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## Assessing Priority Competencies for Evaluation Capacity Building in Extension

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*Program planning and evaluation activities play a critical role in the quality of Extension programs. The literature consistently identifies program planning and evaluation as core Extension competencies. With an increased focus on accountability in Extension, there is a need to ensure Extension professionals are equipped with the most relevant competencies to show program impact. Guided by a competency model, this study sought to assess priority competencies for inclusion in an Evaluation Capacity Building (ECB) program at Utah State University (USU) Extension. Data were gathered from a sample of Extension professionals at USU Extension (n = 87) and analyzed using descriptive statistics, principal component analysis, paired t-tests, and Cohen's d. While results indicated a need for professional development in most competency items of program planning and evaluation, the principal component analysis revealed two professional development themes for program planning, and three for program evaluation. Extracted professional development themes were Program Ideas and Schedules, Program Design, Evaluation Plans, Evaluation Data and Results, and Monitoring and Impact. This study recommends the development of professional development themes to organize and prioritize efforts for ECB in Extension. It also highlighted a need to continuously assess professional capacity for accountability in Extension.*

*Keywords:* competency, evaluation capacity building, Extension, performance, program planning, evaluation, impact

### Introduction and Theoretical Framework

Evaluation is a critical component of educational programs as it allows for objective and subjective judgments of a program's merit and worth (Rossi et al., 2004). Funders are concerned with program accountability and increasingly request proposals with sound evaluation plans. As such, evaluation methodology is intrinsically tied to the program development process (Boyle, 1981; Diaz et al., 2018; Kirkpatrick & Kirkpatrick, 2006). This is evident in the Targeting Outcomes of Programs (TOP) model, where steps in the program development process are symmetrical to steps of the evaluation process (Rockwell & Bennett, 2004).

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“Planning, evaluation, and implementation are all parts of a whole, and they work best when they work together” (Frechtling, 2010, p. 3). In contrast, evaluation procedures are often an afterthought in Extension programming and used mainly as a tool for additional funding (Lamm & Lamm, 2018; Preskill & Catsambas, 2004). While summative evaluation activities are commonly used to report program impact, formative evaluation is sometimes overlooked (Lamm & Lamm, 2018). As Forest et al. (1986) suggested, a program plan is critical to program accountability. Yet, evaluation in Extension is sometimes detached from the program planning process. This may impact the effectiveness and quality of evaluation procedures as a means of demonstrating the public value of Extension programs.

Program evaluation is needed to show program outcomes and impact given changing roles and perceived relevance of Extension. Henning et al. (2014), and Narine et al. (2019b) indicated Extension faces grand challenges. These include finding innovative methods to solve emerging and complex problems, responding to a changing population demographic, and meeting the needs of nontraditional audiences. Narine et al. (2019b) further highlighted county-level challenges, such as the antiquated image of Extension, and high employee turnover and burnout. Overall, a common factor underpinning Extension’s grand challenges is the consistent reduction in federal funding for Extension programs.

Ahmen and Morse (2010) indicated Extension was “being pressured to do more with less” (p. 1). As a result, there is an overwhelming need to show the relevance and public value of Extension programs. All efforts must be taken to justify the need and use of resources in Extension. Therefore, program evaluation is increasingly relevant due to reductions in federal appropriations to Extension (Franz, 2011; Franz et al., 2014; McClure et al., 2012). Evaluation provides the information needed to create, change, or abandon programs (Boone et al., 2002). Given increased pressure to communicate public value, Extension professionals must continuously monitor programs to ensure success and impact; future uncertainty suggests evaluation should not be an afterthought in Extension. The literature highlights the importance of incorporating both formative and summative evaluation plans into the program planning process to create impactful programs (Grinnell et al., 2019; Mertens & Wilson, 2019; Rossi et al., 2004).

It is important to justify resource allocation and the public value of Extension programs in an era of financial uncertainty. As such, evaluation literature emphasizes program planning and program evaluation as priority competencies for Extension agents (Harder, 2015; Harder et al., 2010; Liles & Mustian, 2004; McClure et al., 2012; Scheer et al., 2011; Suvedi & Kaplowitz, 2016). Several studies further indicated program planning and evaluation should be introduced to pre-service non-formal educators as core competencies for Extension programming (Cooper & Graham, 2001; Dewey et al., 2008; McClure et al., 2012).

Program planning and evaluation are widely regarded as critical skills for Extension professionals. This requires the ability to perform specialized tasks such as conduct a needs

assessment to develop program ideas, conceptualize evaluation procedures during the program planning process, conduct formative evaluation for program improvement, and determine program value and impact through summative evaluation (Boyle, 1981; Rockwell & Bennett, 2004; Witkin & Altschuld, 1995). As a result, there is a need to ensure Extension professionals are prepared to conduct effective evaluation activities to show the impact and value of non-formal education programs. Similarly, Lamm and Israel (2013) affirmed the need for Extension professionals to apply evaluation skills for accountability.

This study was guided by a competency modeling approach (McClelland, 1973). Extension professionals are expected to possess a wide range of skills to effectively meet the needs of diverse target audiences through quality educational programming (Maddy et al., 2002). Several studies proposed the adoption of a competency modeling approach to build the human capacity of Extension (Harder et al., 2010; Liles & Mustian, 2004; Scheer et al., 2011; Suvedi & Kaplowitz, 2016). While varied definitions exist, McClelland (1973) referred to competencies as the combination of knowledge and skills pertinent to successful performance in a defined role.

McClelland (1973) argued a competency modeling approach allowed administrators to identify and assess critical antecedents of superior performance. This provided a framework for professional development and continuous improvement of human resources. McClelland (1973) further described the critical factors of performance as core competencies. The literature on Extension-specific core competencies stretches back to 1959, as discussed by Lakai et al. (2012). McCormick (1959) indicated the National Committee on Extension Administrators outlined competencies most important to the success of Extension professionals. However, these core competencies continuously shifted over time due to external and internal changes within Cooperative Extension (Lakai et al., 2012; Trede & Whitaker, 2000). Regardless, core competencies related to program planning and program evaluation were consistently identified as imperative for Extension professionals' success (McClure et al., 2012; Scheer et al., 2006). As a response, Hetherington et al. (2019) stated Evaluation Capacity Building (ECB) was increasingly important to professional development in Extension.

According to Hetherington et al. (2019), ECB relates to "intentional efforts to both build and sustain an organization's ability to conduct quality, credible evaluations, including factors such as instrumental evaluation support, evaluation resources, and a broader organizational context that supports meaningful program evaluation" (p. 176). While Taylor-Powell and Boyd (2008) indicated ECB was necessary in Extension, Franz and Archibald (2018) noted a need to tailor ECB interventions to the professional context. Therefore, this study sought to identify and assess program planning and evaluation competencies to inform the development and implementation of a comprehensive ECB program for Utah State University (USU) Extension professionals.

## Purpose

This study sought to describe Extension professionals' perceived ability to perform Extension-specific competencies related to program planning and evaluation at USU. Objectives were to (a) describe professionals' perceptions toward the importance of program planning and evaluation competencies, (b) describe their perceived ability to perform these competencies, (c) explore latent components of program planning and evaluation competencies, and (d) assess the priority competency themes for professional development through an ECB initiative.

## Methodology

This IRB-exempt study followed a correlational design (Ary et al., 2014) and depended on primary data from a population of Extension professionals at USU Extension. The population was defined as all state and county-level Extension faculty and specialists at USU Extension who were actively engaged in planning, implementing, or evaluating Extension programs. A census was attempted using a sampling frame consisting of 134 faculty ( $N = 134$ ). A sampling frame was created from the internal employee database of USU Extension and verified by state-level administrative personnel. The response rate was 65% ( $n = 87$ ). Data collection occurred in April 2019 through an online survey facilitated by Qualtrics.

The Tailored Design approach guided the development of a researcher-made questionnaire (Ary et al., 2014; Dillman et al., 2014). Recommendations on the basics of crafting good questions and writing close-ended questions were incorporated into the questionnaire development process (Dillman et al., 2014). The questionnaire contained an exhaustive list of competency items for program planning and program evaluation in Extension based on a literature review (Harder et al., 2011; Liles, 2004; Scheer et al., 2011; Suvedi & Kaplowitz, 2016). A panel of experts reviewed the questionnaire for construct validity. The panel included USU's Northern Region Extension Director, Southern Region Extension Director, Director of 4-H and Youth Programs, two Extension Specialists, and the Associate Vice President for USU Extension. Feedback from the panel led to the inclusion of new competency items to reflect changing expectations in program planning and evaluation at USU Extension. The final questionnaire had a total of 16 competency items for program planning and 24 for program evaluation.

On a five-point Likert scale, respondents were asked to indicate: (a) their perception of the importance of each competency item, and (b) their perception towards their ability to perform the competency item. While response options followed Borich's (1980) framework, a Mean Weighted Discrepancy Score (MWDS) was not calculated for individual competency items. This study was most interested in extracting professional development themes to inform an ECB program at USU Extension. Therefore, only the mean scores for Perceived Importance (PI) and Perceived Ability (PA) were calculated to provide a descriptive summary of each item based on objectives (a) and (b). This is consistent with several studies on competency assessment (Brown et al., 2008; Fox & LaChenaye, 2015; Harder & Narine, 2019; Lakai et al., 2014; Lindner, 2001;

Lindner et al., 2010; Schwarz & Gibson, 2010). While popular in the literature, it should be noted that the use of means for single-item ordinal variables is somewhat controversial (Narine & Harder, 2019a). Therefore, this study did not rely on mean scores of individual competency items to determine professional development priorities. Instead, this study derived constructs from latent factors within each competency area, thus focusing on construct means. As discussed below, these constructs were referred to as Professional Development Themes.

As noted, objectives (a) and (b) were addressed through descriptive statistics. A mean score for PI and PA were presented for each competency item. The means were interpreted as follows; 1.00 – 1.49 = None; 1.50 – 2.49 = Below average; 2.50 – 3.49 = Average; 3.50 – 4.49 = Above average; 4.50 – 5.00 = Essential/Exceptional priority. This interpretation was consistent with the literature on categorizing means for ordinal variables (Agbaje et al., 2001; Dyer & Osborne, 1999; Franklin, 2011; Scales et al., 2009). For objective (c), a Principal Component Analysis (PCA) with orthogonal rotation was used to extract latent constructs of competencies related to program planning and program evaluation. Latent constructs revealed by the PCA were referred to as Professional Development Themes (PDT). Each PDT consisted of highly intercorrelated competency items; the themes were viewed as a cluster of competencies for inclusion as learning modules in the curriculum of an ECB program. For objective (d), a series of paired *t*-tests were used to determine if there were any statistically significant differences between the mean perceived importance and ability of each PDT. In addition, Cohen's *d* was used to estimate the effect sizes in order to rank PDTs by priority for inclusion in an ECB program.

There were four limitations of the study: (a) a pilot test was not conducted to assess instrument reliability, (b) a complete census was not achieved due to nonresponses, (c) presence of subjective and self-knowledge bias due to the use of a self-assessment framework, and, (d) omission of an open-ended question for additional comments by respondents. While a pilot test was not conducted, reliability was assessed through a post-hoc analysis of internal consistency (Warner, 2012). Cronbach's alpha for program planning and program evaluation was 0.92 and 0.95, respectively, indicating both competency areas had acceptable internal consistency (Warner, 2012). With a 65% response rate, the study failed to achieve a census. However, two independent samples *t*-test indicated there were no statistically significant differences in perceived abilities between early ( $n = 50$ ) and late ( $n = 37$ ) respondents for program planning and program evaluation competencies (Lindner et al., 2001). Another limitation was the subjective and self-knowledge bias of self-assessments (Karpen, 2018; Rosenman et al., 2011). In this regard, responses reflected participants' beliefs and may not be an accurate measure of their performance. While self-assessments are convenient and commonly used to assess competencies, results of this study only provide a proxy measure of performance. Lastly, an open-ended question was not included in the instrument for brevity. However, the inclusion of this question would potentially allow quality feedback from respondents. Future studies should include an open-ended question to capture other comments.

## Results

Table 1 lists Extension professionals' perceptions of the importance of competency items related to program planning. It also lists their perceptions of their ability to perform these competencies. Results showed one item was perceived as an essential competency for job success—this was to “identify the major problem/issue addressed by your program” ( $M = 4.59$ ,  $SD = .64$ ). Setting program priorities, developing short-term program objectives, and conducting a needs assessment were other high-ranked competencies based on importance. Overall, all competency items of program planning were perceived as having at least above-average importance for job success.

In contrast, respondents did not perceive they had exceptional abilities to perform any competency item. More so, Extension professionals perceived they had average abilities to perform competencies related to using the results of a needs assessment to plan a program ( $M = 3.47$ ,  $SD = .80$ ), developing a weekly work schedule ( $M = 3.46$ ,  $SD = .94$ ), developing long-term program objectives extending beyond two years ( $M = 3.37$ ,  $SD = .90$ ), conducting a needs assessment ( $M = 3.37$ ,  $SD = .85$ ), developing a logic model for a program ( $M = 3.30$ ,  $SD = .90$ ), using the results of a needs assessment to create an impact statement ( $M = 3.19$ ,  $SD = .86$ ), and organizing an effective program advisory committee ( $M = 3.16$ ,  $SD = .96$ ).

**Table 1. Perceptions of the Importance and Ability to Perform Program Planning Competencies**

Competency Items	Mean (SD)	
	Perceived Importance	Perceived Ability
Identify the major problem/issue addressed by your program	4.59 (.64)	3.72 (.65)
Set program priorities	4.48 (.68)	3.78 (.81)
Develop short-term program objectives	4.29 (.78)	3.87 (.74)
Develop medium-term program objectives	4.25 (.74)	3.63 (.80)
Use the results of a needs assessment to plan a program	4.25 (.80)	3.47 (.80)
Conduct a needs assessment	4.26 (.83)	3.37 (.85)
Consult with experts and/or knowledgeable colleagues to design program activities	4.19 (.81)	3.67 (.86)
Develop long-term program objectives extending beyond 2 years	4.16 (.82)	3.37 (.90)
Use the results of a needs assessment to create an impact statement	4.16 (.90)	3.19 (.86)
Conduct interviews with important stakeholders to plan your program	4.11 (.85)	3.54 (.98)
Develop an annual plan of work	3.98 (.84)	3.52 (.97)
Review existing Extension programs before embarking on a new project	4.06 (.93)	3.53 (.86)
Develop a weekly work schedule	3.87 (.90)	3.46 (.94)
Develop a logic model for a program	3.79 (.90)	3.30 (.90)
Develop a monthly work schedule	3.80 (.96)	3.54 (.94)
Organize an effective program advisory committee	3.68 (.93)	3.16 (.96)

Table 2 lists respondents' perceptions toward the importance of evaluation competencies and their perceived ability to perform these competencies. While Extension professionals did not

perceive any item to be an essential priority overall, they perceived all items had above-average importance to job success. The most important competencies were creating an evaluation plan during the program planning process ( $M = 4.43$ ,  $SD = .71$ ), using evaluation results to improve the program ( $M = 4.38$ ,  $SD = .69$ ), using data gathering tools to collect evaluation data ( $M = 4.32$ ,  $SD = .77$ ), and developing measurable short-term outcomes ( $M = 4.30$ ,  $SD = .87$ ).

For perceived ability, respondents indicated they had above-average abilities to perform two competencies related to program evaluation. These were to use evaluation results to improve the program ( $M = 3.71$ ,  $SD = .76$ ), and verbally communicate evaluation results to stakeholders ( $M = 3.57$ ,  $SD = .90$ ). Overall, Extension professionals perceived they had average abilities to perform 22 of the 24 evaluation competencies examined in this study.

**Table 2. Perceptions of the Importance and Ability to Perform Program Evaluation Competencies**

Competency Items	Mean (SD)	
	Perceived Importance	Perceived Ability
Create an evaluation plan during the program planning process	4.43 (.71)	3.16 (.82)
Use evaluation results to improve the program	4.38 (.69)	3.71 (.76)
Use data gathering tools to collect evaluation data (e.g., questionnaires)	4.32 (.76)	3.32 (.83)
Develop measurable short-term outcomes (e.g., knowledge, skills, attitudes, and intentions)	4.30 (.77)	3.32 (.74)
Identify measurable indicators of program success or failure	4.27 (.80)	3.19 (.81)
Develop measurable medium-term outcomes (e.g., behavior change, practices adopted)	4.20 (.77)	3.20 (.76)
Analyze and interpret quantitative evaluation data	4.23 (.81)	3.29 (.91)
Develop measurable long-term outcomes to assess program impact (e.g., changes in a problem or need)	4.24 (.83)	3.15 (.80)
Evaluate program impact in relation to a problem area	4.22 (.83)	3.24 (.73)
Verbally communicate evaluation results to stakeholders	4.26 (.87)	3.57 (.90)
Write evaluation questions	4.17 (.79)	3.22 (.76)
Collect real-time data from participants to get feedback on activities	4.13 (.80)	3.29 (.89)
Use online survey tools such as Qualtrics to collect data	4.14 (.84)	3.23 (.89)
Clearly distinguish between program outputs and outcomes	4.13 (.87)	3.40 (.85)
Prepare program reports to discuss evaluation findings	4.14 (.88)	3.16 (.88)
Design pre-and-post tests	4.04 (.82)	3.34 (.80)
Design retrospective evaluation surveys (e.g., post-surveys)	4.04 (.83)	3.22 (.81)
Conduct follow-up surveys to measure program impact (e.g., changes in a problem)	4.13 (.92)	3.08 (.79)
Analyze and interpret qualitative evaluation data	4.09 (.89)	3.07 (.82)
Establish benchmarks to determine program impacts	4.04 (.86)	2.97 (.87)
Monitor program activities throughout the program's lifespan	4.08 (.91)	3.08 (.89)
Conduct follow-up surveys to measure changes in participants' behavior (e.g., practices adopted)	4.08 (.92)	3.00 (.78)
Use qualitative methods such as focus groups and interviews to gather evaluation data	3.69 (.69)	2.90 (.80)
Use an iPad or cellphone to conduct mini surveys with participants	3.63 (.95)	2.89 (1.05)

The Principal Component Analysis (PCA) revealed two underlying constructs for Program Planning competencies, as shown in Table 3. Taken together, the Professional Development Themes (PDT) accounted for 59% of the variation in the original items. Given a Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) of 0.86 and a significant Chi-square value ( $X^2 = 792.02, p < 0.001$ ) for Bartlett's Test of Sphericity, the model was deemed valid. The PDTs were labeled Program Ideas and Schedules, and Program Design. With a Cronbach's alpha of 0.90 for Program Ideas and Schedules, and 0.88 for Program Design, both themes had acceptable internal consistency (Field, 2013). Program Ideas and Schedules referred to the competencies needed to work with others and use existing information to brainstorm new program ideas and create work schedules. In contrast, Program Design related to the competencies needed to create a concise program plan and set program goals.

**Table 3. Latent Components of Program Planning Competencies**

Competency Items	Factor Loading	
	1	2
<i>Professional Development Theme 1: Program Ideas and Schedules</i>		
Conduct interviews with important stakeholders to plan your program	0.53	0.47
Review existing Extension programs before embarking on a new project	0.57	0.45
Use the results of a needs assessment to plan a program	0.52	0.45
Develop an annual plan of work	0.71	0.39
Consult with experts and/or knowledgeable colleagues to design program activities	0.76	0.19
Develop a monthly work schedule	0.88	0.16
Organize an effective program advisory committee	0.74	0.16
Develop a weekly work schedule	0.85	0.08
<i>Professional Development Theme 2: Program Design</i>		
Develop long-term program objectives extending beyond 2 years	0.33	0.77
Develop short-term program objectives	0.21	0.76
Develop a logic model for a program	0.10	0.74
Use the results of a needs assessment to create an impact statement	0.19	0.71
Develop medium-term program objectives	0.46	0.68
Identify the major problem/issue addressed by your program	0.23	0.64
Conduct a needs assessment	0.26	0.62
Set program priorities	0.50	0.59

Results of the PCA indicated there were three PDTs for Program Evaluation competencies. Together, themes accounted for 64% of the variation in the original items. The model was deemed valid, given a KMO of 0.87 and a significant Chi-square value ( $X^2 = 1485.7, p < 0.001$ ) for Bartlett's Test of Sphericity. As shown in Table 4, the PDTs were labeled: (a) Evaluation Plans, (b) Evaluation Data and Results, and (c) Monitoring and Impact. With a Cronbach's alpha of 0.82 for Evaluation Plans, 0.80 for Evaluation Data and Results, and 0.79 for Monitoring and Impact, all themes showed acceptable internal consistency (Field, 2013).

Evaluation Plans referred to the competencies needed to design an evaluation plan and describe measurable program outcomes and impacts during the program planning process. Evaluation Data and Results related to competencies essential to collecting qualitative and quantitative

evaluation data using different tools and discussing the results in evaluation reports. Monitoring and Impact were those competencies needed to articulate outcome indicators and capture pertinent data for formative and summative evaluation.

**Table 4. Latent Components of Evaluation Competencies**

Competency Items	Factor Loading		
	1	2	3
<i>Professional Development Theme 1: Evaluation Plans</i>			
Create an evaluation plan during the program planning process	0.77	0.30	0.12
Develop measurable short-term outcomes (e.g., knowledge, skills, attitudes, and intentions)	0.82	0.26	0.21
Develop measurable medium-term outcomes (e.g., behavior change, practices adopted)	0.86	0.19	0.24
Develop measurable long-term outcomes to assess program impact (e.g., changes in a problem or need)	0.77	0.24	0.24
Design pre-and-post tests	0.54	0.48	0.20
Design retrospective evaluation surveys (e.g., post-surveys)	0.65	0.36	0.20
Conduct follow-up surveys to measure changes in participants' behavior (e.g., practices adopted)	0.64	0.17	0.41
Conduct follow-up surveys to measure program impact (e.g., changes in a problem)	0.62	0.13	0.47
<i>Professional Development Theme 2: Evaluation Data and Results</i>			
Use data gathering tools to collect evaluation data (e.g., questionnaires)	0.55	0.61	0.12
Use online survey tools such as Qualtrics to collect data	0.41	0.43	0.35
Clearly distinguish between program outputs and outcomes	0.41	0.43	0.38
Use evaluation results to improve the program	0.40	0.50	0.40
Write evaluation questions	0.30	0.76	0.06
Analyze and interpret quantitative evaluation data	0.31	0.74	0.01
Analyze and interpret qualitative evaluation data	0.20	0.64	0.35
Prepare program reports to discuss evaluation findings	0.17	0.73	0.38
Evaluate program impact in relation to a problem area	0.28	0.72	0.40
Verbally communicate evaluation results to stakeholders	0.02	0.59	0.51
<i>Professional Development Theme 3: Monitoring and Impact</i>			
Use an iPad or cellphone to conduct mini surveys with participants	0.04	0.13	0.71
Use qualitative methods such as focus groups and interviews to gather evaluation data	0.41	0.27	0.51
Establish benchmarks to determine program impacts	0.26	0.32	0.81
Monitor program activities throughout the program's lifespan	0.40	0.15	0.78
Identify measurable indicators of program success or failure	0.31	0.20	0.78
Collect real-time data from participants to get feedback on activities	0.30	0.19	0.58

Table 5 lists the results of a series of paired *t*-tests comparing the differences in perceived importance and ability of each PDT. There were statistically significant differences between the mean perceived importance of all PDTs and respondents' perceived ability to perform these themes. Respondents' perceptions of their ability to perform competencies within the PDTs were statistically and significantly lower than the theme's perceived importance. This indicates a need for professional development in all five themes of program planning and evaluation. However, priorities for professional development were ranked based on Cohen's *d*. The most important

theme for professional development was Evaluation Plans (Cohen's  $d = 1.60$ ). An interpretation of Cohen's  $d$  indicated 95% of respondents did not have adequate competencies to design an evaluation plan, i.e., describe measurable program outcomes and impacts during the program planning process. Evaluation Data and Results was ranked the second-highest priority theme for professional development (Cohen's  $d = 1.40$ ). Accordingly, 92% of respondents did not possess adequate competencies to collect qualitative and quantitative evaluation data using different tools and discuss the results in evaluation reports. Therefore, an ECB program at USU Extension should place high emphasis on competency items within Evaluation Plans and Evaluation Data and Results.

**Table 5. Priority Levels of Professional Development Themes for ECB Program**

Professional Development Theme	Mean (SD)		$t$	$p$	Cohen's $d$	% A < I*
	Importance	Ability				
Evaluation Plans	4.22 (.65)	3.19 (.63)	11.43	0.00**	1.60	95
Evaluation Data and Results	4.24 (.69)	3.31 (.62)	11.80	0.00**	1.40	92
Monitoring and Impact	3.98 (.69)	3.06 (.70)	10.34	0.00**	1.33	91
Program Design	4.29 (.56)	3.56 (.59)	9.94	0.00**	1.29	90
Program Ideas and Schedules	4.00 (.64)	3.48 (.68)	5.25	0.00**	0.79	79

\*Note. % A < I refer to the percent of times perceived ability was less than perceived importance

### Conclusions, Implications, and Recommendations

This study focused on describing the competencies of USU Extension professionals with respect to program planning and evaluation. Results indicated that “identify the major problem/issue addressed by your program” was perceived as essential for job success under program planning. This result supports understanding the context of new and existing challenges facing communities, as discussed by Henning et al. (2014) and Narine et al. (2019b). Identifying major problems, targeting specific audiences (those most affected), and investing in programs designed to improve some social condition help justify a program's relevance and provide support for continued funding. All other program planning competency items were perceived as having above-average importance for job success. These findings are consistent with early literature by McCormick (1959) that supports best practices for effective program planning.

Results indicated that Extension professionals believed they had average abilities to perform competencies related to program planning. However, they perceived these competency items as having above-average importance. The ability to perform these tasks is essential in Extension programming, consistent with findings by Scheer et al. (2006) and McClure et al. (2012). One explanation for this finding could be due to the nature of societal issues addressed through Extension programming. Complex problems such as resource conservation or clean air quality may not be solved through a single Extension program, as these problems may require several Extension programs that tackle specific sub-areas. Thus, identifying a clear evaluation framework in program planning might require a depth of understanding of competencies, such as setting program priorities or short-term program outcomes. Additionally, some early-career

Extension professionals may have limited experience in program planning and evaluation. Coupled with changing job expectations and emerging community needs, Extension professionals may doubt their abilities to perform program planning competencies. Thus, there is an opportunity to provide Extension professionals with relevant training tailored to complex programs or problem areas. Strengthening the ability to use results of a needs assessment or conduct a needs assessment can help Extension professionals identify the major problems relevant to their target audience as this item was considered most essential for job success.

When asked about evaluation competencies, Extension professionals thought all competency items had above average importance to job success. This result implies an awareness of the importance of program evaluation to overall program success. However, there is scope to further highlight the necessity of effective program evaluation competencies. The competency items perceived as most important by participants help provide funders with necessary information on the worth or value of the program.

When asked about perceived ability, Extension professionals believed they had above-average abilities to use evaluation results to improve their program and verbally communicate evaluation results to stakeholders. While these competencies complement accountability measures in Extension programming as purported by Lamm and Israel (2013), there is room for improvement. Participants thought they had average abilities to perform all other evaluation competencies. Strength in evaluation competencies can help Extension professionals conduct effective program assessments to report on the merit of their programs. Collectively, program planning and evaluation activities provide a holistic view of what was done, why it was done, and what difference it made in addressing community needs. Furthermore, the answer to these questions will provide Extension professionals with a clear identification of the societal problem their program addresses. This portrays the benefit of linking program planning and evaluation activities and the need for strength in all competency areas.

Given this study's results, there is an opportunity to provide Extension professionals with professional development training in specific program planning and evaluation categories. One strategic way to do this was to derive themes for each major competency area. Classifying individual competency items into PDTs helps streamline training activities. Results of the Principal Component Analysis revealed two PDTs related to program planning. Based on the grouping of individual program planning competency items, the themes were labeled Program Ideas and Schedules, and Program Design. Program Ideas and Schedules referred to competencies needed to collaborate, brainstorm ideas, and create schedules. Program Design referred to competencies needed to create a concise program plan and set program goals. Items under these themes were consistent with the highest mean-score competencies that Extension professionals believed they had average abilities to perform. Thus, designing professional development activities according to these items can help foster targeted training in different areas of program planning.

Three themes emerged for program evaluation. Based on the grouping of evaluation competency items, the themes were labeled Evaluation Plans, Evaluation Data and Results, and Monitoring and Impact. Evaluation Plans referred to the competencies needed to design evaluation plans and describe measurable program outcomes and impacts during the program planning process. Evaluation Data and Results related to competencies needed for data collection using various tools and reporting evaluation results. Monitoring and Impact were those competencies needed to articulate outcome indicators and capture pertinent data for formative and summative evaluation. The classification of items under each of these themes captured all evaluation competencies Extension professionals perceived that they had average abilities to perform. The two competencies that Extension professionals perceived they had above-average abilities to perform were grouped under the professional development theme, Evaluation Data and Results. Along with other corresponding competency items under this theme, a complete professional development training can be designed to sharpen these abilities.

Based on the results, this study recommends using the PDTs to guide an ECB program for USU Extension professionals. The paired *t*-test assessed differences in perceived importance and ability for each theme to determine where resources should be invested. Results showed statistically significant differences between the mean perceived importance for all themes and respondents' perceived ability to perform items under these themes. When comparing importance and ability for each theme, Extension professionals' perceptions toward their abilities to perform items under these themes were lower than their perceived importance of each theme. Further analysis showed that the most important theme was Evaluation Plans. This result suggests resources should be invested in professional development training focused on designing evaluation plans to describe measurable program outcomes and impacts during the program planning process.

An ECB program at USU Extension designed around the PDTs of program planning and evaluation is necessary to support Extension programming efforts. Such efforts relate to creating relevant Extension programs and demonstrating the value of these programs to stakeholders. An ECB program should target all core competencies highlighted in the results. However, there should be increased focus on evaluation plans, evaluation data and results, and program monitoring and impact. This study holds implications for Extension as a whole; professional development committees in Extension should intentionally and continuously assess and respond to professional needs. Evaluators and specialists are encouraged to gauge the professional capacity of Extension and recommend strategies for improving performance. In this study, the competency modeling approach guided an assessment of program planning and evaluation competencies for inclusion in an Evaluation Capacity Building program at USU Extension. In an era of increased financial uncertainty, administrators must ensure Extension has the capacity to demonstrate the impact and public value of Extension programs.

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