Success Factors for University Research Development Offices and Activities

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Abstract: *As a relatively new function of the academic research enterprise, research development offices and research development activities are being used to improve grant funding success and achieve university research goals. This article describes and analyzes survey data collected as part of a sequential explanatory mixed methods investigation of university research development activities and research development offices. The purpose of this investigation was to determine administrators' perceptions of what research development activities and best practices have contributed to increasing a university's annual sponsored funding totals.*

The data referenced in this article was collected via an electronic survey instrument posted to a listserv of members of the National Organization of Research Development Professionals. Data was collected on 21 research development activities, with support for large, multi-investigator project grants selected as the most important and impactful research development activity. Other highly-ranked research development activities are internal grant programs, grant team project management, and grant writing workshops. The responses helped to create a profile of university research development offices and revealed general agreement that the research development function in universities does improve grant funding success and also helps universities achieve their research goals.

Understanding the roles that research development offices and activities play in supporting and improving grant funding success and university research goals is critical to organizational decision making. Keeping in mind the goals of their institution, research development professionals can consider the results of the present study in determining what research development activities have the most impact.

Keywords: *Research Development, Research Office, Research Administration, Research Capacity, University Research Support, University Research Infrastructure*

Introduction

Innovation resulting from university research has made an enormous impact on our world, producing discoveries like penicillin, the Internet, and computers (National Research Council, 2012). Keeping up with the cost of innovation is a growing challenge, and universities are taking a hard look at their research development infrastructure and whether it is maximizing their success at getting grant funding for research (Nguyen & Meek, 2015). Research development as a relatively new field encompasses many activities that are implemented in a variety of organizational structures. Within universities, a common theme is that research development is evolving as a formal function of university administration, as universities try to better support and grow their research capabilities. In many research universities, research development activities are administered by a research development office. These offices are distinct in the university organizational structure from research administration offices, which manage the pre- and post-award administration of sponsored funding (Nguyen & Meek, 2015).

The functions of research development offices in universities vary; a review of the literature on these offices suggests that they manage and perform activities that help a university to sustainably develop research capacity and research funding. The National Organization for Research Development Professionals (NORDP, 2015) groups research development activities into broad categories of proposal support functions, strategic research advancement, communication of research and research opportunities, and enhancement of team science and collaboration. Research development activities and offices play a key role in supporting the university research and researchers, however little information about these offices and research development activities has been collected (Ross, 2017). Therefore, a quantitative study was conducted that examined university research development activities and research development offices. The purpose of this investigation was to determine administrators' perceptions of what research development activities and best practices have contributed to increasing a university's annual sponsored funding totals.

Background

This topic is ripe for investigation. A review of the literature shows that in today's universities, research and research capacity are often used as measures of success and prestige (Connell, 2005; Hazelkorn, 2004; Lombardi, 2013; Nash & Wright, 2013; National Research Council, 2012). While it is generally agreed that a university's research enterprise is of primary importance to the success of the university in today's environment, it is not clearly defined in the literature which research development activities are most likely to enhance a university's research capacity and increase annual sponsored funding totals. Both Edgar and Geare (2013) and Bosch and Taylor (2011) describe the mounting pressure on universities to produce research and increase research

capacity, but also acknowledge the dearth of information about building research capacity in today's university setting. Bosch and Taylor note that there is a gap in existing literature, which does not describe the developmental phases of an institution as it evolves from a non-active research environment to research active. They state that a knowledge base about developing a research-active environment could assist administrators responsible for managing the university research environment. Improving the current understanding of research development strategies "will lead to the stimulation and growth of research" (Bosch & Taylor, 2011, p. 445).

The literature on university research shows a growing discussion of the best way to provide support for the university research enterprise (Baum, Kurose, & McPherson, 2013; Birx, Anderson-Fletcher, & Whitney, 2013; Lombardi, Phillips-Capaldi, Abbey, & Craig, 2014; Petrova & Hadjianastasis, 2015). Still, best practices in the structure and organization of the university research infrastructure is an area that has not received a great deal of attention as a research topic (Bosch & Taylor, 2011; Edgar & Gear, 2013; Nguyen & Meek, 2015). One notable exception is Briar-Lawson et al. (2008), who found significant benefits from research development support in a study of 14 universities that received NIH funding. The research development support included information on funding opportunities, proposal editing, form preparation, institutional review board assistance, budget development assistance, secretarial supports, and incentives to faculty grant-seekers (Briar-Lawson et al., 2008).

Organizational theorists since the mid-twentieth century have emphasized the important role an organization's environment plays, and how the influence of internal and external forces can change that environment. An open systems model is often used to examine how institutions adapt to forces that change their environments (Helmer, 2005). Kezar (2014) points out that a scientific management theory such as contingency theory can be used to understand the environment of a university as a system. Contingency theory provides a theoretical framework to understand and evaluate the forces that shape a university's organization; Lawrence and Lorsch (1967) who helped to develop contingency theory defined three parameters. First, as an open system, internal and external forces permeate the borders of an organization. Second, there is no single optimal way to organize; what is best for an organization depends on the environment to which it must adapt. Finally, an organization's leadership must reconcile market demands with the organization's resources and capabilities (Morgan, 2007). University leaders must consider how to optimize management practices and organizational structures to handle the pressures of external forces like reduced funding and the demand for research in the competitive higher education marketplace (Helmer, 2005). Internal forces such as a university's research capacity, faculty's capacity for performing research and grant-seeking, and the support systems for these influence the highly complex system that is the university organizational environment.

The literature includes some discussion on whether measuring the success of research development offices and research development activities through outcomes such as grant funding is appropriate. After all, research development professionals who staff these offices and facilitate the research development activities are not conceiving of or conducting the research, and there are typically other factors that contribute to the success of a grant proposal (Birx et al., 2013; Briar-Lawson et al., 2008; Cantwell & Mathies, 2012; Evans, 2011; Lintz, 2008; Rosenbloom, Ginther, Juhl,

& Heppert, 2015). Although there are differing opinions on how to fairly measure the success of research development offices, Bevil et al.'s study (2012) showed that research offices used measures of grant dollars and grant funding success, along with other measures, to demonstrate their effectiveness. Thus, part of this study was to collect data on what research development activities and best practices have contributed to increasing a university's annual sponsored funding totals.

Methods

This article describes the quantitative data collected via a survey instrument (Ross, 2017) whose participants were selected through a purposive sampling methodology. This sampling methodology was used based on the author's judgement of professionals in the research development field that have expertise in this particular topic. The author elected to sample members of the National Organization of Research Development Professionals (NORDP), an organization that comprises a group of professionals who have, through their membership in the organization, identified their connection to research development. At the time, there were approximately 700 members of the NORDP organization. After receiving Institutional review Board approval, the survey was disseminated to the NORDP listserv. A total of 116 individuals responded to the survey; however, because the NORDP organization was not able to provide the total number of members who subscribed to the listserv, a response rate could not be calculated.

The development of the survey instrument was a 4-month process, and was supported and shaped by 15 individuals who provided formative and summative input and served as pilot participants. The survey included 27 items and was a combination of Likert scale, multiple choice, short answer, and open-ended questions. There were response pathways in the survey, which were activated by the responses to certain questions. For example, participants who indicated their universities had formal research development offices were asked questions about that office. The invitation to participate in the survey was posted to the NORDP listserv in the fall of 2016.

Results and Discussion

A total of 112 responses were analyzed using descriptive statistics and provided data on research development professionals, research development activities, research development offices, and how success is measured. An additional four responses could not be used because the respondents were not employed by universities. The data collected on survey participants, their universities and their research development offices provide a context for the information collected about the functions and activities of those offices.

Institutional Demographics

The survey responses indicate that the majority of the 112 participants work for a public university (82%), and those institutions have a Carnegie Classification of research university with high research activity (19%) or very high research activity (60%). The majority of survey participants (59%) work for a university with enrollment that exceeded 20,000 students. To quantify the

level of research activity at participating universities, two questions were included about annual sponsored funding dollars. Participants were asked to identify their institution's approximate total annual sponsored funding, and also their university's approximate total annual sponsored research funding expenditures (see Figures 1 and 2; Ross, 2017).

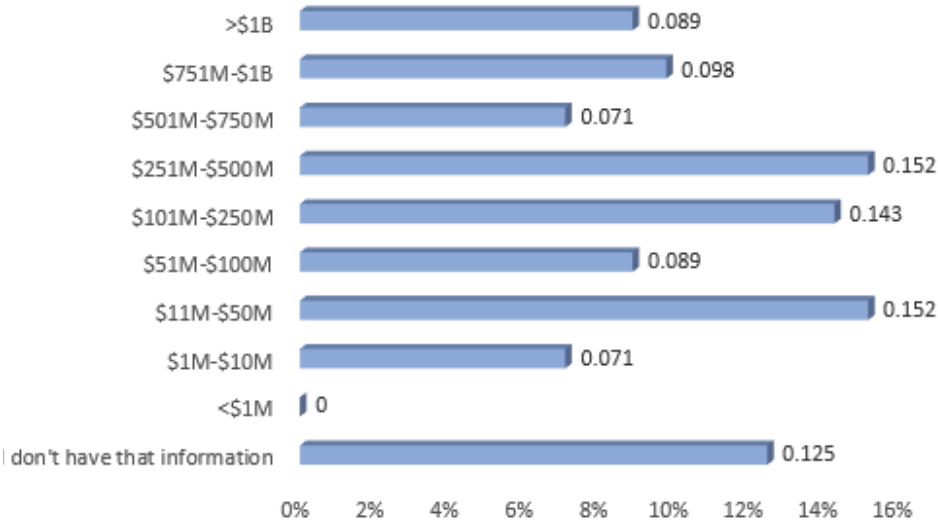

Figure 1. Total approximate annual sponsored funding.

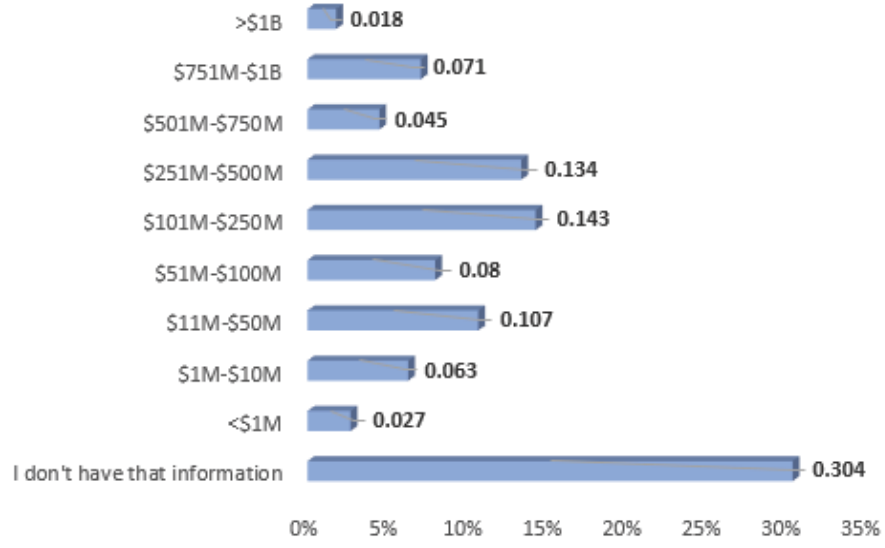

Figure 2. Total annual sponsored research expenditures.

Figure 1 illustrates that participants' universities have annual sponsored funding that ranges from $1 million to over $1 billion, with the majority reporting $11 million to $50 million (15.2%), $101 million to $250 million (14.3%), and $251 million to $500 million (15.2%). I don't have that information was chosen by 12.5% of participants. Figure 2 shows a range for total annual research expenditures at participants' universities to be less than $1 million to over $1 billion, with the majority of total annual sponsored research expenditures (46.4%) in the $11 million to $500 million range. Figure 2 also shows a marked increase in the number of participants (30%) who chose *I don't have that information as their response*. The National Science Foundation (2016) utilizes total annual research and development expenditures to rank academic institutions. Many major research universities describe their level of research activity in terms of total annual sponsored research expenditures. However, this study revealed that approximately one third of respondents are not able to provide their institution's total annual sponsored research expenditures. In general, participants seemed more familiar with the total approximate annual sponsored funding at their universities, where only 12% selected *I don't have that information as their response* (Ross, 2017).

The function of research development in universities has existed for decades, but since the early 2000's when formal research development offices began appearing on many university campuses, research development as a profession has gained acknowledgement (Levin, 2011). Survey participants overwhelmingly identified themselves as research development professionals (92%). Survey participants who indicated they did not consider themselves to be research development professionals (4%) held the position of dean or were not part of their institution's research development office. One-third of respondents (33%) do not work in a formal research development office, while two-thirds (67%) do work in their institution's formal research development office. The majority of participants (57%) had more than 5 years' experience in university research development. Also, 58% of participants indicated that 76%-100% of their job duties pertained to research development (Ross, 2017).

Profiles of Research Development Offices

For those who work at a university that has a research development office, the survey also included questions about the structure of the office. Sixty-seven percent of survey participants indicated that their university has an office dedicated to research development functions that is separate from a sponsored programs office or other research administration office. Eighty-five percent of participants indicated they have a central research development office that serves the entire institution, while 12% have a research development office that only serves a specific college or unit (e.g., a medical school) within the institution. Three percent of participants have both central and unit-level research development offices.

Regarding the number of staff in these offices, 80% have three or more full-time employees. Some offices are significantly larger, with 17% of research development offices having seven or more full time employees. Seventy-nine percent of survey participants who indicated that their institutions have formal research development offices work in that office. Participants with a research development office were also asked when their office was established. The first research

development office among participants was established in 1980, followed by one in 1990, and one in 2001 (see Figure 3). The establishment of research development offices peaked from 2010 to 2013, with 28 offices (45%) established in those years (Ross, 2017).

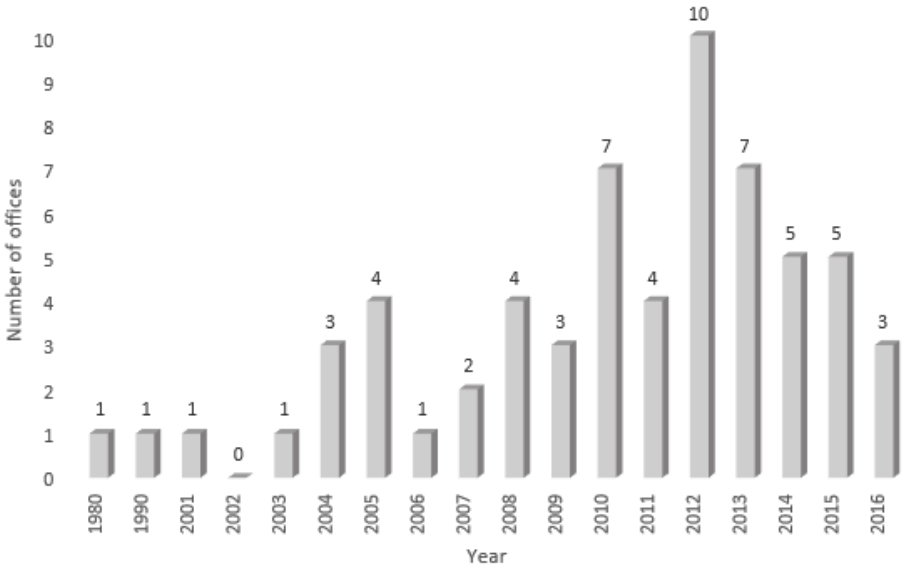

Figure 3. Year research development office was established.

Research Development Offices

There were several survey questions that explored the value placed on research development offices. Participants who answered that their institutions did not have a dedicated research development office, or 33% of the total participants, were asked what impact creating such an office would have on increasing their institution's sponsored funding success. Survey participants were offered a choice among *no impact, minimal impact, some impact, major impact*, or *not sure*. Eighty-three percent of participants indicated that creating a dedicated research development office would have *some impact* (36%) or a *major impact* (47%). All survey participants were asked if they would recommend that universities without a separate office establish one "for the purpose of providing enhanced research development functions to increase the university's sponsored funding success" (Ross, 2017, p. 121). A majority of survey participants (78%) responded that they would *recommend* establishing a research development office, while 5% would *not recommend* this and 17% were *not sure* (Ross, 2017).

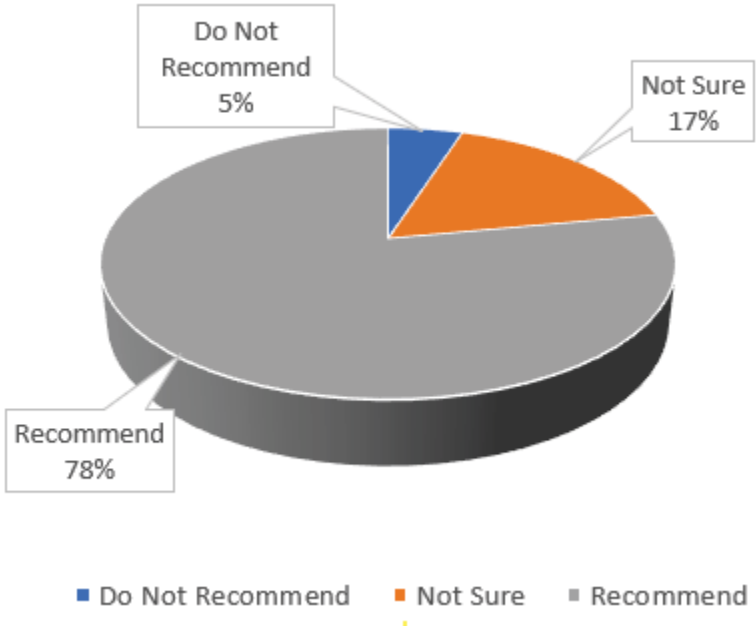

Figure 4. Percentage recommendations on establishing separate research development office.

An open-ended follow-up question asked why or why not in reference to participants' recommendations on whether to establish an office. This open-ended question produced numerous responses about the value and role of research development offices within an institution's research infrastructure. The responses were analyzed using Colaizzi's (1973) method of phenomenological analysis, which included reviewing the responses multiple times to extract and record significant statements that relate to the study's phenomenon. Once these significant statements were extracted, meanings were formulated and sorted into categories. The categories were then connected to themes and these were integrated into a comprehensive description of the study's phenomenon. These findings were validated by having a qualitative expert verify the meanings, categories, themes, and descriptions.

The analysis revealed that in general, participants perceive value in a formal research development office, and many participants noted that the value of research development offices goes beyond increasing university-sponsored funding goals. The significant statements from survey participants reflected the previous discussion of the theoretical framework for this study; the changing university environment is shaped by the drive to expand research capacity even while the availability of funding is reduced. Survey participants who responded to the open-ended follow-up questions cited the forces and complex interactions that influence a university research enterprise. Several survey participants commented that research development offices offer specialized services that are not duplicated in other units in the university research infrastructure,

and many survey participants commented that researchers need research development support to be successful. Some significant statements from survey participants who responded to the open-ended follow-up questions are shown in Table 1 (Ross, 2017). The favorable comments shown in Table 1 demonstrate a theme that a central office dedicated to research development provides important services to investigators and plays an important role in the research infrastructure. A few unfavorable comments came from participants who responded that they do not recommend a separate research development office. These comments reflect that an office should not be established for the sole purpose of increasing sponsored funding, and that in smaller institutions the research development function can be a part of other offices.

Table 1. Recommendations For or Against Establishing a Separate Research Development Office

Recommendation	Significant Statements
Favorable	"A central RD office can effectively work across colleges and support important strategic research initiatives that transcend college boundaries"
	"a separate Research Development Office allows the people in that office to focus on development and not get bogged down in the day-to-day activities that occur in the Office of Sponsored Programs...separate provides a clear identity and function to Research Development personnel"
	"Faculty need help."
	"Our faculty, especially new faculty, are floundering. They need help that the sponsored programs office just cannot fully deliver."
	"having an infrastructure of support and resources for faculty members is critical. The structure of such an office and the emphasis placed on certain services (writing, editing, finding funding, developing seminars and workshops, assistance with large/small proposals) should be tailored to meet the specific needs of faculty at each institution."
Unfavorable	"I wouldn't recommend it for the exclusive purpose of increasing sponsor funding totals, but depending on how the office is set up it can be useful in coordinating large proposals, educating on best practices in grant writing, providing support for individual proposals, etc."
	"I don't think it needs to be a 'separate' office. In smaller schools, like my present one, it can be part of a multiple function office."

Research Development Activities

Survey participants were also asked about the importance of research development activities to increasing sponsored funding success at universities. Research development activities were defined in the survey instrument as "those that support and enhance the university's research activity without being a part of the actual research" (Ross, 2017, p. 116). The responses to the importance of research development activities to increasing sponsored funding success at universities are shown in Table 2. While each of the 21 research development activities on the survey received some votes for being important or critically important, the highest-ranking activity that participants chose is *proposal development support for large, multi-investigator project grants* (92.9%). Among the top five activities were also *Internal grant programs to provide seed funding for research* (83.9%), *Grant team project management (coordination of meetings, proposal development deadlines, shared documents, etc.)* (83.1%), *Facilitating internal collaborations* (83%), and *Working with investigators on resubmissions* (83%). The lowest ranking activity in terms of importance was *Grant writing technical sections of a proposal* (30.3%; Ross, 2017).

Table 2. The Importance of Research Development Activities

Research Development Activity	Important or Critically Important
Proposal development support for large, multi-investigator project grants	92.9%
Internal grant programs to provide seed funding for research	83.9%
Grant team project management (coordination of meetings, proposal development deadlines, shared documents, etc.)	83.1%
Facilitating internal collaborations	83.0%
Working with investigators on re-submissions	83.0%
Grant proposal editing	80.3%
Grant writing workshops	78.6%
Mentorship program for investigators	76.8%
Coordinating the limited submission process	75.0%
Research faculty onboarding	74.1%
Helping/training faculty to find funding opportunities	71.5%
Facilitating external collaborations	69.6%
Grant writing of non-technical sections of a proposal	67.8%
Helping faculty in navigating through internal pre- and post-award processes	66.1%
Assisting investigators in getting a peer review of their proposal	65.2%
Disseminating funding opportunities	64.3%
Research events such as faculty symposia	47.4%
Research communications (newsletters, listservs, brochures, webpages, etc.)	45.5%
Creating a library of successful proposals	40.2%
Recognition events/programs for investigators' success	39.3%
Grant writing of technical sections of a proposal	30.3%

Survey participants were also asked to consider the 21 research development activities listed and choose the top three most impactful at their own institution. Table 3 shows the most impactful, second most impactful, and third most impactful, as well as the overall ranking for most impactful research development activity. Once again, the top ranked activity is *proposal development support for large, multi-investigator project grants* (overall 44.6%, with 25% selecting it as most impactful). Among the top five activities chosen were also *Grant team project management (coordination of meetings, proposal development deadlines, shared documents, etc.)* (overall 28.5%, with 8.9% selecting it as most impactful), *Grant writing workshops* (overall 26.8%, with 10.7% selecting it as most impactful), *Internal grant programs to provide seed funding for research* (overall 20.5%, with 8.0% selecting it as most impactful), and *Grant proposal editing* (overall 20.5%, with 8.9% selecting it as most impactful). The lowest ranked research development activity in terms of impact was *Recognition events/programs for investigators' success* (0.0%; Ross, 2017).

It is interesting to note that three research development activities most frequently chosen as either important or critically important (i.e., *proposal development support for large, multi-investigator project grants; internal grant programs*; and *grant team project management*) are slightly different from the activities ranked as the three most impactful within participating institutions. Specifically, grant-writing workshops were chosen in the top three most impactful research development activities, but this activity ranks seventh in the list of important activities (Ross, 2017). There could be several reasons for this difference. Participants were asked to rank the importance of research development activities to universities in general, and to rank the impact of research development activities within their own institution. Rankings for impact could reflect the different university environments. Some institutions may not have all 21 activities listed in the survey. Thus, while a participant may have an opinion of the importance of each of the 21 activities, their perception of the top three most impactful could be based on their own environment. The rankings of research development activities could also reflect differences in university priorities and research goals. While an activity may be deemed important, the investment required for that activity and its fit within a particular university environment may make it more or less impactful. The differences in rank between importance and impact could also be reflective of a lack of standardized metrics for research development activities, which makes quantifying impact and importance very subjective.

Table 3. Most Impactful Research Development Activities

Research Development Activity	Most Impactful	2nd Most Impactful	3rd Most Impactful	Overall
Proposal development support for large, multi-investigator project grants	25.0%	9.8%	9.8%	92.9%
Grant team project management (coordination of meetings, proposal development deadlines, shared documents, etc.)	8.9%	11.6%	8.0%	28.5%
Grant writing workshops	10.7%	12.5%	3.6%	26.8%
Internal grant programs to provide seed funding for research	8.0%	7.1%	5.4%	20.5%
Grant proposal editing	8.9%	8.0%	3.6%	20.5%
Facilitating internal collaborations	5.4%	4.5%	9.8%	19.7%
Mentorship program for investigators	5.4%	4.5%	8.0%	17.9%
Helping faculty in navigating through internal pre- and post-award processes	4.5%	7.1%	4.5%	16.1%
Helping/training faculty to find funding opportunities	2.7%	3.6%	6.3%	12.6%
Facilitating external collaborations	4.5%	5.4%	1.8%	11.7%
Grant writing of non-technical sections of a proposal	1.8%	4.5%	5.4%	11.7%
Research faculty onboarding	1.8%	6.3%	2.7%	10.8%
Working with investigators on re-submissions	0.0%	1.8%	6.3%	8.1%
Coordinating the limited submission process	1.8%	0.9%	4.5%	7.2%
Disseminating funding opportunities	2.7%	0.9%	2.7%	6.3%
Assisting investigators in getting a peer review of their proposal	0.9%	2.7%	1.8%	5.4%
Research communications (newsletters, listservs, brochures, webpages, etc.)	0.9%	0.0%	3.6%	4.5%
Research events such as faculty symposia	0.0%	0.9%	1.8%	2.7%
Creating a library of successful proposals	0.0%	0.0%	0.9%	0.9%
Grant writing of technical sections of a proposal	0.0%	0.0%	0.9%	0.9%
Recognition events/programs for investigators' success	0.0%	0.0%	0.0%	0.0%

Conclusions

Research university administrators have an important perspective of the value of research development offices and activities for securing sponsored research funding and achieving the institution's research goals. The data collected on the survey participants, their institutions, and institutional research development offices helped to provide a context for the data collected about the functions and activities of the offices.

Survey Participants, Their Institutions, and Institutional Research Development Offices

A common metric to describe the level of research activity at a university is total annual sponsored research expenditures. It is interesting that almost a third of survey participants, people who serve in research development functions in a university, do not have this type of information. This could be an indicator of the differences in the role of the research development professional within a university, where some research development professionals are not closely connected to the measurement or tracking of research expenditures. It could also be an indicator of differences in how universities quantify their research activity. One challenge in the emerging field of research development is communication. Without a common vernacular, it can be difficult for people from different institutions to effectively communicate about research development activity and compare benchmarks. The need to communicate and benchmark is important for many reasons, not the least of which is to identify best practices and make strategic decisions about managing the internal and external influences on the university research infrastructure.

Research Development Offices

Quantifying the value of research development offices can be difficult. The information gathered on research development offices shows that these are perceived to have value in helping institutions achieve their research goals. There is an increasing trend of research development offices being established throughout the last few decades. A large majority (78%) of survey participants recommend that universities without formal research development offices establish one. Survey participants shared administrative strategies being employed to help develop university research, and an analysis of these responses suggests that this topic merits a much deeper exploration. Many survey participants noted that the value of research development offices goes beyond increasing university sponsored funding goals. Some significant statements from survey participants included that research development offices offer specialized services that are not duplicated in other units in the university research infrastructure, and research development support is perceived to make researchers more successful.

Research Development Activities

Universities that do not have formal research development offices may still engage in research development activities to help support and achieve university research goals. Survey participants

both with and without formal research development offices ranked the most important research development activities as: (a) proposal development support for large, multi-investigator project grants; (b) internal grant programs; and (c) grant team project management. Participants also ranked the three most impactful research development activities at their institutions in terms of increasing sponsored funding as: (a) proposal development support for large, multi-investigator project grants; (b) internal grant programs; and (c) grant writing workshops. Data on which research development activities are most important and impactful is necessary for sound decision-making within the university research infrastructure.

Future Directions

An important topic for further study is research development activities. For example, the activity identified in this study as the most important and most impactful is proposal development support for large, multi-investigator project grants. It would be interesting to know more about how this function is handled on college campuses, and what the best practices are related to getting this type of proposal funded. A better understanding of how each of the 21 research development activities are implemented on college campuses would certainly be beneficial to all research development professionals.

Another topic of interest not sufficiently explored by this study is the structure of research development offices and their placement in the larger university infrastructure. Of the survey respondents with a research development office, a majority (85%) have a central office that serves the entire university. However, one of the study participants noted that the future direction for her central research development office is to try to shift more of the research development functions to the individual academic units, including creating unit-level research development offices. It would be interesting to know if this is a trend and if there is evidence of better service given in a decentralized research development organization. Finally, the sample for this study was members of NORDP, and it would be beneficial to gather similar data from university research administrators across the nation including those who are not NORDP members as well as other stakeholders in the university research enterprise so that the results could be compared.

Ultimately, data on research development activities and the best practices can inform the strategy employed by university leaders. Understanding the roles that research development offices and activities play in supporting and improving grant funding success and accomplishing university research goals is critical to organizational decision making. Are research development offices and activities worth the investment of precious university resources? Keeping in mind the goals of their institution, research development professionals can consider the results of the present study in determining the answer to this question.

Authors' Note

Material in this article is derived from Roxana Ross's doctoral dissertation. The authors declare no conflicts of interest. Correspondence concerning this article should be addressed to Roxana Ross, Ed.D., Executive Director, Translational Research and Economic Development, Nova Southeastern University, 3301 College Avenue, Davie, FL, 33314.

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