” To be retained after round two, capacities needed a minimum mean level of agreement of 3.25. One capacity did not meet this threshold; therefore, 45 capacities were retained following round two.

Table 1

Delphi Round One and Two Results: Level of Agreement for Organizational Development

Capacity (n = 46)

<i>Capacities</i>	<i>n</i>	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	<i>Mean (SD)</i>
Use funds transparently	28	0.0	0.0	3.7	14.8	81.5	4.78 (0.51)
Be accountable for spending	28	0.0	0.0	3.8	34.6	61.5	4.58 (0.58)
Have network officers that are committed to the success of the network	28	0.0	0.0	11.1	25.9	63.0	4.52 (0.70)
Articulate a clear vision and mission for the network	28	0.0	0.0	11.1	29.6	59.3	4.48 (0.70)
Support activities driven by stakeholder needs	28	0.0	3.7	3.7	44.4	48.1	4.37 (0.74)

Articulate a strategic plan	28	0.0	0.0	11.1	44.4	44.4	4.33 (0.68)
Have network members that are aware of the vision and mission	28	0.0	0.0	14.8	37.0	48.1	4.33 (0.73)
Have network officers that are aware of how to reach out to network members	28	0.0	0.0	18.5	40.7	40.7	4.22 (0.75)
Have accountability procedures in place	28	0.0	3.8	7.7	53.8	34.6	4.19 (0.75)
Exhibit a strong network with stakeholders that has been maintained over time	28	0.0	3.7	14.8	40.7	40.7	4.19 (0.83)
Have a resource generation and management plan in place	28	0.0	0.0	14.8	55.6	29.6	4.15 (0.66)
Serve as a broker by connecting others	28	0.0	3.7	18.5	40.7	37.0	4.11 (0.85)
Have network officers that are committed to RAS	28	0.0	7.4	14.8	37.0	40.7	4.11 (0.93)
Have a policy environment supportive of RAS	28	0.0	7.4	11.1	48.1	33.3	4.07 (0.87)
Exhibit a strong network with the government that has been maintained over time	28	0.0	7.4	25.9	18.5	48.1	4.07 (1.04)
Enhance networks through peer-to-peer exchange	28	0.0	0.0	22.2	48.1	29.6	4.07 (0.73)
Coordinate efforts with related national organizations	28	3.7	0.0	18.5	40.7	37.0	4.07 (0.96)
Connect to the research and development community	28	0.0	0.0	18.5	59.3	22.2	4.04 (0.65)
Have network officers that are aware of when to reach out to network members	28	0.0	7.4	11.1	51.9	29.6	4.04 (0.85)
Clearly articulate policies, regulations, methods, procedures, terms, and definitions	28	0.0	11.1	18.5	29.6	40.7	4.00 (1.04)
Exhibit a strong network with beneficiaries that has been maintained over time	28	3.7	3.7	18.5	37.0	37.0	4.00 (1.04)
Exhibit dynamic leadership at all levels	28	0.0	7.4	11.1	55.6	25.9	4.00 (0.83)
Have network officers that trust one another	28	0.0	0.0	29.6	40.7	29.6	4.00 (0.78)
Possess a governance structure	28	0.0	7.4	18.5	44.4	29.6	3.96 (0.90)
Have members that are interested in working together	28	0.0	3.7	22.2	48.1	25.9	3.96 (0.81)
Support a culture of innovation	28	0.0	3.7	33.3	33.3 %	29.6	3.89 (0.89)

Exhibit a strong network with the private sector that has been maintained over time	28	0.0	3.7	33.3	33.3	29.6	3.89 (0.89)
Engage in inter-agency collaborations	28	0.0	7.4	18.5	51.9	22.2	3.89 (0.85)
Have an articulated management of the network	28	0.0	0.0	37.0	40.7	22.2	3.85 (0.77)
Possess a clearly identifiable organizational structure	28	0.0	25.9	3.7	33.3	37.0	3.81 (1.21)
Have members that come from multiple disciplines and represent multiple perspectives	28	0.0	14.8	25.9	25.9	33.3	3.78 (1.09)
Focus on gender equality	28	0.0	7.4	29.6	44.4	18.5	3.74 (0.86)
Have network officers capable of securing funding	28	0.0	11.1	22.2	51.9	14.8	3.70 (0.87)
Articulate human resource development strategies	28	0.0	11.1	29.6	37.0	22.2	3.70 (0.95)
Support members of the network through funding (sustainable and diverse including long-term and grants)	28	3.7	18.5	18.5	33.3	25.9	3.59 (1.19)
Have a sufficient physical infrastructure in place to ensure the network is capable of performing at a high level	28	7.4	14.8	18.5	37.0	22.2	3.52 (1.22)
Communicate in local language(s)	28	3.7	25.9	14.8	29.6	25.9	3.48 (1.25)
Be recognized as a legal entity	28	18.5	11.1	18.5	11.1	40.7	3.44 (1.58)
Communicate in English	28	11.1	18.5	37.0	22.2	11.1	3.04 (1.16)

In round three, 45 capacities were presented to panelists, who used a dichotomous scale of “Agree” or “Disagree” to express whether or not they thought an item should be retained. To be retained, capacities needed a consensus greater than 75%. Thirty-eight capacities were retained following round three and are displayed in Table 2.

Table 2

Delphi Round Three Results: Level of Consensus with Organizational Development Capacities (n = 45)

Capacity	Consensus %
Articulate a clear vision and mission for the network	100.0
Use funds transparently	100.0
Have outputs that are valued by RAS professionals, stakeholders, beneficiaries, and policy/decision-makers	96.6
Have network officers that are committed to the success of the network	96.6
Serve as a broker by connecting others	96.6

Have a resource generation and management plan in place	96.6
Have members that come from multiple disciplines and represent multiple perspectives	93.1
Coordinate efforts with related national organizations	93.1
Articulate a strategic plan	93.1
Have network officers that communicate with network members on a regular/timely basis	93.1
Have network officers that are aware of how to reach out to network members	93.1
Enhance networks through peer-to-peer exchange	93.1
Provide consistent activities that are well organized, structured, and reliable	93.1
Exhibit a strong network with stakeholders that has been maintained over time	92.9
Support activities driven by stakeholder needs	92.9
Have networks officers that are committed to RAS	89.7
Support a culture of innovation	89.7
Have accountability procedures in place	89.7
Clearly articulate policies, regulations, methods, procedures, terms, and definitions	89.7
Possess a governance structure	89.7
Connect to the research and development community	86.2
Have a policy environment supportive of RAS	86.2
Have network members that are aware of the vision and mission	86.2
Be accountable for spending	86.2
Exhibit a strong network with policy decision makers that has been maintained over time	82.8
Have members that are interested in working together	82.8
Have an articulated management of the network	82.8
Possess a clearly identifiable organizational structure	82.8
Engage in inter-agency collaborations	82.8
Focus on gender equality	82.1
Have network members that report working towards the network's vision and mission	79.3
Provide value-added services that otherwise would not be available to RAS professionals, stakeholders, beneficiaries, and policy/decision-makers	79.3
Exhibit dynamic leadership at all levels	79.3
Have network officers that trust one another	79.3
Have a sufficient number of network officers in place to handle and maintain a quality network	75.9
Exhibit a strong network with the private sector that has been maintained over time	75.9
Articulate human resource development strategies	75.9
Have network officers that are aware of when to reach out to network members	75.9
Exhibit a strong network with beneficiaries that has been maintained over time	72.4

Support members of the network through funding (sustainable and diverse including long-term and grants)	72.4
Exhibit a strong network with the government that has been maintained over time	72.4
Have a sufficient physical infrastructure in place to ensure the network is capable of performing at a high level	67.9
Communicate in local language(s)	62.1
Be recognized as a legal entity	62.1
Have network officers capable of securing funding	62.1

Conclusions, Implications, and Recommendations

Previous capacity research conducted in an RAS context (e.g. Lamm et al., 2017, 2018, 2019, 2020) has consistently demonstrated that a Delphi panel composed of RAS experts is an effective method of identifying capacities necessary for RAS network analysis. This study expands on previous research in an international RAS context with a particular focus on identifying the capacities necessary for effective organizational functioning. The results are intended to provide a set of guidelines that international RAS organizations may use to identify capacity needs and areas of strength. In addition, the formalization of RAS capacities may also serve to harmonize efforts across geographic boundaries, and provide RAS organizations a common lexicon to describe organizational structures, processes, and functions.

Creating an expert panel of individuals representing diverse RAS networks and environmental conditions aids in the overall utility and application of results. Although every effort was made to reduce bias according to recommendations in Garson (2014), it should be acknowledged that the use of a purposively selected panel has inherent limitations. One of these limitations is that the capacities identified are restricted to the scope of knowledge and insights possessed by the experts (Bödin & Crona, 2009). Since the expert panelists within this study were selected from nominations by a single organization, the capacities identified are also limited by the influences and perspectives of this organization. However, to mitigate potential bias the expert panelists included representation from a variety of affiliated groups. For example, respondents were associated with the United Nations, local country level extension networks, global agricultural for profit enterprises, civil society at a country level, ministry of agriculture representatives, university academics, funding organizations from around the globe, and local extension practitioners from both public and private enterprises.

At a functional level, analysis of the results revealed two capacities that experts unanimously agreed were necessary for an RAS network to be effective in organizational functioning. These capacities included the transparent use of funds and an articulation of a clear vision/mission for the network (see Table 2). Additionally, experts were in near unanimous agreement (96.6%) on four other capacities necessary for an RAS network to be effective in organizational functioning (see Table 2). The first capacity was having outputs that were valued by RAS professionals, stakeholders, beneficiaries, and policy/decision-makers. Another was to have network officers that were committed to the success of the network. Third was for the RAS network to serve as a broker by connecting others involved in the extension service and the fourth capacity was to have a resource generation and management plan in place.

Based on the results of the study, the retained capacities were thematically consolidated. Specifically, items with unanimous or near unanimous (over 96.6%) consensus were extracted. Remaining items were heuristically consolidated to facilitate thematic discussion and associated

conclusions and implications. An acknowledged limitation with the approach is the absence of more formal rigorous qualitative analysis. Nevertheless, the identified themes are only intended to ease summarization and associated recommendations and implications. Without a summarizing structure the 45 retained capacities would be unwieldy to adequately address. However, given the acknowledged limitation the identified themes should only be used as a guide for interpretation and not a research based set of findings.

The first theme was that an RAS network should be transparent about their policies, procedures, and organizational intent. RAS networks should invest time in clearly articulating their policies, mission, and values to stakeholders, clientele, and employees. In business management theory, increased transparency within firms has been shown to enhance stakeholder perceptions of organizational trustworthiness (Schnackenberg & Tomlinson, 2014). Accordingly, we recommend RAS networks to reevaluate their current levels of transparency and institute measures which increase disclosure, clarity, and accessibility of accurate information.

Knowledge sharing and collaboration within a RAS network was another theme that emerged among the remaining capacities. This theme highlights how an organizational environment that encourages communication among peers and collaboration – both within and outside the organization – is crucial to increase knowledge exchange. Knowledge management has been previously identified as a critical capacity necessary for RAS networks and revealed as a foundational component in the development of new networks and the maintenance of established networks (Lamm et al., 2017). The results of this study are consistent with previous research, thereby indicating that the achievement of organizational functioning largely depends on the individual knowledge of those involved (Nahapiet & Goshal, 1998). Accordingly, international agriculture and extension educators should acknowledge the association between knowledge management and effective organizational functioning. Thus, we recommend RAS network personnel engage in practices that foster information exchange and knowledge sharing, such as supporting inter-agency collaboration and building teams with members from diverse backgrounds. Taking these actions would likely contribute to more effective organizational functioning.

The third theme identified relates to general policies and management guidelines that an RAS network should observe and of which it should be aware. Some examples of these guidelines include providing value-added services that would not otherwise be available and providing consistent activities that are well-organized, structured, and reliable. These capacities may help to inform human resource and professional development programming within organizations.

A fourth theme that emerged relates to the development and maintenance of intentional, long-term relationships with various actors in extension, including stakeholders, policy-decision makers, and the private sector. Christoplos (2010) found that an increased involvement of NGOs and private organizations within agricultural production education has led to the creation of new market-oriented RAS services. Thus, it is imperative that RAS networks not associated with private organizations or NGOs are able to develop relationships with these entities and other extension actors in order to facilitate consistent and effective RAS efforts. Therefore, we recommend international agriculture and extension educators to focus on fostering relationships with other RAS network actors, which may influence the effectiveness of future RAS efforts.

A final theme was associated with reasonable expectations and guidelines for both RAS network officers and network members. These expectations included guidelines for how network officers should interact with other RAS actors as well as aspects of RAS networks of which

members should be aware. We recommend the capacities identified within the current research serve as a bases to inform human resource management and professional development programming. In particular, we recommend international agricultural and extension educators use this information to modify how their networks communicate about the roles, responsibilities, and expectations of leaders and members in the organization.

Using Delphi results as a foundation for instrument development has been established in the literature (Cheng et al., 2001). Thus, an additional recommendation is for future researchers to use the capacities identified in this study to create a scale that quantifies organizational functioning capacity within RAS networks. Examining the capacity needs of RAS networks regarding organizational and institutional functioning, as well as other related areas identified in the literature (Lamm et al., 2017, 2018, 2019, 2020), would enable RAS networks to establish more holistic and comprehensive insights into organizational strengths and areas requiring further development.

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