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Introduction

Determining suitable community and economic development programs and assessing the utility of those efforts are challenges that concern development practitioners and researchers throughout the world (Billings, 2000; Picciotto, 2003). An increasingly popular approach to gathering information for use in program design and evaluation involves using the Community Capitals Framework (CCF). This framework serves as an analytical tool for organizing and holistically evaluating information related to different types of community resources (capital) and related community development programs (Emery & Flora, 2006; Pigg, Gasteyer, Martin, Keating, & Apaliyah, 2013). The CCF has been defined as "a way to analyze community and economic development efforts from a systems perspective by identifying the assets in each capital (stock), the types of capital invested (flow), the interaction among the capitals, and the resulting impacts across capitals" (Emery & Flora, 2006, p. 20). A capital is understood to be any asset or resource in which can be invested and has the potential to generate additional resources (Anderson, 2014; Emery, Fey, & Flora, 2006; Flora, Flora, & Gasteyer, 2016; Gutierrez-Montes, Emery, & Fernandez-Baca, 2009); whereas, community refers to a place-based collection of individuals where place is defined by its geographic location, built environment, and acquired meaning or value (Manzo & Perkins, 2006; McKnight, Sanders, Gibbs, & Brown, 2017). Implicit within the framework is the understanding that different place-based communities draw upon different capitals in distinct ways to address problems and initiate positive changes.

The CCF has been employed in varied contexts and in a range of international settings. For example, researchers used the framework to explore the feasibility and potential impact of agroecotourism in Cuban communities (Duffy, Kline, Swanson, Best, & McKinnon, 2017). It also has been used with the Managed Landscapes Approach (MLA) to guide participatory land-use processes in Panama (Gutierrez-Montes, Siles, Bartol, & Imbach, 2009). In addition, the CCF was combined with the Sustainable Livelihoods Framework (SLF) in rural Uganda to gather information necessary for designing sustainable livelihoods programs (Sseguya, Mazur, & Masinde, 2009). Other CCF-based research efforts have focused on community capitals as they pertain to sustainable tourism and livelihoods in Botswana (Stone & Nyaupane, 2018), and disaster preparedness and recovery in the United States (Himes-Cornell et al., 2018; Stofferahn, 2012). This variety and diversity of settings in which the CCF has been used demonstrate its applicability and value in collecting information used to identify and assess suitable programming efforts.

Valuable information targeted in the CCF is founded in community knowledge, which stems from the individual and collective perspectives of local populations. Residents of any community are likely to form opinions and attitudes about the places in which they live based on perceptions of how individuals are connected to each other and the physical environment of the community (Comstock et al., 2010; Raymond, Brown, & Weber, 2010), how they are sustained by educational and vocational opportunities (Agran, Snow, & Swaner, 1999; Aro, Rinne, Lahti, & Olkinuora, 2005; Uludag, 2008), and the ways in which community members and local leadership communicate with one another (Chun, Shulman, Sandoval, & Hovy, 2010; Sun, Wang, & Zhou, 2012). Community perceptions also can be based on personal agency, which is characterized by individual experiences and interactions with various elements of a community and how one views his or her ability to live according to personal values and principles (Bhattacharyya, 1995). While general perceptions indicate how a person views various structural components of a community, perceived personal agency signals the degree to which an individual feels they can act within the existing community structure to realize both personal and

community-wide goals (Harvey, 2002). When assessing program impact, the general and specific perspectives complement one another (Ohmer, 2007). From a community development perspective, understanding perceptions of the community as a whole and individual perceptions of their ability to act and change within it, provide insights and triangulation of observations (Greene & McClintock, 1985).

Personal agency has been defined in a number of ways but generally refers to a person's ability to initiate some action and to act autonomously within an existing structural context (Campbell, 2009; Onyx & Bullen, 2000). Harvey (2002) contends that any definition of personal agency must primarily be concerned with a person's capacity for altering his or her existing structural environment. Within a development context, agency among community members has been described as an individual having the ability to live according to personal convictions and the capacity for personal and community transformation (Bhattacharyya, 1995). As groups and communities are comprised of members, personal agency must also exist for these individuals.

Perceived personal agency might differ considerably from more general views toward the community in which people live (Dale & Sparkes, 2010). For instance, residents may have very positive views of various aspects of their community, but also feel that they are unable to satisfy the desire to act within that community to achieve personal or group goals or to live according to their own principles. Conversely, a person may have a generally negative view of one or more community characteristics, but also feel that they are able to generally navigate and operate within the existing community structure to realize personal or community objectives. Capturing these two perspectives may reveal whether views associated with personal agency are aligned with general community perceptions, providing a more comprehensive understanding of a community and its characteristics (Brooks, Waylen, & Mulder, 2012).

Currently there is a gap in the literature providing agricultural and extension educators, particularly those in international contexts, with the tools necessary to examine CCF characteristics, both at the community and individual levels. A study analyzing an empirical tool to quantify personal agency within the Community Capitals Framework may provide international agricultural educators and extension professionals a robust toolset to engage in community-oriented activity or interventions while acknowledging the role of the individual in such endeavors. Furthermore, this study is directly associated with recent recommendations within the literature to examine, formalize, and standardize evaluation tools capable of examining the impacts of programs and interventions (Borron, Lamm, Darbisi, & Randall, 2019).

Conceptual Framework

The CCF focuses on seven distinct but interrelated capitals. These capitals fall into two broad categories: *human (intangible) capitals* and *material (tangible) capitals* (Emery & Flora, 2006; Flora et al., 2016; Gutierrez-Montes, Emery, et al., 2009). The human capitals are social, human, cultural, and political; while the material capitals are natural, financial, and built. Each of the community capitals, irrespective of category, is related to the others in important and consequential ways (Flora et al., 2016). An investment in one capital will generally have an impact on other capitals in what has been described as a spiraling-up process (Emery & Flora, 2006). Conversely, a deficiency in one of the seven capitals may precipitate a downward spiral as other assets and resources are negatively affected (Stofferahn, 2012). Although the capitals are interrelated, they can be independently examined and defined to foster a better understanding of how each is associated with community assets and liabilities. Exploring the capitals in this way

also highlights the need for a valid instrument that can reliably measure resources. Such an instrument can assist in identifying appropriate entry points for community and economic development programs, as well as measure the impacts of such efforts. The following provides a brief overview of each capital as categorized by either human or material capitals.

Human Capitals

Social capital is generally understood to involve trust and reciprocity among community members. Flora (2004), for instance, defines social capital as "mutual trust, reciprocity, collective identity, cooperation and a sense of a shared future" (p. 8). It also can be viewed as the collective voice of an engaged and organized community seeking programmatic outcomes that are beneficial to all residents (Brown, 1996; Turner, 1999). Putnam (1995a, 1995b, 2000; Putnam, Leonardi, & Nanetti, 1993) defines social capital in terms of the various components that characterize social organization, such as networks, norms, and trust. These allow for cooperation among community members and groups as they coordinate their activities to more effectively advance shared ideas and objectives (Putnam, 1995a, 1995b). Putnam (1995a, 1995b) claims that greater social capital within a community promotes and sustains healthy networks of civic engagement. These networks make possible a higher quality of life by nurturing social trust, encouraging wider acceptance of reciprocity protocols, and facilitating collective actions (Putnam, 1995a). This perspective corresponds to Coleman's (1988) contention that a high degree of social capital (characterized by trust and trustworthiness) among individuals within groups is associated with more positive outcomes.

Human capital refers to innate, acquired, and developed attributes of individual community members, such as their abilities, skills, knowledge, education, self-esteem, and health (Becker, 1962, 1993; Schultz, 1961). In short, it is "the characteristics and potential of individuals that are determined by the intersection of nature (genetics) and nurture (social interactions and the environment)" (Flint, 2010, p. 49). Human capital facilitates community improvement by providing individuals with the physical and intellectual means to recognize and access internal and external resources (Emery et al., 2006; Emery & Flora, 2006; Flora et al., 2016), and is closely associated with the embodied form of cultural capital (Bourdieu, 2018).

Cultural capital can be described as an awareness and understanding of the language and conventions associated with a dominant culture (Bourdieu, 2018; Sullivan, 2001). Bourdieu (2018) maintains that this form of capital can be conceived as existing in three states: the embodied state, the objectified state, and the institutionalized state. The embodied state is characterized by an individual's natural intellectual and physical capacities. The objectified state refers to actual cultural materials such as books. These objects can be considered manifestations of advanced thought processes. The institutionalized state is a kind of objectified cultural capital that is acknowledged and approved by a formally recognized institution. This form of cultural capital is perhaps most widely illustrated by institutions of learning granting diplomas, degrees, and other academic credentials. These various states can result in some community members attaining an elevated cultural status and placed in a position of influence or power as a result. Cultural capital, then, plays an important role in determining "what voices are heard and listened to, which voices have influence in what areas, and how creativity, innovation, and influence emerge and are nurtured" (Emery & Flora, 2006, p. 21).

Political capital can be described as individual or group capacity for transforming community practices and conventions into recognized rules that influence how resources are allocated (Flora et al., 2016). Turner (1999) maintains that political capital is the product of

social and economic (financial) capital, as it incorporates community building, government assistance, and private financial contributions. Flint (2010) defines political capital as the ability of an individual, group, or community to guide the development of the regulations that determine how resources are allocated, and influence the enforcement of those regulations. Turner (1999) and Flint (2010) each describe political capital in terms of self-efficacy and associated actions, as it influences individual and community capacities for identifying and pursuing interests and control of those pursuits, ultimately giving rise to self-directed decisions and actions.

Material Capitals

Natural capital is the foundation upon which all other forms of capital are built (Flora et al., 2016). It refers to a community's natural assets such as climate, weather, geography, topography, physical beauty, and quality of the land, air, and water. (Emery & Flora, 2006; Flora et al., 2016). Natural capital can provide communities with many economic benefits and development opportunities, but it can also limit how a community matures or expands. Natural capital assets can impact community and resident behavior, but are also affected by human endeavors (Flint, 2010). The resources can be classified as either renewable or non-renewable. The former is characterized by ecosystem resources while the latter refers to assets such as oil, coal, and natural gas (Costanza et al., 1997; Folke, Hammer, Costanza, & Jansson, 1994).

Financial capital is perhaps the most recognizable form of capital, largely because it is the easiest to quantify and many researchers consider other capitals in terms of the financial impacts (Flint, 2010). It can be described as the availability of financial resources to invest in a community to build and develop agency, support existing and new businesses, and generally accumulate wealth for further investment (Emery & Flora, 2006). Taxes, fees, savings, and credit all constitute forms of community financial capital (Flora et al., 2016). The equitable distribution of these assets, and their relationship to other resources, can result in a healthy and diverse local economy (Flint, 2010).

Built capital is the manufactured and constructed elements of a community, such as schools, factories, roads, bridges, and the assets supporting the deployment of information technologies (Flora et al., 2016). It refers to the infrastructure that underpins the pursuits connected to other forms of capital (Emery & Flora, 2006; Flint, 2010). Because it supports other activities, built capital is generally viewed as having a positive impact on community and economic development. However, other capitals can be negatively affected when potentially adverse consequences are dismissed while advancing development concerns (Flora et al., 2016).

The Community Capitals Framework provides a comprehensive foundation for an empirical tool that could be used by researchers internationally or domestically to identify and analyze personal agency perspectives within a broad range of place-based communities. Determining the extent to which individuals feel they can function within, influence, and change existing structural elements of a community will assist in identifying entry points for in-depth research inquiry or program design. This detailed information will also provide a basis for evaluating the utlility and efficacy of such efforts. An initial step toward gathering relevant perceptual data is the development and validation of an appropriate instrument designed to quantify and evaluate each capital based on individual perceptions of personal agency.

Purpose and Objectives

The primary purpose of this research was to design and validate a personal agency scale based on the Community Capitals Framework. The study sought to address three objectives:

1. Establish the internal structure validity (preliminary) for a personal agency scale based on the capitals comprising the CCF.
2. Determine whether the hypothesized latent variables—the community capitals—are present among the scale items.
3. Ascertain the extent to which the community capitals, as represented in the scale items, are correlated.

Methods

Guided by a thorough review of the literature concerning the Community Capitals Framework (Emery et al., 2006; Emery & Flora, 2006; Emery, Gutierrez-Montes, & Fernandez-Baca, 2013; Fey, Bregendahl, & Flora, 2006; Flora, 2004, 2011; Flora & Bregendahl, 2012; Flora et al., 2016; Gutierrez-Montes, Emery, et al., 2009; Pigg et al., 2013) and scale development (Crocker & Algina, 1986), a scale was constructed to quantitatively analyze each of the community capitals regarding personal agency at the community level. This scale comprised a number of statements developed to measure various characteristics endemic of each capital.

Several methods were used to ensure content validity. First, a review of the literature pertaining to the CCF was performed to ensure that each of the scale items addressed specific aspects of the community capitals. In addition, content validity was established using a text-based analysis of prevalent traits and themes, identification of proposed indicators, and formation of specific items concerning appropriate indicators. These processes resulted in seven scales representing each of the community capitals. Due to the closely interconnected nature of the assets constituting the built and financial capitals, precedent found in the literature (Flora & Bregendahl, 2012), and an exploratory factor analysis (EFA) indicating the items represented one latent variable, these capitals were combined to form an integrated built-financial capital scale. Finally, a panel of scale development and communication experts reviewed the scale items (DeVellis, 2017).

A total of 37 items were developed with individual capital scales consisting of between five and seven items. Items were incorporated into a survey designed to capture specific (i.e. personal agency) perceptions of community residents. An online survey company, Qualtrics, was used to develop a sampling frame by implementing a non-probability (or non-random sampling) purposive sampling method. Data collection procedures, in conformity with guidance found in the literature, included the utilization of attention filters. Only complete responses were retained and analyzed (Lamm & Lamm, 2019). The purposive sampling employed in this study involved criteria selection that corresponded to U.S. Census data at the county level, which was the unit of analysis, based on gender, race, and age characteristics. A five-point Likert-type scale (5 – *Strongly Agree* to 1 – *Strongly Disagree*) was used to record respondents' level of agreement with each statement.

Conducted as a pilot study in fall 2018, data were collected in six counties purposively selected in [STATE]. The counties were chosen based on [UNIVERSITY] programming and outreach efforts taking place within these areas, as well as their capacity to equally represent rural, urban, and metropolitan regions. Because a non-probability sampling technique was applied, potential issues related to non-response error were not problematic; however, the results of this study cannot be generalized. A total of 123 responses were collected, with a total number of responses per county ranging from 10 to 33. The resulting data were analyzed using Statistical Package for the Social Sciences (SPSS) version 25.

To ensure response process validity, a panel of scale design experts not involved in the instrument development examined the proposed scale items. This group analyzed the proposed statements and provided suggestions based on directions, item interpretability, and potentially confusing scale items. Any suggested changes were further explored by the researchers in reviews with each panel expert. At the conclusion of this iterative process, the recommended scale changes consisted of minor phrasing revisions. Specific scale items and related instrument directions were subsequently updated (Crocker & Algina, 1986). Internal structure validity was examined by analyzing the response distributions of the individual items, evaluating internal consistency (Cronbach's alpha), and conducting exploratory factor analyses of hypothesized latent variables (Clark & Watson, 1995; Crocker & Algina, 1986; Messick, 1995).

Results

The study analysis consists of two sets of complimentary procedures. First, each of the six capital factors were analyzed. Second, the overall latent variable, individual agency, was analyzed consisting of all 37 items. Results are presented for both sets of analyses beginning with the individual factors.

The social capital scale was comprised of six items concerning whether an individual (1) listens to the concerns of other community members, (2) joins other residents to support community efforts, (3) joins other residents to support local change efforts, (4) voices his/her concerns, (5) assists in developing a conversation around issues important to the community, and (6) feels connected to the community. A Kaiser-Meyer-Olkin (KMO) test value of 0.892 suggests that factor analysis of the scale variables is justified, while a Bartlett's chi-square statistic ($x^2 = 545.473$) is significant ($p < .05$). A factor analysis of these items resulted in one extracted factor explaining 72.2% of the total variance (Table 1). Given that the factor loadings across the six items are 0.79 or above and the eigenvalue is relatively high (4.330), there is strong evidence that the social capital scale items are all components of the same latent construct.

Table 1
Factor analysis: Social components

Items	Factor 1	Communalities
Listen to concerns of community members	0.890	0.793
Join others to support community efforts	0.881	0.776
Join other to support local change efforts	0.891	0.794
Voice my concerns	0.815	0.664
Help develop a conversation around important issues	0.822	0.676
Feel part of the community	0.792	0.627
Eigenvalue	4.330	—
Cumulative Variance Explained (%)	72.172	—

The human capital scale included seven items related to an individual perceiving they can (1) be a leader in the community, (2) manage differences among community members/groups, (3) learn about techniques and tools for decision making, (4) take action to address community challenges, (5) collaborate with others to impact community change, (6) make the community

better, and (7) access resources for personal needs. A KMO test value of 0.885 indicates that a factor analysis of the human scale items is appropriate, and the Bartlett's chi-square value (x^2 = 623.014) is significant ($p < .05$). Table 2 details the results of the factor analysis, which show that one factor explaining 68.2% of the total variance was extracted. This result, along with the substantial factor loadings for each of the items and the associated eigenvalue of 4.774, demonstrates that the human scale components are facets of the same underlying variable.

Table 2
Factor analysis: Human components

Items	Factor 1	Communalities
Be a leader in my community	0.738	0.544
Manage differences among members and groups	0.843	0.710
Learn about techniques and tools for decision-making	0.863	0.744
Take action related to challenges affecting community	0.887	0.787
Collaborate to impact community change	0.857	0.735
Make my community better	0.850	0.723
Access resources for personal needs	0.728	0.530
Eigenvalue	4.774	—
Cumulative Variance Explained (%)	68.193	—

The cultural capital scale consisted of six related statements associated with an individual's capacity to live according to personal principles and values, and to participate in local movements, cultural events, and traditions: (1) living out philosophical beliefs, (2) living out ethical values, (3) practicing cultural traditions, (4) participating in social movements, (5) obtaining or using culturally relevant products, and (6) developing a personal connection to the local community. The value of the sampling adequacy measure (KMO) is 0.862, suggesting that the scale items are suitable for a factor analysis. The Bartlett's sphericity test value (x^2 = 366.527) for the scale items is significant ($p < .05$). The results of the factor analysis presented in Table 3 indicate that the personal agency items comprising the cultural capital scale are highly interconnected aspects of the same construct, with only one extracted factor explaining 63.4% of the total variance. The sizable loadings for each scale item and a relatively substantial eigenvalue of 3.807 also suggest that the items are all components of the same latent construct.

Table 3
Factor analysis: Cultural components

Items	Factor 1	Communalities
Live out my philosophical beliefs	0.749	0.561
Live out my ethical values	0.825	0.681
Practice cultural traditions	0.777	0.603
Participate in one or more social movements	0.814	0.662
Access culturally relevant products	0.810	0.656
Develop a personal connection to the place I live	0.802	0.643
Eigenvalue	3.807	—
Cumulative Variance Explained (%)	63.447	—

The political capital scale included seven personal agency items related to an individual's ability to interact and influence with community, regional, and national leaders. Specifically, survey participants were asked to indicate how they perceived their ability to (1) participate in groups that work to affect change, (2) communicate with local government leaders, (3) communicate with county or state government leaders, (4) communicate with leaders at the federal level, (5) join coalitions that advocate for positive community change, (6) develop advocacy coalitions that confront local issues, and (7) mobilize the resources necessary for community change. A Kaiser-Meyer-Olkin test value of 0.887 suggests that the scale items can be factor analyzed. A Bartlett's chi-square statistic ($x^2 = 748.582$) is significant ($p < .05$). The factor analysis of the political capital scale indicates that the items comprising the scale are highly interrelated and describe the same latent variable. The one extracted factor explains a substantial 72.6% of the total variance and has an eigenvalue larger than 5.0 (see Table 4).

Table 4
Factor analysis: Political components

Items	Factor 1	Communalities
Be part of group that works to affect change	0.824	0.679
Communicate with local government leaders	0.859	0.738
Communicate with county/state government leaders	0.873	0.761
Communicate with federal government leaders	0.818	0.669
Join advocacy coalitions that address local issues	0.854	0.730
Develop advocacy coalitions that address local issues	0.876	0.767
Mobilize resources for community change	0.859	0.737
Eigenvalue	5.081	—
Cumulative Variance Explained (%)	72.581	—

The five personal agency items comprising the natural capital scale correspond to residents' perceived capacity to support and access local natural resources and amenities: (1) developing relevant projects, (2) accessing parks in the community, (3) accessing quality water, (4) voicing opinions concerning use of natural resources, and (5) expressing opinions on land development issues. Factor analysis of the natural scale items is appropriate given the KMO test value of 0.744 and a significant ($p < .05$) Bartlett's chi square statistic ($x^2 = 272.597$). The results presented in Table 5 demonstrate that one factor explaining 59.1% of the total variance was extracted. This factor has a sufficiently high eigenvalue of 2.954.

Table 5
Factor analysis: Natural components

Items	Factor 1	Communalities
Develop projects that support natural resources	0.756	0.572
Access parks in my community	0.672	0.451

Access quality water	0.646	0.418
Voice my opinion on use of natural resources	0.892	0.795
Voice my opinion on land development issues	0.848	0.718
Eigenvalue	2.954	—
Cumulative Variance Explained (%)	59.074	—

The consolidated built-financial scale is made up of seven items covering respondent perceptions of personal contributions to employment and the broader local economy, and personal agency with respect to support of local projects and businesses. Specifically, the built-financial scale consists of items meant to measure perceptions of the individual's ability to (1) contribute to the local economy, (2) create local jobs, (3) save local jobs, (4) obtain grants to support of community projects, (5) secure grant money for business development, and (6) influence the development of information-sharing tools. A KMO test value of 0.788 suggests that the built-financial scale warrants factor analysis, while a Bartlett's test value (x^2 = 483.232) is significant ($p < .05$). The factor analysis results presented in Table 6 show that the built-financial scale measures only one construct that accounts for 62.5% of the total explained variance. The factor has an eigenvalue of 3.751 and with sufficient factor loadings across items. Perceived ability to contribute to the local economy, however, has a considerably lower factor loading.

Table 6
Factor analysis: Built-financial components

Items	Factor 1	Communalities
Contribute to the local economy	0.359	0.129
Help create local jobs	0.789	0.622
Help save local jobs	0.850	0.722
Apply for grants to support community project	0.865	0.749
Apply for grants to support business development	0.901	0.811
Inform the development of information-sharing tools	0.848	0.718
Eigenvalue	3.751	—
Cumulative Variance Explained (%)	62.520	—

The overall community capitals index (including each item from the constituent capital scales) also was analyzed. The overall scale was deemed suitable for factor analysis based on a Kaiser-Meyer-Olkin test value of 0.903 and a Bartlett's chi-square statistic (x^2 = 4243.599) that is significant ($p < .05$). When the overall index was factor analyzed, six components explaining 72.3% of the total variance were extracted.

The descriptive statistics displayed in Table 7 suggest that the capital scales and the overall community capitals index are highly reliable. The Cronbach's alpha coefficient for each of the scales is greater than 0.8, indicating that the individual capital scales are internally

consistent and that the dimensions comprising each of the scales are closely related. The coefficient for the overall index indicates a particularly high level of internal consistency (Cronbach's alpha = 0.968). The validity of the internal structure was further confirmed by examining the indicators of normal response distribution.

Table 7
Personal agency perceptions: Descriptive statistics and scale reliability

Capital Scales	*N*	Mean	*SD*	Skewness	Kurtosis	Cronbach's Alpha (α)
Social	123	3.908	0.736	-0.545	0.326	0.921
Cultural	123	3.879	0.682	-0.734	2.048	0.883
Natural	123	3.779	0.697	-0.562	1.334	0.824
Human	123	3.621	0.817	-0.419	0.382	0.920
Political	123	3.535	0.855	-0.288	0.127	0.936
Built-Financial	123	3.335	0.820	0.059	-0.201	0.875
Overall	123	3.668	0.650	—	—	0.968

Further analysis of the community capital scales indicates that the individual scales are highly correlated. As shown in Table 8, each of the correlation coefficients are above 0.6 and some are substantially higher. This suggests that there is a high degree of interconnectedness between the scales. This result addresses the third research objective.

Table 8
Pairwise correlation matrix of community capital scales

	1	2	3	4	5	6
1. Cultural	—					
2. Built-Financial	.756*	—				
3. Human	.735*	.787*	—			
4. Social	.710*	.694*	.805*	—		
5. Political	.659*	.657*	.725*	.813*	—	
6. Natural	.652*	.650*	.717*	.626*	.618*	—

Note: $p < .01$

Conclusions, Recommendations, and Implications

Determining the internal structure validity of the overall personal agency scale was the first research objective. To establish internal structure validity, descriptive statistics for every individual item comprising the overall community capitals scale were examined. Specifically, the skewness and kurtosis of the responses were analyzed to ascertain if the distributions were approximately normal. This individual item analysis demonstrated that the responses were normally distributed among the five Likert-type scale options. Every item comprising the overall scale had a skewness value less than 2 and a kurtosis value less than 7, indicating that the internal structure of the overall scale was valid given established thresholds (Fabrigar, Wegener, MacCallum, & Strahan, 1999; West, Finch, & Curran, 1995). Internal structure validity also was established by obtaining the Cronbach's alpha for each of the capital scales and the overall index. The alpha coefficients for each of the capital scales and the overall scale were well above the generally accepted threshold for establishing internal consistency and scale reliability.

Following the individual item analysis, an exploratory factor analysis was conducted for each of the capital scales and for the overall scale. One factor was extracted for each of the

individual scales and six were extracted for the overall scale. These results suggest that the items comprising each scale are dimensions of the six latent constructs representing the community capitals. In addition, an overall index analysis was performed to test for internal consistency and normality. The findings indicate that the constructed CCF instrument was valid and holds promise for quantitavitely analyzing personal agency perceptions within communities. Conducting a confirmatory factor analysis (CFA) is recommended for future research.

Although each of the research objectives was satisfied, there are some limitations associated with this research. First, this research utilized a small sample size and explored a limited number of counties which were chosen because of ongoing extension and outreach efforts within those counties. The small sample size could potentially influence the results of the factor analyses, though the generally high levels of communality indicated that this concern was somewhat mitigated (Mundrom, Shaw, & Ke, 2005). Future research should attempt to replicate these results using a larger and more comprehensive sample frame. In addition, this study is not associated with any community or economic development program; therefore, the data should be considered a baseline rather than a tactical approach from an impact perspective. Furthermore, the data used in the study were collected based on county of residence although counties are not always synonymous with communities and, as a result, the data are interpreted in aggregate across counties. However, there is a possibility that different communities within a particular county have different characteristics. Although consistent with similar attempts to quantify the CCF (e.g., Rupasingha, Goetz, & Freshwater, 2006), this is a limitation that should be acknowledged.

The importance of this study is demonstrated by its "intent to transition from an outside-in to an inside-out perspective when it comes to extension programming and community-engaged research" (Borron et al., 2019, p. 85). Extension professionals and other educators, particularly those involved in international efforts, should consider using a quantitative measure to first conduct a baseline diagnostic approach, identifying personal characteristics of individuals within the community. Following such baseline data, then unique entry points for in-depth research inquiry or program design can be identified accordingly. Because the instrument is designed to measure personal agency perceptions associated with each community capital and is not specific to any one type of community, it can be applied to communities across boundaries and cultures. One implication is that it is very likely that different individuals (perhaps defined by cultural groups or socioeconomic strata) within the same community may have varying degrees of perceived agency. Therefore, subsequent research activities should not be a one-size-fits-all, but rather be informed by a variety of perspectives of those that a given program is intended to serve—such as those with more agency, the least agency, or mean levels of agency.

Despite the limitations of this study, many of the results offer practical insights. Descriptively, there were observed differences among the capitals—social capital had the highest mean response score while built-financial capital had the lowest. For individuals who want to engage with the communities based on the diagnostics results, possible follow-up methods could include an appreciative approach focusing on strengths rather than on gaps (Lamm & Lamm, 2018); or, in the case of marginalized communities, a culture-centered approach focusing on coalition building among marginalized members of the population could be used (Dutta, 2008). The intent is to shift the lens of community understanding to the inside-out perspective, ultimately reorienting community development efforts.

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