Research Administration as a Living System

Sharon Stewart Cole, Ph.D.
Nevada Cancer Institute
One Breakthrough Way
Las Vegas, NV 89135
Work: 702-822-5119
Home: 702-855-0396
Fax: 702-944-2379
E-mail: scole@nvcancer.org

Author's Note

Portions of the literature review were previously reported with the author's dissertation research entitled, "Federal funding success factors: A replicated quantitative analysis." The author received her Ph.D. in Education in December 2006. The Delphi study in this article is new research that was performed to expand the findings of the author's dissertation research. The author has 20 years of experience in contracts and grants administration and has served as a director of sponsored programs.

Abstract

The purpose of this Delphi study was to gather expert opinions and recommendations for change in the research administration system to bring about growth and collaboration. This study was deemed important because at the heart of every system is the fact that individuals need each other to continue to exist. The results of the Delphi study give recommendations from the research faculty perspective for the improvement in the system of research administration and faculty relationships. Administrators and research faculty should view each other as team members whose objectives are to discover and understand how to achieve common goals. The recommendations suggested that change was needed by both faculty and research administrators to become a more unified, living system.

Keywords: Research administration, culture, grants, Delphi study, universities, research faculty, organization, principal investigator

Introduction

Imagine a university where faculty and research administrators work in harmony. Rather than strife, manipulation, placing blame, stress, and disallowances, a system where research administrators are empathic and helpful and receive accolades and recognition from faculty. Picture a system where faculty are supportive of research administrators and share their objectives and needs openly. Can you envision a university where faculty and research administrators receive and accept constructive feedback? Systems where university business practices support the research endeavor? Funding agencies support new research ideas and new researchers? How could such a system be accomplished? Previous research explains how these circumstances evolved, and is addressed in the literature review.

Literature Review

Publish or Perish Syndrome

Faculty are faced with the need to publish journal articles and books, and to obtain grant funding. This publish or perish syndrome is caused by universities using published research results to evaluate faculty for tenure, merit, funding, and salary decisions (Hu & Gill, 2000). Hu and Gill (2000) developed the theory of faculty

productivity as a life-cycle model, which states, "an individual engages in research because of the perceived significant future financial reward for the research activity" (p. 16).

This theory suggests that productivity rises sharply in the first stages of a career, peaks at the time of tenure, and then begins to decline. Hu and Gill (2000) found that the post-peak decline rate was slower for those in the high publication rate group compared to those in the low publication rate group. This finding followed the hypothesis that research provides reputation capital, which yields positive returns in subsequent years. Hu and Gill reported that faculty who took administrative positions such as department head or dean showed a significant drop in research productivity compared to their academic colleagues, and that productivity varied among institutions.

Hu and Gill (2000) noted that institutions could help by providing graduate assistants and reducing teaching and administrative duties. Taking this previous research into consideration, Hu and Gill attempted to "identify the set of variables that have the most significant effect on the research productivity of information systems faculty" (p. 24). Results of their data analysis lead to the following conclusions:

1. Junior faculty may be productive because of current technological skills, a strong reason that leads to longer working hours, more time allocated for research activities, and a light service load.

2. Senior faculty may be productive because of favorable teaching loads, opportunities to work with several junior faculty and doctoral students, or more time for research activities because of fewer new classes requiring preparation.

3. Faculty were adversely affected when assigned with a weekly teaching load of more than 11 hours, [by taking] on many academic service responsibilities, or [having] been in the faculty position for several years.

4. Tenure status, academic rank, and school type seemed to have no significant correlation to faculty research productivity. (p. 24)

The authors remarked that the life-cycle model has potential limitations that might influence reliability because the data are self-reported, and the numbers may be inflated for various reasons (Hu & Gill, 2000). What is clear is that the ability to participate in grant-funded research can be critical to new faculty seeking tenure and to institutions seeking funding to support research activities. Participating in research projects, preparing proposals, and publishing research results are traditionally considered activities of scholarship.

McMillin (2004) reported that becoming a complete scholar was a process through which junior faculty attempt to construct a professional identity:

[A senior faculty is] characterized as [having] a thirty-five year career, [being] an award-winning teacher, an effective dean, and a well-respected historian. He has managed to constantly reinvent himself and adapt to changes in theory and methodology, in pedagogy, student expectations, in institutional mission, and resource availability—all with grace, wit and modesty. (p. 1)

In contrast, junior faculty are characterized as being the lucky few survivors of a competitive job market, and technology has shaped their work both in teaching and research. They are beginning their careers at a time when the expectations of higher education are growing and societal

support for higher education institutions is declining. Many junior faculty are struggling to develop a professional identity, and new courses, and many are stretched to participate in community organizations. McMillin (2004) reported that participation in municipal projects, social service agencies, and schools is often part of the institutional mission. Many institutions protect junior faculty from this service mission and allow them to focus on traditional research.

McMillin believed that if new faculty do not find ways to make their research accessible to students, serve the local community, and build interdisciplinary connections before tenure, they most likely will not do so afterward. McMillin noted that the challenge was to find the right balance for new faculty so they could achieve a supportive flexible work environment in which to cultivate their academic professionalism.

The Competitive Nature of Federal Funding

Stigler (1993) reported that universities differ from businesses and athletics, which promote competition as a positive. On the other hand, a university, which views competition as a threat, "fosters complaints, cries for support, pleads for exemption from laws against collusion, and attempts to restrict new entries" (p. 1). Competition does take place among research universities and faculty. The competition focuses on the need to increase the intellectual gains to students and for faculty to derive economic gain from new ideas that advance science and human well being (Stigler). Faculty compete for higher salaries, larger offices, and recognition. Universities compete for prestige, students, and income; competition determines who is successful.

Stigler (1993) proposed that the difficulty faced by research universities was not in the competition between faculty and universities, but in the concentration of government support to a few major universities. In support of this position, Stigler discussed changes that have occurred with the National Science Foundation (NSF). He reported that around 1980, the NSF came under political pressure that impaired its efficiency and threatened injury to research universities. One of these dangers, he said, was the congressional earmarking of funds for state projects and the political setting of research agendas.

The NSF has considerable power in setting the direction of research and does not have a serious competitor in the physical and mathematical sciences. This agency, Stigler said, has turned its focus on "cultivating the source of the funds, the Congress, and has sought to structure its programs to increase its appeal to this source" (p. 7). Stigler explained how this change contributed to increased competition among research universities:

The National Science Foundation has found it easier to explain large-scale projects and research centers to Congress than to argue convincingly for the diffuse benefits of a broad-based funding of individual research grants; as a consequence the NSF has promoted large projects. The scientists have to a degree acquiesced in this shift, being told that otherwise it would be impossible to increase support to meet expanded challenges, and that the support for research centers in fact permits at least a modest growth of funding for other programs. But, that has not happened; instead, as might have been predicted, total budgets have not grown in real terms, and since the highly visible research centers have been enthusiastically sold to Congress, the centers have of necessity been spared the worst of the cuts. (p. 7)

Stigler (1993) offered words of encouragement for the research university, saying that, although universities face serious problems, they have already proven to be resilient and have emerged from these trials "changed and no less strong" (p. 9).

University Perspective

Boyer and Cockriel (1998) stated, "Research universities [were] judged by others based on research productivity and the dollar amount of acquired grants" (p. 61). Being "scholarly" was traditionally defined as "engaging in research, writing articles for publication, and sharing research findings with students" (p. 61). Writing proposals and being successful in receiving federal funding helped scholarly development and increased the opportunity for publication and recognition.

Ikenberry and Hartle (2000) showed that universities experienced a financial crisis as local government support for higher education fell sharply in the 1990s. With an economy pulling out of a recession, great pressure was placed on university budgets. Kennedy (1993) stated that universities were facing a period of serious resource constraint, and that without an infusion of new resources, the future of basic research might resemble the biomedical sciences.

> Applications for grants [were] growing faster than the available resources, the success ratio [was] declining, unrealistic demands for university matching [were] accompanied [by] reduced grant support, good research [was] going un-funded, good researchers [were] becoming frustrated, young researchers [were] leaving the field, infrastructure problems [were] being deferred, and the price for it all [was] paid by people who are not around to assert their interest. (pp. 2-3)

Universities and the federal government share interest in research that supports the continuation of sufficient grant funding. It is the mission of the university to serve the needs of society, and the government needs research to solve societal problems or concerns of national security. Society benefits from university research, the university research infrastructure is improved, new technologies are created, and the government agencies missions are supported (Federal Government and Higher Education, 1960).

Faculty Perspectives

To better understand the faculty's perspectives, Boyer and Cockriel (1998) studied motivational factors and barriers associated with pursuing federal funding:

> Motivators:
> 1. Consideration for tenure or promotion.
> 2. Building professional reputation as a capable researcher or Principal Investigator.
> 3. Strong commitment to federal funding from the college president.
>
> Barriers:
> 1. Lack of training in grant seeking and grant writing.
> 2. Lack of knowledge of budget development.
> 3. Lack of knowledge of funding sources. (1998, p. 61)

Boyer and Cockriel showed that the key to pursuing grant funding lies in discovering the individual motivators that attract faculty. This helps to reduce the barriers in the most cost-effective manner and stimulates the faculty's best work. McMillin (2004) stressed that institutions can create spaces where junior faculty can nurture their professional goals. Many institutions make "investments in faculty research by providing funding for start-up costs, research grants, travel support, sabbaticals, and pre-tenure leaves [of absence]" (p. 2). Research

universities' reputation seemed to follow research productivity, and such support was fair and needed (McMillin). This investment was supported by a "strong commitment and obligation of higher education to put the best minds of our society to work on creating new knowledge and its application to solve societal ills" (p. 2).

Porter (2004) reported that some new faculty acknowledged their need for career advancement and a specialization. This group recognized their need for training and scholarly development. Porter observed that there seem to be few mentors available to help new faculty in becoming successful. He further suggested that a series of training workshops with senior faculty serving as mentors would increase knowledge and skill and improve the attitudes of new faculty. Success in receiving federal funding would enhance the likelihood of achieving tenure, promotion, and academic freedom (Porter).

Research Administrator Perspective

In the 1960s, the federal government started many new programs that exploited the talents of faculty and the infrastructure of American universities. Federal agencies were established to manage these new initiatives through congressional budget allocations. Each agency independently established federal mandates and designed its own processes for managing its programs without coordination with other agencies (Management Concepts Incorporated, 1995):

> Dozens of different rules and procedures about how to deal with similar issues appeared. Each grants office devised its own standards, procedures, and forms for applying for federal funding. These [federal] institutions devised their own systems for determining how decisions would be made in awarding funding. (pp. 1-2)

This great diversity created by the federal agencies caused problems for universities. Policies, procedures, and federal regulations were extremely frustrating and confusing to applicants. It was necessary not only to determine the proper rules to follow, but also to understand the sometimes unspoken criteria for selection and management of awards (Management Concepts Incorporated, 1995). Federal Government and Higher Education (1960) noted:

> Grants [were] made because of proposals from individuals and groups, supported by their institutions. The size of the grant [was] determined through estimated direct costs of time, materials, and services, frequently supplemented by funds to pay for needed special equipment. A percentage fixed by law or regulation, of direct costs [was] applied toward the institution's indirect costs such as building maintenance and repair, utilities, and other items of general administrative expense. (p.81)

This system has grown so extensively that universities have given research administrators the responsibility to carry out the required proposal submission and grants administration operations in an efficient manner. The administration process is integral to the scholarly processes. The focus of research administration has been on observing the laws, rules and regulations imposed by funding agencies. This focus has in many institutions been perceived as a barrier to faculty, who in many cases feel these requirements have been communicated in ways that are less than helpful. Research administrators are frustrated by faculty's seeming lack of interest in or concern with their financial and compliance responsibilities.

Need for Change

Christopher and Gordon (1999) noted that systems form through collaboration and from a realization that we need one

another to maintain life. The recognition that individuals need each other lies at the heart of every system. From that realization individuals reach out, and seemingly divergent self-interests develop into a system of interdependency (Christopher and Gordon).

Those of us have worked in universities for many years know that we do not succeed nearly as often as we need to. We have suffered from the unending changes that overtake our universities, creating more destruction than growth (Christopher and Gordon, 1999). So, what hope is left? Is there a way to create change in the large, complex systems we have created? The answer is yes — when something is impossible through one vision, it possible through another, as Christopher and Gordon note:

> In a complex system it is possible to find simple causes that explain our problems, or to know whom to blame. A messy tangle of relationships has given rise to those unending crises. We need a different worldview to guide us in this new world of continuous change and intimately connected systems that reach around the globe…All living systems are webs of relationships spun into existence as individuals realize that there is more benefit available to them if they create relationships than if they stay locked in narrow boundaries of self-interest. These relationships of mutual benefit lead to creating systems that are more supportive and protective of individuals. It's important to remember that nothing living lives alone. Life always and only organizes as systems of interdependency. (p. 2)

When a system falls apart, it can see things differently and regenerate itself into a new way of living. Research administration as a living system can reform itself as it recognizes its weaknesses and cultivates shared interests with research faculty.

Study Methodology

Because there is so little systematic information about the working relationship between research administrators and faculty, a Delphi study was undertaken to gauge the opinions of faculty at several major research universities. Research faculty are the generators of the grants administration workload and recipient of services; therefore, their opinions and participation are deemed important to the improvements of the system of research administration. This Delphi study was not designed to determine statistical significance, to involve busy experts in an approach similar to a focus group. Unlike a focus group, the Delphi participants did not meet physically. An online survey was prepared by the researcher and distributed through email to individual participants. The researcher served as a clearinghouse through which the survey responses of each panelist were seen (Department of Sustainability and Environment, 2007).

The panelists were senior faculty at major research universities that have received at least $1 million in federal funding. A letter was distributed to 287 possible panelists to confirm their willingness to participate. The letter contained a description of the project, its objectives, the time anticipated, and a promise of anonymity. Of 34 senior faculty researchers who agreed to participate, 32 completed the two-step process. The four open-ended questions posed are listed below:

> Question 1: What support or services should research administrators give faculty that are not offered?
>
> Question 2: What should be the future goals and objectives of research administration?

Question 3: What change is needed in research administrators' attitudes toward working with faculty, and how should the change be implemented?

Question 4: What change is needed in faculty attitudes toward working with research administrators, and how should the change be implemented?

During the first round, the survey questions generated 134 opinions. Similar opinions were offered by many participants and were later synthesized to delete duplicates and to combine themes into 40 distinct opinions or recommendations for change. Based on the 40 opinions, a second and final survey was generated to assess the importance of each opinion regarding growth or change needed in research administration. The 32 faculty experts who participated in the final round of surveys rated the significance the 40 opinions or recommendations on a five-level scale. Level 1 was given the highest priority rating and Level 5 was given the lowest. The percent of faculty response to each of the 40 questions was calculated.

Results

The opinions were specific to how faculty perceived their interaction with their respective research administration offices and what they believed research administration should do to improve services offered. A majority of the Delphi panel agreed on several recommendations for change. Overall Level 1 responses to the 40 questions in the final survey averaged 45% of the total. The responses are shown in Table 1 below:

Table 1

Summary of Recommendations by Level of Significance (N=32)

Question 1: What support or services should research administrators give to faculty that are not offered?

1. Assist with preparing proposals, prepare budgets and proposal forms, streamline procedures for timely proposal review; and provide mentoring and proposal critiquing as needed.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	46.9%	15	Level 4	6.2%	2
Level 2	21.9%	7	Level 5	0.0%	0
Level 3	25.0%	8			

2. Write the proposals if the university wants funding.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	9.4%	3	Level 4	21.9%	7
Level 2	3.1%	1	Level 5	65.6%	21
Level 3	0.0%	0			

3. Change in services is not required. Faculty are being provided with all the help by Research Administrators that they need.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	6.2%	2	Level 4	18.8%	6
Level 2	15.6%	5	Level 5	34.4%	11
Level 3	25.0%	8			

4. Help more and become less of an enforcer.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	58.1%	18	Level 4	0.0%	0
Level 2	19.4%	6	Level 5	6.4%	2
Level 3	16.1%	5	N/A		1

5. Develop better graduate student recruiting strategies.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	21.9%	7	Level 4	9.4%	3
Level 2	37.5%	12	Level 5	12.4%	4
Level 3	18.8%	6			

6. Reduce bottlenecks for better financial accounting, and reporting of grant funds, and timelier purchasing.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	34.4%	11	Level 4	6.2%	2
Level 2	34.4%	11	Level 5	3.1%	1
Level 3	21.9%	7			

7. Communicate the university research objectives to granting agencies.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	15.6%	5	Level 4	25.0%	8
Level 2	9.4%	3	Level 5	18.8%	6
Level 3	31.2%	10			

8. Work closely with faculty to plan a long-term university-wide research strategy.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	21.9%	7	Level 4	12.5%	4
Level 2	25.0%	8	Level 5	6.2%	2
Level 3	34.4%	11			

9. Encourage faculty to pursue research funding by offering awards, prizes, grant writing workshops; and recognition for outstanding research.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	12.5%	4	Level 4	12.5%	4
Level 2	34.4%	11	Level 5	12.5%	4
Level 3	28.1%	9			

10. Follow-up with notifications to faculty of progress reporting and renewal proposals deadlines.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	25.0%	8	Level 4	12.5%	4
Level 2	43.7%	14	Level 5	9.4%	3
Level 3	9.4%	3			

11. Return a significant part of the overhead or indirect cost to the college, department, and principal investigator.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	67.8%	21	Level 4	0.0%	0
Level 2	25.8%	8	Level 5	3.2%	1
Level 3	3.2%	1	N/A		1

12. Add more research administration staff during times of peak proposal deadlines to overcome frustration and alleviate the increased workload.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	31.3%	10	Level 4	6.2%	2
Level 2	46.9%	15	Level 5	6.2%	2
Level 3	9.4%	3			

13. Facilitate institutional financial support (matching) for large scale-grant applications.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	50.0%	16	Level 4	0.0%	0
Level 2	37.5%	12	Level 5	3.1%	1
Level 3	9.4%	3			

Question 2: What should be the future goals and objectives of research administration?

1. Identify proper funding agencies and programs beyond distribution of lists of announcements and web site links.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	34.4%	11	Level 4	12.5%	4
Level 2	28.1%	9	Level 5	3.1%	1
Level 3	21.9%	7			

2. Help develop inter-disciplinary or research clusters to facilitate large-scale university proposals.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	25.0%	8	Level 4	15.6%	5
Level 2	40.6%	13	Level 5	0.0%	0
Level 3	18.8%	6			

3. Encourage talented faculty members to achieve their full potential as researchers by standing behind faculty who are pursuing basic research.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	46.9%	15	Level 4	6.2%	2
Level 2	31.3%	10	Level 5	9.4%	3
Level 3	6.2%	2			

4. Visit researchers' laboratories and open lines of effective communication by appreciating issues that the other person encounters.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	9.4%	3	Level 4	18.8%	6
Level 2	28.0%	9	Level 5	18.8%	6
Level 3	25.0%	8			

5. Reduce the time researchers spend with administrative and paper work duties.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	68.8%	22	Level 4	0.0%	0
Level 2	25.0%	8	Level 5	3.1%	1
Level 3	3.1%	1			

Question 3: What change is needed in research administrators' attitudes toward working with faculty and how should the change be implemented?

1. Recognize common goals and essential service functions of research administration to help the faculty member succeed.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	31.3%	10	Level 4	3.1%	1
Level 2	31.3%	10	Level 5	0.0%	0
Level 3	34.3%	11			

2. Reduce arbitrarily implemented policies and be less rigid in their attitudes. Be more open to views of faculty.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	38.7%	12	Level 4	6.4%	2
Level 2	35.5%	11	Level 5	0.0%	0
Level 3	19.4%	6	N/A		1

3. Try to understand the research before imposing restrictions on faculty's ability to make program or budget decisions.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	16.1%	5	Level 4	12.9%	4
Level 2	32.3%	10	Level 5	0.0%	0
Level 3	38.7%	12	N/A		1

4. Offer service as the greater purpose and not just attending to compliance.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	53.1%	17	Level 4	6.3%	2
Level 2	25.0%	8	Level 5	0.0%	0
Level 3	15.6%	5			

Question 4: What change is needed in faculty attitudes toward working with research administrators and how should the change be implemented?

1. Educate administrators of publication and grantsmanship relationship and requirements.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	21.9%	7	Level 4	12.5%	4
Level 2	28.1%	9	Level 5	0.0%	0
Level 3	37.5%	12			

2. Send proposals with enough lead-time for the research administration office's review and submission and not route at the last minute.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	28.1%	9	Level 4	12.5%	4
Level 2	28.1%	9	Level 5	6.3%	2
Level 3	25.0%	8			

3. Understand that administrators are trying to facilitate grant submission and administration and to treat administrators with mutual respect.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	21.9%	7	Level 4	3.1%	1
Level 2	43.8%	14	Level 5	3.1%	1
Level 3	28.1%	9			

4. Interact with research administrators to bring their research to the attention of funding agencies and the public and in finding industrial connections.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	22.6%	7	Level 4	3.2%	1
Level 2	32.3%	10	Level 5	6.5%	2
Level 3	35.4%	11	N/A		1

5. Work as a team and show each other respect.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	46.9%	15	Level 4	3.1%	1
Level 2	28.1%	9	Level 5	3.1%	1
Level 3	18.8%	6			

6. Be more sensitive to the time of research administration personnel and their workload.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	12.9%	4	Level 4	6.5%	2
Level 2	38.7%	12	Level 5	3.2%	1
Level 3	38.7%	12	N/A		1

7. Take a non-aggressive, open-minded approach toward research administrators.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	34.4%	11	Level 4	6.3%	2
Level 2	37.4%	12	Level 5	3.1%	1
Level 3	18.8%	6			

8. Learn to trust research administrators, appreciate their role in securing funding, see them as partners, and delegate.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	25.8%	8	Level 4	3.2%	1
Level 2	48.4%	15	Level 5	9.7%	3
Level 3	12.9%	4	N/A		1

9. Explore the common interest of faculty and research administrators to reduce obstacles.

	Response Percent	Response Count		Response Percent	Response Count
Level 1	15.6%	5	Level 4	12.5%	4
Level 2	43.8%	14	Level 5	3.1%	1
Level 3	25.0%	8			

Note. Responses were determined to have reoccurring themes and Table 1 is a representation of the responses received to the second and final survey.

Conclusions

There were recurring themes in the significant responses. The first theme addressed the system of research administration. Faculty expressed a need for assistance with preparing proposals, budgets and streaming procedures for timely proposal review. Such assistance could be in the form of mentoring or critiquing proposals. Faculty felt that research administrators should provide more help and be less focused on enforcing rules and regulations. Faculty believed that there are bottlenecks in the financial accounting and reporting of grants and that purchasing services should be provided in a more timely fashion. Faculty requested that time required to spend on paper work be reduced. Faculty suggested that research administration should add more temporary staff to assist in times of peak proposal submissions to alleviate the administrators' increased work loads.

The second theme reflected a desire for additional financial support for faculty research in the form of assistance with matching funds and a return of indirect cost to the department and Principal Investigators.

Better communication and teamwork between faculty and research administration emerged as the third theme. Faculty felt that research administrators should encourage investigators pursuing basic research, and help them identify funding agencies and programs beyond the basic distribution of lists of announcements and web site links.

The fourth theme suggested that faculty could assist research administration by showing respect and understanding. Faculty expressed some need to submit proposals with adequate lead-time, and to work as a team.

Some opinions that did not rate as highly significant in the final survey were: (a) faculty's sensitivity to research administrators' time and workload; (b) exploring the common interest of faculty and

research administrators to reduce obstacles; (c) faculty interacting with research administrators to bring their research to the attention of funding agencies;, (d) taking a non-aggressive, open-minded approach toward research administrators; (e) working with faculty to plan a long-term university-wide research strategy; and (f) learning to trust research administrators, appreciating their role in securing funding, seeing them as partners, and delegating.

These opinions are from research faculty participating in this Delphi study, and are supported by their substantial number of years in research. Future research will be conducted to obtain the perspective of research administrators with substantial numbers of years of experience. In this way viewpoints can be isolated and a determination made as to collective concerns, points of agreement, and disagreement. By then adding the perspective of the university administration, funding agency criteria for a model of a living system can be generated.

The study provided both positive recommendations as well as areas of organization and attitude of both faculty and research administrators needing improvement. There is still a great deal of effort required to bring about the desired changes. These recommendations are offered as guidelines for both faculty and research administrators to consider in developing a vision for creating a living system of mutual goals and objectives, respect, and cooperation.

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