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Lendel K. Narine
Utah State University, lendel.narine@usu.edu

Cristian Meier
Utah State University, cris.meier@usu.edu

Brian Higginbotham
Utah State University, brian.h@usu.edu

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Building Extension Capacity through Internal Grants: Evaluation of a Mini-Grant Program

Lendel K. Narine[1], Cristian Meier[1], and Brian Higginbotham[1]

AUTHORS: [1]Utah State University.

Abstract. Acquiring external grants can seem out of reach for Extension professionals, especially early-career professionals. While Cooperative Extension provides opportunities to assist professionals in the grant writing process, Utah State University (USU) Extension facilitates an internal mini grant program to build professionals' capacity to apply for external funds. Using survey data from USU Extension professionals, our study sought to evaluate the processes and outcomes of the internal mini grant program. Our results provided recommendations to improve the program. Our study provides insights that can assist other institutions seeking to implement their own internal mini grant program.

INTRODUCTION

Cooperative Extension disseminates evidence-based information to the public to fulfill the land grant mission. While institutions facilitate innovative approaches to funding county-level programs (e.g., fee-based programs; Pellien, 2016), Extension county professionals (i.e., faculty and agents) must seek grants to fill funding gaps. However, acquiring grants, which is described as an important area of performance in a roadmap for excellence in Extension (Saunders & Reese, 2011), may seem out of reach for Extension professionals. There are specific factors that have been shown to influence grant awards, including (a) the number of proposals submitted, (b) the number of grant awards available, (c) participation in grant writing training, and (d) the size of the project team (Cole, 2006; Sisk, 2011).

For new Extension professionals, it takes time and resources (e.g., social capital and grant writing training) to develop the collaborative teams often necessary to acquire large external funding awards. Grant funding also impacts scholarly output. For example, one study found higher levels of grant funding were associated with increased publications (Kim et al., 2019), which further highlights the importance of grant funding. Extension can support county professionals by providing professional development opportunities to strengthen their abilities to pursue and receive grant awards.

Many Extension organizations already provide a number of opportunities to build professionals' capacity to apply for grant funding, such as grant writing trainings and mentoring programs. Yet, there is reason to believe that the act of applying for funding itself is a catalyst for collaboration among Extension professionals (Gould & Ham, 2002). The use of internal grants is one strategy for building the capacity of professionals to promote collaboration while also improving Extension professionals' experience in writing grant applications. In 2014, Utah State University (USU) Extension implemented an internal grant program, referred to as Extension mini grants.

Yearly mini grants have varied in the number of awards made (17 to 59 awards) and the total amount awarded each cycle (approximately $162,000 to $543,000), with a total investment to date of more than $2.7 million. Extension professionals can apply for these internal grants once a year to fund new and innovative Extension programs. Using two grant ceiling amounts based on the scope of the project (one county vs. multiple counties), the mini grant process provides clear instruction guidelines and is blind-reviewed by a peer panel of Extension professionals. The application and review process for Extension mini grants mimics the general process of applying for external grants. The primary goal of the mini grant program is to fund programs that improve the lives of Utah residents. Secondary goals are to build Extension professionals' capacity to apply for external funds, increase collaboration, and provide seed funding for innovative programs that may lead to external funding awards.

USU Extension issues a call for proposals once a year, and the application and selection process has remained relatively the same since the start of the program in 2014.

While the total number of awards and the maximum value of individual awards varies annually based on available administrative funds, the mini grants are an important resource available to Extension professionals. However, the internal mini grant program has never been evaluated to understand the return on investment that occurs for both the institution and Extension professionals, nor have there been any published research studies that describe the benefits of such a program. Therefore, this research-in-brief assesses the processes and outcomes of USU Extension's internal mini grant program.

This study adopts a summative evaluation design to determine the mini grant program's return on investment. Returns on investment can take the form of societal improvements and/or benefits to stakeholders based on measurable program outcomes. Therefore, summative evaluation determines the extent to which resources (i.e., investments) were used effectively and efficiently to achieve the program's intended benefits (Rossi et al., 2004). Results of a summative evaluation can assist planners in decisions about program continuation. In this context, proxy indicators are used to determine the return on investment of the mini grant program. These indicators broadly relate to Extension professionals' grant-writing competencies, secured external funding, and academic outcomes attributed to the mini grant program. Results can provide other Extension organizations with information about the mini grant program and potential outcomes of such a program.

PURPOSE AND OBJECTIVES

The purpose of this study was to evaluate the application processes and outcomes of the mini grant program at USU Extension. Objectives were to: (a) Describe Extension professionals' perceptions of the eligibility requirements for mini grants; (b) rank factors influencing the mini grant review and selection process; (c) determine the number of journal papers, conference submissions, factsheets, videos, e-courses, and external funding awards acquired as a direct result of the mini grant program; (d) describe the competencies gained by Extension professionals due to writing a mini grant proposal; and (e) understand what improvements could be made to the program to meet the needs of Extension professionals. Objectives (a), (b), and (e) relate to a formative evaluation of the mini grant program, while objectives (c) and (d) relate to the summative evaluation.

METHODS

This study followed a cross-sectional descriptive design and primary data were gathered from USU Extension professionals. The target population was all Extension professionals who were awarded at least one mini-grant between 2014 and 2019. A sampling frame was created from internal data provided by Extension administration. The sampling frame consisted of 103 Extension professionals (N = 103). With a census attempted, the response rate was 80% (n = 82). Each of the 82 professionals responding to the survey attained between one to two mini grants on average between 2014 and 2019 (M = 1.58, SD = 1.00).

Data were gathered in June of 2020 using an online questionnaire administered through Qualtrics. A panel of experts at USU Extension reviewed the questionnaire for face validity. A survey invitation was sent to the target population using Qualtrics. We tracked responses in Qualtrics and sent reminders to professionals who did not complete the survey in one-week intervals. The Associate Vice President for USU Extension sent two reminder emails to professionals of the target population. Data collection lasted three weeks following the initial survey invitation. The researcher-developed questionnaire was designed to gather data on pre-defined outcome indicators of the mini grant program. Leadership at USU Extension communicates the desired outcomes of a mini grant in annual requests for proposals. These include conference papers, journal articles, impact reports, short courses, and, eventually, external funding. The final questionnaire consisted of four sections: (a) professional appointment, (b) grant activity, (c) process evaluation, and (d) outcome evaluation. Extension professionals were also asked to comment on their experiences with the mini grant program via an open-ended question.

The process evaluation focused on two main areas: (a) Extension professionals' perceptions of the eligibility requirements for a mini grant and (b) factors influencing the mini grant review and selection process. The outcome evaluation focused on administratively defined outcome indicators of the mini grant program. These were: (a) Internal collaborations, (b) external collaborations, (c) journal articles, (d) conference papers, (e) factsheets, (f) videos, (g) e-courses, and (h) external funding. Extension professionals were asked to indicate the extent to which their mini grant(s) contributed to changes in each outcome.

Objective (a) was addressed using descriptive frequencies to rank perceived eligibility requirements. For factors influencing the review and selection process (objective b), respondents were asked to rank six pre-defined factors using a rank-order question format in Qualtrics. Respondents ordered the six items based on their rank preference, which resulted in a score between 1 (first rank) and 6 (last rank) for each item. Then, a repeated measures ANOVA was used to determine if there was a statistically significant difference between priority rankings. The null hypothesis was rejected at $p < 0.05$. For post-hoc analyses, we conducted a series of pairwise comparisons with a Bonferroni adjustment to p-values. Extension professionals at USU Extension typically progress through a tenure-track system. Therefore, results

corresponding to objectives (a) and (b) were assessed by tenure status to examine the differences in perceptions between early-career faculty and others with respect to grant requirements and priorities.

Objective (c) was addressed using descriptive analysis (i.e., sum and means of outcomes within groups). First, a Q-Q plot was used to identify outliers in self-reported outcomes. Extreme values were removed from the dataset using the interquartile range method (IQR). However, due to the large variance in self-reported external funding attributed to mini grants across the sample, the mean value for external funding was supported with quartiles to further illustrate the data spread and median (i.e., 50th quartile). The total number of outcomes (e.g., journal articles, conference papers, etc.) were divided by the total number of grants across the sample to derive mean outcomes per mini grant. Outcomes of the mini grant program were reported by tenure status and program area. Frequencies were used for objective (d) to describe competency gained by Extension professionals through the mini grant program.

Finally, to analyze qualitative data for the open-ended question related to objective (e), we utilized a two-step coding procedure (Saldaña, 2016) where data was coded as categories emerged (i.e., pattern coding). The data was first coded by one member of the research team, then was reviewed by a second member of the team. If there was a disagreement in coding, the two coders discussed the code and reached an agreement on the suitability of the code.

As a retrospective study, there are two major limitations to our project. It should be noted that all data provided by respondents are approximations and are based on their ability to self-report the ripple effects of funding from the mini grant program. As a result, there may be recall bias in self-reported estimations, particularly with respect to external funding attained due to mini grants. Another limitation is the use of a cross-sectional (non-experimental) design. We are unable to determine a true causal relationship between the acquisition of a mini grant and eventual realization of the described outcomes with respect to academic productivity.

RESULTS

SAMPLE CHARACTERISTICS AND GRANT ACTIVITY

More than half the number of respondents were tenured Extension professionals (51%); 26% were untenured, and 23% were categorized as "other" (e.g. 4-H coordinators, administrators). Most Extension professionals listed agriculture and natural resources as their primary program area (49%); 18% listed family and consumer sciences, 10% listed 4-H and youth development, and 2.4% listed economic development. However, 21% were unable to list their primary program area due to assignment splits.

Table 1 shows the level of grant activity by program area from 2014 to 2019. Overall, the majority of mini grant funding ($994,801) was acquired by professionals in agriculture and natural resources, while the least ($157,045) was acquired by professionals in 4-H and youth development. However, family and consumer sciences professionals acquired the most grants on a per capita basis (1.87) compared to professionals in other departments (1.63). Extension professionals in agriculture and natural resources acquired individual grants of higher value ($26,178) compared to professionals in family and consumer sciences ($24,245) and 4-H and youth development ($19,630).

PROCESS EVALUATION

Table 2 shows respondents' perceptions of various aspects of the application process. Results are presented by tenure status to assess the perceptions of early-career Extension professionals in comparison to others. Overall, most professionals (79%) thought a first-time grant applicant should secure a mentor when writing their proposal; 66% thought all proposals should include a collaboration between county Extension professionals and campus professionals; and 61% thought proposals from junior professionals should be prioritized over others. While these results were somewhat consistent across tenured and untenured professionals, there were differing opinions on one requirement: more than half the number of untenured professionals (60%) indicated grants

Table 1. Grant Activity by Program Area

Program Area	*n*	Total		Mean	
		Number of Grants	*Value of Grants*	*Number of Grants*	*Value of Grants*
4-H & Youth Development	8	13	$157,045	1.63	$19,630
Family & Consumer Sciences	15	28	$363,679	1.87	$24,245
Agriculture & Natural Resources	38	62	$994,801	1.63	$26,178
Other	17	20	$292,651	1.17	$17,214
Sample total (2014–2019)		123	$1,808,176		
*Actual total (2014–2019)		182	$2,383,571		

Note. Actual values provided by USU Extension administration.

Table 2. Perceptions of Eligibility Requirements

Rank	Requirement	%							
		Tenured (n = 42)		Untenured (n = 21)		Other (n = 18)		Overall (n = 82)	
		Yes	*No*	*Yes*	*No*	*Yes*	*No*	*Yes*	*No*
1	A first-time grant applicant should secure a mentor when writing her/his grant proposal	77	23	80	20	83	17	79	21
2	Proposals should include a collaboration between county Extension professionals and campus faculty	67	33	65	35	67	33	66	34
3	Proposals from junior professionals should be prioritized over others	56	44	60	40	72	28	61	39
4	Grants should only be awarded to proposals with a clear potential for external funding	36	64	60	40	72	28	42	58

Table 3. Factors for Consideration in Grant Review Process

Overall Rank	Proposals…	Mean Rank (SD)			
		Tenured	*Untenured*	*Other*	*Overall*
1	…with collaboration between campus faculty and county professionals	2.79 (1.66)	2.35 (1.57)	2.11 (1.57)	2.52 (1.62)
1	…that can lead to significant impacts	2.77 (1.69)	2.70 (1.34)	2.94 (1.63)	2.79 (1.58)
2	…with high scores from reviewers	3.54 (1.67)	3.80 (1.94)	3.89 (1.71)	3.69 (1.73)
2	…with a clear plan to secure external funding	3.87 (1.42)	3.30 (1.34)	3.78 (1.22)	3.70 (1.36)
2	…with high relevance to Extension programs	3.59 (1.65)	4.10 (1.41)	4.06 (1.73)	3.83 (1.61)
3	…from junior campus faculty and professionals	4.44 (1.65)	4.75 (1.55)	4.22 (1.59)	4.47 (1.60)

Note. Overall rank denotes statistically significant differences between priority rankings for the overall sample based on a repeated measures ANOVA with Bonferroni-adjusted pairwise post hoc tests.

should only be awarded to proposals with a clear potential for external funding. This finding points towards one of the main goals of the mini grant program; it appears untenured professionals believe the program should be used as seed funding to attain external grants. In contrast, only 36% of tenured professionals thought this should be a requirement for mini grant funding.

Table 3 shows respondents' perceptions on priority factors that should influence the grant review and selection process. Results of a repeated measures ANOVA indicated there was a statistically significant difference in priority rankings for the overall sample (Greenhouse-Geisser $F_{(4.22, 320.87)} = 13.17, p < 0.01$). However, results showed there were no statistical differences in the interaction between priority rankings and groups (tenure vs. untenured vs. other). This suggests the overall ranking holds for all professionals regardless of tenure status. Overall, professionals thought the top factors that should be weighted the most in the review process were (1) proposals that included a collaboration between campus professionals and county professionals and (2) proposals that can lead to significant impacts.

OUTCOME EVALUATION

Most respondents (96%) strongly agreed or agreed their mini grants led to an increase in their collaborations with other professionals within USU Extension. Slightly less (74%) strongly agreed or agreed that their mini grants led to an increase in their collaborations with professionals/staff out-

side USU. In addition, 65% either strongly agreed or agreed their mini grants led to an increase in their peer-reviewed journal publications, and 87% strongly agreed or agreed it led to an increase in their conference paper submissions.

Table 4 provides a summary of the outcomes of the mini-grant program from 2014 to 2019. Overall, mini grants contributed mostly to factsheets (259), conference papers (239), and videos (217). It also led to a total of approximately $16 million in external funding. Other noteworthy outcomes of the mini grant program were contributions to journal publications (90) and e-courses (17) from both tenured and untenured professionals.

Results indicated that, on average, one mini grant led to one journal paper (M = 0.82, SD = 1.01), two conference papers (M = 2.21, SD = 2.12), three factsheets (M = 2.68, SD = 5.38), one video (M = 1.39, SD = 4.35), and $138,469 in external funding (M = $138,496.32, SD = $290,537.27: 25th Quartile = $0.00, 50th Quartile = $20,000, 75th Quartile = $78,034).

Professionals were asked to self-assess the competencies they developed as a result of writing a mini grant proposal. Table 5 shows competencies ranked based on the frequency of "Yes" responses to each item. More than half the number of professionals indicated they developed the competencies to seek collaboration with peers, understand the grant writing process, and create a grant budget because of the mini grant program.

Finally, Extension professionals were asked if they had any recommendations to improve the mini-grant program in an open-ended question. Extension Professionals provided a variety of recommendations to improve the mini-grant program (n = 46). Response themes were: (a) provide a mentor, training, or other resources to improve grant writing skills; (b) simplify the grant application process; (c) prioritize county-level Extension work instead of campus research; (d) give preference to junior faculty seeking grants; (e) reduce emphasis on attaining external funding from the mini grant; (f) provide training for reviewers; and (g) encourage applications that aim to pilot innovative programs.

Table 4. Outcomes by Program Area and Tenure Status

Factor	Level	*n*	Total					
			Journal	*Conference*	*Factsheets*	*Videos*	*E-courses*	*External funding ($)*
Tenure Status	Tenured	39	59	141	99	151	12	9,358,367
	Untenured	20	18	52	92	20	3	1,614,000
	Other	18	13	46	68	46	2	5,384,105
Program Area	4-H	8	5	21	34	27	3	1,828,822
	FCS	15	19	44	44	117	8	4,398,314
	AG/NR	38	51	126	120	26	2	4,786,336
	Other	16	15	48	61	47	4	5,343,000
Overall Total		**77**	**90**	**239**	**259**	**217**	**17**	**16,356,472**

Table 5. Competency Gained From the Mini Grant Program

Rank	Did the Extension mini-grant program help you to better understand…	%			
		Yes	Unsure	No	Knew before
1	how to seek collaboration with peers?	57	5	5	33
2	the general grant writing process?	51	4	4	42
2	how to create a grant budget?	51	1	4	44
3	how to create a project evaluation plan?	48	13	9	30
4	how to write a concise problem statement?	47	7	5	42
5	how to describe the project methodology?	46	4	8	43
5	how to disseminate grant results?	46	13	5	36
6	how to write project proposal goals?	44	7	5	44
7	how to manage a grant budget?	43	4	8	46

CONCLUSIONS AND RECOMMENDATIONS

Our study sought to evaluate the internal mini grant program at USU Extension. Results pointed towards several recommendations that can improve the program. This study can help guide other institutions seeking to implement a similar program. First, faculty perceptions toward mini grant eligibility (i.e., objective a) pointed towards needs for mentoring to assist first-time applicants and collaboration on proposals between county and campus professionals. A majority of tenured and untenured professionals reported that mentoring should be secured when writing a grant application. This was also mentioned in respondents' comments. We also recommend providing additional trainings in the form of webinars or workshops to assist new and early career professionals in grant preparation, which supports the findings of previous research (Cole, 2006; Sisk, 2011). Specifically, a professional development webinar can be offered to applicants suggesting tips for writing a better mini grant proposal and addressing common mistakes to avoid.

The results show that administrators can consider weighting specific factors differently in the review and selection of mini grant proposals (i.e., objective b). For example, results show collaborations between county and campus faculty should be prioritized in mini grant proposals. Future requests for mini grant proposals could emphasize the importance of collaborations; this may include promoting collaborations between early career professionals and others as a mentorship and capacity-building activity. During the review process, proposals that demonstrate collaborations between campus and county professionals could receive special consideration when making funding decisions. Another important factor in the review process was potential impact; respondents thought the mini grant proposal program should articulate its potential to generate significant impacts. This suggests the need for a robust evaluation plan as a core component of mini grant proposals. An effective evaluation plan could describe a need, problem statement, and intended outcomes and long-term impacts of the project.

An examination of outcomes of the mini grants program showed several noteworthy findings (i.e., objective c). Outcomes associated with mini grants are important for early career Extension professionals as they work towards tenure and promotion (e.g., peer reviewed articles). However, results also showed some outcomes were just as important for tenured Extension professionals (e.g., external funding). This suggests the mini grant program has differing outcomes for pre-tenure and tenured Extension professionals, and, as such, the resulting tangible value of participating in the mini grant program may be beneficial to all Extension professionals, regardless of tenure status.

Finally, results from the qualitative analysis further confirm the importance of collaboration in mini grant proposals (i.e., objective e). Findings indicate more than half of respondents thought that collaboration between county and campus Extension professionals should be prioritized in the grant review process. Similarly, most respondents also said the mini grant process contributed to their skills in seeking collaboration with colleagues (i.e., objective d). Clearly, the facilitation of collaboration between professionals should be an important aspect of the mini grant program and can be encouraged in the call for proposals.

These findings will inform changes to the mini-grant program at USU Extension. Other universities can use the results of this study to inform the development and implementation of their own internal grant program. Implementing an internal grant program in Extension may have a high potential for return on investment while building the capacity of professionals to be successful in seeking external grant funding and boosting their academic productivity and competencies.

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