

Solving Problems, Ensuring Relevance, and Facilitating Change: The Evolution of Needs Assessment Within Cooperative Extension

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Helping people solve the practical problems of everyday life while maintaining contemporary relevance describes the mission of Cooperative Extension. To achieve that mission, Extension professionals have increasingly relied on information gathered from stakeholders to identify relevant problems and potential educational solutions. The methods, efforts, and activities to understand people and their problems are collectively referred to as needs assessment. This article explores the history and evolution of needs assessment in Cooperative Extension, as well as in a broader educational context. While tracing needs assessment through the decades, this article examines the needs assessment opportunities and challenges faced by Cooperative Extension. Emerging trends and implications for the future of Extension needs assessment are also discussed.

Keywords: needs assessment, Cooperative Extension, situation analysis, environmental scanning, program development, stakeholder input

The mission of Cooperative Extension (Extension) has always been simple — to solve the practical problems of everyday life and to improve the lives of Extension stakeholders, defined as those who have a legitimate stake in the outcomes of a program and who are vested in the program (Greene, 1988; SeEVERS & Graham, 2012). Congress created the Extension system a century ago to address exclusively rural, agricultural issues and needs (National Institute of Food and Agriculture [NIFA], 2014). In those days, more than 50% of the U.S. population lived in rural areas, and 30% of the workforce was engaged in farming. By serving the needs of rural America, Extension made possible the American agricultural revolution (NIFA, 2014) at a time when legislators feared the food supply would eventually fail to keep up with urban demands (Carlson, 1970). Asbury F. Lever of South Carolina, one of the key legislators responsible for the creation of the Cooperative Extension Service, argued in 1914 that the agricultural colleges had accumulated knowledge “...which, if made available to the farmers of this country and used by them, would work a complete and absolute revolution in the social, economic, and financial condition of our rural population” (U.S. Congress, 1927).

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Pursuing this practical mission while maintaining contemporary relevance is the current challenge for Extension, a point noted by Franke-Dvorak, Kelsey, and Royer (2010) when they posed the question, “Is [Extension] relevant when [stakeholders] can Google a topic and download high quality information quicker and more efficiently than phoning or driving to the county [Extension] office to consult with the county educator?” (p. 55). Although incorporating stakeholders into the process of planning for programs, products, and services may be inconvenient, costly, and time-consuming (Kelsey & Mariger, 2002), Extension remains relevant by identifying and developing programs, products, and services that address the problems, issues, and concerns of local communities. This article provides an overview and traces the evolution of needs assessment across the history of Cooperative Extension, from its early emergence alongside the popularization of Maslow’s hierarchy, to integration with mandated and legislated assessments, and finally to contemporary hybrid approaches that blend needs assessment with asset/capacity building.

Determining Needs

More than sixty years ago, Leagans (1964) credited the strength of the Extension Program Development Model to its flexibility in helping people adjust to needs imposed by a changing environment. Needs assessment is the first step in the model (SeEVERS & Graham, 2012). At the most basic level, a *need* is a measurable gap between two conditions, what something is now compared with what it should be (Altschuld & Watkins, 2014). Progressing from one condition to the other requires comparing now to what stakeholders would like to see in the future. Extension professionals work to understand stakeholder needs by examining two interesting characteristics. One, needs depend on a person’s point of view (Royse, Staton-Tindall, Badger, & Webster, 2009). What one person identifies as a need might be irrelevant to another person. Two, needs reflect the perspective of an individual or group based on a moment in time, and those needs are subject to change over time (Altschuld & Watkins, 2014). Needs have also been conceptualized according to a number of dichotomies, including needs versus wants, needs versus solutions, absolute versus relative needs, and individual versus group needs. See Altschuld and Watkins (2014) for a full explanation of these differences.

Defining Needs Assessment

Needs assessment generally refers to the methods, efforts, and activities involved in or used for identifying needs (Royse et al., 2009). Put simply, needs assessment answers the question, “Who needs what according to whom?” (Etling & Maloney, 1995, p. 8). McCawley (2009) provided a more thorough explanation of needs assessment as “a systematic approach to studying the level of knowledge, ability, interest, or attitudes of a defined audience or group involving a particular subject. A needs assessment also provides a method to learn what has already been done and what gaps in learning remain” (p. 3). The goals of needs assessment are twofold: (1) to

learn about stakeholders' problems, issues, and/or concerns, and (2) to understand how we can respond with programs, products, and services. These programs, products, and services become relevant and marketable (McCawley, 2009) because they are based on identified needs, which increases Extension's viability and relevance. Etling and Maloney (1995) identified eight reasons why needs assessment is important (Table 1).

Table 1. Reasons for Needs Assessment (Adapted from Etling & Maloney, 1995)

<i>Necessary part of program planning</i>	We need to know where we are going before we plan how to get there.
<i>A principle of democracy</i>	People should be involved in decisions that affect them and should help plan programs where they are expected to be participants.
<i>Motivation</i>	Theories tell us we should appeal to individuals' basic needs and interests.
<i>Accountability</i>	Increasing demands are being placed on Cooperative Extension on all levels by our many publics.
<i>Support</i>	Program support depends on how well we meet documented needs in the community (from members, parents, decision makers, donors, and others).
<i>Anticipation of conflicts</i>	This is done by understanding needs.
<i>Needs change</i>	We can never assume we have the final word on people's needs.
<i>Complex society</i>	As societies become more complete, people tend to depend more on others to meet their needs.

Increasing Access and Relevance Through Needs Assessment

Needs assessment enhances the Extension Program Development Model by improving the accessibility of programs and services to a variety of people, providing information about present conditions and specific needs of people in a community, identifying opportunities to develop or expand existing programs, assessing public opinion about goals and priorities, and building stakeholder interest in programs or decisions (Seevers & Graham, 2012). Extension professionals are trained to *meet people where they are*, or in other words, develop programs based on the current and immediate needs of individuals and communities. Meeting people where they are is critical to the success of Extension programs and services primarily because participation in Extension offerings is usually voluntary. As such, these offerings are only successful to the extent to which they attract participants because they meet identified individual, family, community, or societal needs. Because Extension programming inevitably uses valuable resources, the needs assessment process (Table 2) also allows Extension professionals to make informed decisions about the use of or investment in resources needed to create, maintain, or expand programs, products, and services.

Table 2. Needs Assessment Steps (Adapted from Royse et al., 2009)

Step 1:	Define stakeholder needs (problems, issues, and/or concerns)
Step 2:	Assemble a study group, task force, or committee
Step 3:	Evaluate available resources (time, funding, people, and so on)
Step 4:	Determine current information about the problems, issues, and/or concerns
Step 5:	Select the data collection strategy and methods
Step 6:	Determine the sampling approach
Step 7:	Design and pilot the collection instrument
Step 8:	Gather data
Step 9:	Analyze data and determine major findings
Step 10:	Synthesize major findings and create reports
Step 11:	Disseminate report

Stakeholder involvement in the needs assessment and prioritization process is critical because securing stakeholder support for and acceptance of Extension programs, products, and services requires understanding local needs. By involving people in needs assessment, Extension professionals can not only address problems or issues, but also mobilize support for current and future initiatives and overcome resistance to proposed programs (Seevers & Graham, 2012). Witkin and Altschuld (1995) suggested three levels of people who experience needs. The first level includes individuals who receive a program, service, or product (i.e., consumers). The second level consists of individuals who provide the service, program, or product to the consumers. The third level is categorized as decision makers, administrators, and others in leadership positions. According to this three-level view, for a needs assessment to be successful, information should be gathered in multiple stages and from several different individuals at all levels.

Collecting information regarding stakeholder needs can be challenging when stakeholders are unaware of program and service options. Royse et al. (2009) identified four factors that influence whether or not new programs, products, and services are needed, including: *awareness* (i.e., Do stakeholders know that a program, product, or service exists?), *availability* (Is there an adequate supply of the program, product, or service?), *accessibility* (Is the program, product, or service available in a place and time where it can be easily accessed by the target audience?), and *acceptability* (What are the target audience's attitudes toward Extension's provision of the program, product, or service?). After needs are identified, the next needs assessment step is categorizing and prioritizing the needs to determine what comes next. When needs are assessed, some needs may be identified as more important or more urgent to address with the resources available (Altschuld & Watkins, 2014).

Needs Assessment Terms

Needs assessment is sometimes used synonymously with the terms *situational analysis* and *environmental scanning*, and although these processes are related, they are in fact different. *Situational analysis* can be a component of a needs assessment. Specifically, the results of a needs assessment enable the educator to complete a situational analysis. Situational analysis, the description of the setting and circumstances, informs the educator about the environment for programs, products, and services (Seevers, Graham, Gamon, & Conklin, 1997). *Environmental scanning*, a process of studying and analyzing the current and emerging forces that exist within an organization's environment (Boone, Safrit, & Jones, 2002), includes situational analysis as one component. Environmental scans have become an emergent approach to identify key issues and set program priorities (Caravella, 2006; Guion, 2010). Guion (2010) used a 10-step environmental scanning process to understand county issues for Extension programming in North Carolina. The process included (1) conducting a situational analysis using secondary data; (2) listing important issues based on secondary data analysis; (3) conducting situational analysis using primary data from major stakeholder groups; (4) mapping the county to obtain primary data from a cross-section of the population; (5) collecting primary data in each mapped area; (6) listing issues that surfaced as important in the prior steps; (7) conducting external assets assessments; (8) prioritizing issues; (9) examining the complex nature of priorities; and (10) entering priorities, assets, and programming strategies to address the issues into a county program priority database.

In the private sector, the similarity between needs assessment and *market research* is notable (Morse & Coyle, 2009; Rossett, 1987). The same basic goal is involved—determining customer needs and wants to inform the development of products and services. In this vein, other interchangeable terms include needs analysis, market analysis, front-end analysis, and discrepancy analysis (Rossett, 1987).

Historical Emergence and Growth of Need Assessment

Before the 1960s – Birth of Extension to Address Embedded Needs

During Extension's first half-century, identifying and prioritizing programs for clientele was guided, in large part, by the *Extension Service Handbook on Agriculture and Home Economics* (U.S. Department of Agriculture [USDA], 1927). As part of their job description, Extension professionals were expected to “carry the work of research departments to the people on the farm and in the home” (USDA, 1927, p. 57). In practice, Extension program content was based on the expertise of Extension professionals who maintained currency in their discipline and with practices and technologies that enhanced agricultural productivity, resource protection, food preservation, and the multitude of other topics of educational programming. Consultation with

advisory groups during the first 50 years was common, but local groups were thought to be more valuable to help “plan how objectives were to be met” (USDA, 1927, p. 65) rather than to help identify and prioritize those objectives.

In the first decades following the creation of Extension with the Smith-Lever Act in 1914, needs were addressed without a formal assessment process. The purposes of Extension programs included improving crops and animals, fighting diseases and pests, beautifying homes and communities, establishing 4-H clubs, advancing public health and nutrition, developing community arts and recreation programs, establishing community gardens, and responding to emergency relief needs associated with war and depression (Peters, 2002b), an impressive list of pre-determined needs. Since the 1950s, needs assessment has become increasingly integral to planning in a range of educational settings, and a proliferation of models and approaches to identify and prioritize needs continues to emerge. Altschuld and Watkins (2014) developed a timeline of needs assessment milestones from the 1950s to the modern era that helps us understand the evolution of needs assessment practices used in Extension work.

1960s and 1970s – Social Action Legislation Period

The 1960s focused on the rationalization of government decision making through the use of scientific information. This practice was greatly impacted by Robert McNamara’s influence on Department of Defense planning systems which slowly influenced state and federal agencies (Pigg, 1980). In 1965, passage of the Elementary and Secondary Education Act emphasized public-school assessments and the determination of needs (Altschuld & Watkins, 2014). The Act established that children from low-income homes required more educational services than children from affluent homes. During this time of limited funding, Extension professionals noted that it took more than money to solve most problems. By the 1970s, Extension acknowledged that systematic collection of information about learner needs was important to prioritize the limited educational resources and to maintain relevance for an ever-broadening set of user interests. State Extension Services deliberately adopted more sophisticated protocols to gather information about clientele needs (Altschuld & Watkins, 2014).

Among the first assessment methods promoted within Extension was the Nominal Group Technique (NGT) first described by Delbecq and Van de Ven in 1968 (Delbecq, Van de Ven, & Gustafson, 1975). Widespread adoption of NGT by Extension reflected its participatory nature and the ease with which the method could be used with local advisory groups already established across the country. The NGT continues as a common method to assess stakeholder needs. Since the 1980s, NGT has been widely studied and modified for specialized audiences and specific goals. Other group techniques such as brainstorming, focus groups, and Delphi processes were also broadly used by Extension beginning in the 1970s. Each of these methods had unique advantages and disadvantages. Among these group methods, focus groups retained the greatest

amount of utility and persist as part of Extension needs assessment projects (Duncan & Marotz-Baden, 1999; Gamon, 1992; Vanderford, Gordon, Londo, & Munn, 2014). The continuing use of focus groups and variants of NGT has institutionalized the use of *key informants* or individuals selected to provide informed input for Extension needs assessment because of their personal knowledge of an issue.

As the needs assessment concept emerged in the 1960s and 1970s, marked criticisms appeared. Altschuld and Watkins (2014) pointed out that many models emerging during that period were heavily top-down approaches that treated stakeholders as subjects instead of collaborators. Pigg (1980) noted the strong demand during this period for *harder* evidence of program effectiveness based on systematic or scientific methods. This demand for evidence extended to identifying and meeting public needs. A key question in needs assessment at this time was, “Does this program meet the needs of those it was intended to serve?” (Pigg, 1980, p. 10).

In the late 1970s, Robert Kaufman, often known as the *father of needs assessment* (Lee & Reeves, 2009), began to conceptualize his Organizational Elements Model (OEM) of needs assessment. Kaufman’s model identified gaps in needs at the societal level. Articulating the importance of needs assessment in the process of providing programs and services, Kaufman and English (1979) reflected, “Intervention or meddling? Tinkering or change? Useful or benign? Positive or disruptive? Whenever we presume to change something, we run the risk of not accomplishing that which we set out to accomplish” (p. 7).

1980s – Funding Challenges and Big Data

In a call for a more formalized approach to needs assessment for Extension, Caffarella (1982) illustrated the kinds of problems arising when Extension experts are the sole source for identifying learner needs. Caffarella’s (1982) article provided one of the first reviews of assessment methods useful for Extension. Catalogues and descriptions of needs assessment methods used by Extension have been detailed, modified, and expanded by numerous authors since then (Etling, 1995; McCawley, 2009), effectively packaging needs assessment resources for organizational and community use (Britnell, 2002; University of Kansas Community Tool Box, 2014).

The next twenty years included significant growth in the use of needs assessment practices within Extension. However, these decades also brought challenges. Significant funding constraints curtailed Extension programs and services in the 1980s (Conone, 1991). The University of Rhode Island studied the impact of the economic climate on Extension programming and found that developing programming in line with local needs assessment was one of the practices most impacted by reduced funding coming out of the 1980s (Mallilo & Millar, 1992).

While stakeholder input had become standard practice in the conduct of needs assessment, Extension's tight budgets in the 1980s may be partially responsible for the adoption of more cost-effective methods to involve larger groups of stakeholders. Extension professionals began using surveys to gather input from larger groups of stakeholders than was practical through individual and group meetings. Dillman's *The Total Design Method* (1978) provided detailed procedures for conducting mail and telephone surveys. That book and subsequent editions have been widely cited by Extension professionals. Because survey questionnaires have obvious advantages (e.g., low cost per response, access to very large numbers of people, permanent record of data gathered, and replicability of results), surveys were initially adopted by Extension to analyze large-scale needs such as State Extension Priorities (Beckley & Smith, 1985).

The situation in Ohio provides an example of how states responded to economic challenges in the 1980s. The Ohio Cooperative Extension Service appointed a Strategic/Long-Range Planning Task Force in 1986 to recommend how to use limited resources to meet the public's educational needs. Using the theme, *People Listening to People*, Extension gathered quantitative and qualitative information from 3,223 users and nonusers of Extension by asking, "What are the most important problems in your (1) home and family life, (2) work and business, and (3) communities?" (Conone, 1991, para. 2). Through the years, the designs of surveys in Ohio and across the Extension System have been scaled down for use in needs assessment projects within a single county, or even a neighborhood, and for use with targeted interest groups, key informants, and other limited audiences.

1990s – Issues Programming, Integrated Approaches, and Capacity Building

In 1988, Sofranko and Khan noted important deficiencies when solely relying on asking people about their needs. They recommended assessing needs from multiple information sources and angles, one of which is the individual. The authors recommended bringing back the expertise of the Extension professional into the assessment by applying their knowledge of local problems, through analysis of secondary data and conversations with key informants. These observations coincided with the promotion of issues-based programming approaches also emerging during the late 1980s and early 1990s. As described by Taylor-Powell and Richardson (1990), issues programming focused on the public's broad social concerns. Most often the objective of issues programming was to reach outside of existing Extension structures to involve a wide segment of the population in identifying priority issues as the basis for program prioritization.

Although the issues programming approach was successful in some states (Taylor-Powell & Richardson, 1990), the approach was sometimes challenging. Using focus groups comprised of community leaders and Extension professionals, Baker and Verma (1993) studied the adaptation of issues-based programming by Louisiana Cooperative Extension and discovered considerable resistance to that approach. Focus-group members, who included both Extension faculty, as well

as local leaders, were concerned about poorly-timed initiation, unfamiliarity with the process and procedure, overlapping responsibilities, and professional rivalries. However, group members also felt that issues programming was successful when it was actually implemented: Extension became better recognized in local communities, had better ties with local governments, and became better networked with other agencies.

During this period, Kaufman solidified his OEM model, which defined three different levels at which a person could identify gaps between current and desired conditions. *Mega* planning addressed needs at the societal level, *Macro* identified needs at the organizational level, and *Micro* identified needs at the individual and/or small group level (Witkin, 1994). Another approach that emerged during this time was the use of clustering to examine needs across multiple counties (Cropper & Merkowitz, 1998).

Combining focus groups, mail surveys, and professional expertise was valuable for Extension professionals tackling complex issues such as community development and youth development. In 1997, Nieto, Schaffner, and Henderson described a process to engage stakeholders directly in an assessment of community development needs. During the past 20 years, concepts of community assessments evolved among Extension projects to encompass a wide array of data-gathering techniques. The process also served as a springboard for community members to learn about their own issues and be better motivated and prepared to participate in actions that led to improved conditions (Fisher, Tribe, & Apsley, 2006).

The concept of community-based research seems a natural extension from capacity assessment activities. In the arena of public health, Israel, Schulz, Parker, and Becker (1998) documented calls within that profession for “a renewed focus on an ecological approach that recognizes that individuals are embedded within social, political, and economic systems that shape behaviors and access to resources necessary to maintain health” (p. 174). Israel et al. (1998) concluded that “challenges notwithstanding, community-based research offers a means to reduce the gap between theory, research, and practice that has been problematic in the field” (p. 194).

One such ecological approach to needs assessment introduced during the 1990s is *asset mapping*. This process captures assessment of needs based on the presence or absence of community or environmental supports and systems needed to make desired changes. Asset mapping has been well documented as a useful tool for needs assessment related to community development (Kretzmann & McKnight, 1993) and has been widely adopted by community organizations and agencies, as well as by Extension, with many asset mapping toolkits and guidelines available online. Asset mapping has also been adopted by professionals working in youth development, family development, and nutrition (Jones & Perkins, 2003; Ostrom, Lerner, & Freel, 1995; Robinson, Vineyard, & Reagor, 2004) and has been promoted for use in social work settings (Hillier, 2007).

2000 to the Present – Technology Adaptations, Participatory Research, and Public Values

Proactive needs assessment has become well integrated into Extension programming. Duttweiler (2008) studied 675 evaluations published in the *Journal of Extension* from 1998 to 2007. Each study was assessed according to its evaluation level, including: needs assessment, program documentation, program fidelity, program improvement, and evidence of effectiveness. Thirty-two percent of the evaluations he studied cited needs assessment as a primary purpose. As formal needs assessments are conducted in ever-widening and ever-changing situations, new methods continue to be tested in Extension programs and best practices continue to evolve.

Significant effort has been devoted to building the use of technology into the design and implementation of needs assessments. Initial efforts included using the internet to conduct needs assessment surveys to learn about demand for and capacity of Extension to incorporate information technology (IT) platforms into program delivery (Gregg & Irani, 2004; Kelsey, Dougherty, & Hattery, 2002) or to discover the professional development needs of Extension professionals (Conklin, Hook, & Kelbaugh, 2002). Other examples of Extension professionals using the internet as a needs assessment platform included adapting existing assessment worksheets and practices to IT platforms (Barron, 2009; Mayfield, Wingenbach, & Chalmers, 2005; Peterson & Prillaman 2000). Technologies that have found a place in Extension needs assessment toolkits include an array of geographic information systems (GIS) technologies, often associated with asset mapping and capacity assessments, and audience response devices for real-time data collection, visual display, and data storage in an interactive setting (Carlson, 2014; Jones & Perkins, 2003; Merry, Bettinger, & Hubbard, 2008).

Participatory research and other client-centered approaches to needs assessment are especially enticing for many Extension professionals for several reasons summarized by Franz (2013) including to enhance community buy-in, reinforce human and community development, and authenticate data interpretation. Some exciting models for participatory research in Extension needs assessment include approaches for co-learners to really understand the issues, such as the data party approach (Franz, 2013).

Photovoice technique, first reported by Wang and Burris (1997), has emerged as another compelling approach for participatory needs assessment. Photovoice data are collected by and through the eyes and cameras of stakeholders, providing a database of rich, descriptive information. In an analytical review of photovoice projects, Catalani and Minkler (2010) summarized findings from 46 studies of public health needs assessment projects using participant photography to collect information. The authors found that outcomes reported for these projects fell into three categories: (a) enhanced community engagement in action and advocacy; (b) improved understanding of community needs and assets, which in turn, could have community or public health benefits; and (c) increased individual empowerment.

Needs assessment has been particularly challenging during major restructuring, during which some Extension programs were delivered by regional Extension professionals. Morse and Coyle (2009) describe how Minnesota used a combination of matching needs assessments, short-run market research, and long-run market research to determine program focus while building stronger ties to statewide communities of interest and serving traditional audiences. In this use of market research for statewide programs, the target audience was identified as a community of interest before doing any of the other steps in exploring needs. The entire needs assessment/market research was a part of a larger program business-planning effort (Klein & Morse, 2009).

During the past decade, Extension has sought ways to identify and communicate the benefits of Extension programs for those who are not directly served (Hoag, 2005; Kalambokidis, 2004). Using needs assessment to articulate public value is a broader trend within educational evaluation (Altschuld & Watkins, 2014) and has proven valuable for Extension because nonparticipants understand indirect benefits to society and are more likely to support public funding (Kalambokidis, 2004).

Trends and Implications

As we look ahead to the future of Extension, a number of factors will shape Extension needs assessment. Although some of these dimensions are just emerging, others have been critical issues within Extension needs assessment for a number of years and their relevance is expected to continue to increase.

Avoiding Pitfalls

Different data collection protocols have strengths and weaknesses. Mistakes when collecting data can be avoided by recognizing that different methods may work in one organization, community, or situation but not necessarily in another. Conceptual flaws in needs assessment, as summarized by Reviere, Berkowitz, Carter, and Ferguson (1996), most often involve “problems with sampling, failing to gather the right information to measure the desired components of need, and using methods inappropriate to justify the conclusions. These weaknesses reflect a basic failure to develop a conceptually coherent, logical, and well-integrated plan for conducting the needs assessment” (p. 70). Other common needs assessment challenges include failing to measure the primary target population (e.g., not asking stakeholders about services and programs they are already accessing, holding needs assessment meetings at inconvenient times and/or locations), using only one method for gathering information, assuming needs are the same or similar across different levels of target groups, and confounding needs with wants or means (solutions) with ends (outcomes) (Soriano, 1995; Witkin, 1994). [See Altschuld and Waktins (2014) for a full description of methodological concerns in contemporary educational needs

assessment.] Within Extension, it is a common mistake to design instruments that seek answers because it would be *good to know* even though the information does not contribute to the goals of the needs assessment. Problems that arise may include a glut of superfluous data that confounds the analysis and diminishes attention or engagement by stakeholders. Following recommended protocols including thoughtful review, pilot testing, and imagining possible outcome scenarios are methods to minimize these mistakes (McCawley, 2009).

Co-Learning and Transformative Learning

Participatory research techniques, data visualization techniques, and hybrid needs assessment approaches seek to understand social-environmental conditions surrounding community challenges and issues. The emergence of these methods are appropriate responses to engage stakeholders who have ready access to vast amounts of information but who may need guidance about how that information relates to complex issues. Engaging stakeholders as co-learners, beginning with the needs assessment, contributes to the transformative learning process, a goal of Extension education (Franz, 2007). Engaging with stakeholders expands the role of Extension professionals beyond that of information providers to partners in learning – working with people to make change (Peters, 2002a; Roth, 2006). It also compliments the ability for Extension to facilitate broader understanding and learning by acting as convener and facilitator than can be accomplished through traditional delivery modes (Bassett & Reardon, 2007; Franz, 2003). For two examples of participatory research in Extension, see the experience in Minnesota’s community-driven business retention and expansion programs and New Hampshire’s Community Profiles Visioning Program (French & Morse, 2015).

Data Visualization and Representation

Data visualization has emerged as an important tool for translating research into useful information for stakeholders (Bridges, 2008; Seeger & Hertel, 2009). Data visualization has also helped stakeholders better understand the issues they have helped to identify using techniques such as photovoice and audience response systems. Altschuld and Watkins (2014) pointed out that technology-integrated systems such as Google Maps® allow for inexpensive mapping of needs, assets, and interest groups that offer “helpful visual elements to the analysis and interpretation of data you collect in your assessment” (p. 108). Seeger and Hertel (2009) designed a community needs survey enhanced with Google Maps® to visualize public concerns regarding a community's water and sewer quality while revealing patterns indicative of potential water quality problems. The researchers noted Google Maps® allowed for easy sharing of the data and results without requiring end users to have more than basic Internet-browsing skills. Data visualization tools such as these will allow Extension to bring needs assessment and other findings from research to life in a way that is convenient and meaningful to Extension stakeholders and decision makers.

Globalization

Extension needs assessment takes place within an increasingly global and interconnected environment. Because of the profound effect of globalization on society, Extension has been challenged to develop programs and services that help people deal with these changes (Smith, Moore, Jayaratne, Kistler, & Smith, 2009). Specific to needs assessment, globalization has increased cultural awareness in terms of who we engage with and how we engage with them. As noted by Altschuld and Watkins (2014), “From considerations on how to work survey items to be culturally sensitive to selecting appropriate focus group facilitators for different audiences, the changing diversity in workplaces and communities means we must be keenly aware of our actions” (p. 109). A failure to pay attention to the influences of globalization can skew needs assessment results from not paying appropriate attention to who was left out of the process, or by not conducting needs assessment in ways that resonate with the cultural perspectives and backgrounds of a diverse population.

Hybrid Models

Increasingly complex issues facing communities have led to the development of more dynamic needs assessment techniques. Good examples of robust new approaches often are illustrated in the areas of community development and community food systems. In 2001, Feenstra described experiences working beyond typical needs assessment to engage with practitioners on applied solutions to food system problems and opportunities for change. Thomson, Radhakrishna, Maretzki, and Inciong (2006) concurred that understanding needs related to local food systems is insufficient to determine program focus and that collaboration and community participation is absolutely necessary for this programming. These highly integrated problems have led to a new type of needs assessment approach which looks at assets and the capacity for growth in combination with identified needs. Described as a hybrid, this approach blends needs assessment and asset/capacity building (Altschuld & Watkins, 2014). Altschuld and Watkins (2014) proposed that:

a new hybrid must determine needs and assets in independent yet intertwined ways. It has to be open to the two perspectives and responsive to the voices and guidance of the community or group(s) involved. It should be empowering, not dependency-oriented, and use multiple methods for data collection. (p. 93)

Hybrid models have been effective for community development programs and have flourished when Extension has partnered with multiple organizations and agencies to integrate the assessment of community needs with the mapping of its assets. In Idaho, the Community Reviews Project engages Extension and other economic development professionals with community members to conduct the needs analyses (Idaho Rural Partnership, 2011). The

University of California supports a project to integrate global initiatives, agribusiness communications, and rural livelihoods to help understand and prioritize needs for sustaining agriculture (Agricultural Sustainability Institute, 2013).

Multiple Level Assessment

Historically, needs assessment aimed to learn what people already know, do, or believe, to create interventions that improve their lives. However, during the past two decades, Extension professionals have conducted needs assessment to enhance and inform other activities to support that primary mission. These efforts included documenting the current situation to demonstrate change and impact; creating awareness and cultivating support to address a problem; and learning more about the target audience to ensure program relevance, acceptability, and success. Today, assessment is conducted for multiple purposes, on multiple scales, and with multiple methods. Each type and combination of assessment methods (i.e., surveys, interviews, group process, capacity assessments, participatory research, etc.) is characterized by certain strengths and weaknesses related to purpose, scale, cost, clarity of the data, and credibility. Selection of appropriate methods and designs for a given problem requires substantial review and analysis.

Raising Awareness and Broadening Service

Ingram and Syvertsen (2005) encourage those conducting needs assessment to ask the questions, “Who’s not being served?” and “Who’s not at the table?” Over the past decade, Extension has quickly diversified how it delivers programs and services to meet stakeholder needs, particularly urban audiences. Gould, Steele, and Woodrum (2014) pointed out in a 100 year review of Extension’s history, that “with an increased emphasis on issues pertinent to urban clientele, Cooperative Extension has maintained its support of traditional programming while assisting many more people in different environments than previously considered possible” (para. 7), but much more can be done to raise the awareness of urban audiences to Extension resources. When Yang, Fetsch, McBride, and Benavente (2009) used direct assessment to study changing community needs, they found 7 out of 10 citizens knew nothing about Extension. They proposed that this finding was due to urbanization of the county. Extension continued to be perceived as having an agricultural focus, not as an organization that is “a source of omnibus research-based expertise for communities, rural and urban” (Yang et al., para. 41). Nevertheless, NIFA (2014) articulates the goal of Extension programs and services—“to meet public needs at the local level” (n.p.). Although there has been a decline in the overall number of local Extension offices over the years, and some county Extension offices have been consolidated into regional offices or centers, approximately 2,900 Extension offices remain nationwide (Bowen-Ellzey, 2014). These offices are expected to serve an ever-growing, increasingly diverse constituency often with fewer and fewer resources. At the same time, Extension is challenged to serve the needs of an information-saturated public that has easy access to a wide range of information. Gould et al.

(2014) wondered about Extension's role in our society and how Extension will find relevance in an increasingly technology-focused society. Hoag (2005) proposed that the "appropriateness of the original public Extension model is weakened because people are more educated and information is easy to gather. People simply don't need that kind of help much anymore" (p. 408). But just because information is easy to access does not mean the information is reliable, credible, or applicable. Extension's ability to translate research into practice, and more importantly, to provide face-to-face support in meeting community needs will always be an asset that sets Extension apart (Hoag, 2005).

Technology Integration

New methods and data collection tools will continue to shape Extension needs assessment. From GIS to social networks and mobile applications, technology integration is quickly becoming a characteristic of successful needs assessment efforts (Altschuld & Watkins, 2014). Social media tools, including Facebook, Twitter, Google+, Kickstarter, and others have been heralded as new ways for Extension professionals to connect with stakeholders (Altschuld & Watkins, 2014). Qualman (2009) noted 96% of Generation Y have joined an online social network, particularly Facebook, Twitter, and LinkedIn. Users of social media likely represent the vast majority of Extension's contemporary stakeholders. Although social media has yet to be established as a common tool for Extension needs assessment, we do see evidence of social media being used to connect with stakeholders. For example, the University of California Cooperative Extension used social media to successfully solicit donations in support of Extension research (Kocher, Lombardo, & Sweitzer, 2013). The next few years will likely feature more published research on the integration of recent and emerging technologies to support needs assessment efforts.

Conclusion

In many ways, needs assessment is the most important element of the Extension Program Development Model. Our ability to successfully identify stakeholder needs, and thus be empowered with the necessary information to design programs, products, and services to meet those needs, will forever define the public's perception of our value relative to other programs and services. Extension's ability to understand and access stakeholder concerns and issues, while recognizing their inherent strengths and assets, may set us apart from most other providers during the needs assessment process. Methods to assess needs will certainly be dynamic, incorporating a range of emerging technologies and advances in how data can be represented, visualized, and shared. The future of needs assessment is rich and diverse, technology-driven, yet embedded in social interaction.

At the same time, needs assessment has become an important tool to engage stakeholders in the learning process and to broaden their understanding and motivation to solve complex societal

issues. Needs assessment has provided a means for Extension professionals to transform their own role into that of convener and partner in situations that require a more in-depth approach to problem solving. In many ways, contemporary needs assessment represents the best of both worlds: a respect for traditional relationships that have existed between local Extension offices and the public they serve, and a recognition of the global, technological, and blended approaches that will continue to advance how we will partner to solve the problems of tomorrow.

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