Research Administration Training and Developmental Provisions for Staff:

Professional Developing and Structuring of a Library for Research Administrators

by

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ABSTRACT

This action research study utilized a mixed-method approach to better understand the current situation of the research administration community with respect to addressing the training and development needs for new and junior staff within Arizona State University's Fulton Schools of Engineering and encompass other departments and units at Arizona State University. The study extended on those efforts of support by implementing an innovative resource library as a foundation, to decipher the needs of the research administration community and better equip staff through successful training, development and learning experiences. This study assessed Arizona State University's research administration training and development platforms and other institutional platforms (e.g., National Council of University Research Administrators, National Science Foundation, Grants.gov, and National Institutes of Health) – to garner the necessary ingredients and components to creatively design, develop and implement the innovative library. This study involved two naturally occurring groups consisting of a cohort of research administration staff with varying levels of experience. Specifically, a group of junior and a group of senior research staff were invited to participate in this study. The groups delivered on their experience, perceptions, evaluations, and ideas, which also aided in the necessary modifications to the library resource. For instance, following the delivery from the group of senior participants' adjustments and modifications aided in the preparation of the junior participants' performance in the library portal. The junior participants performance experience in the library embodied and measured their perceptions, experience, confidence, and comfort levels.

Performances within the site enabled the participants to clearly identify and clarify areas of need within the research administration infrastructure within Fulton Schools of Engineering and at Arizona State University overall. In addition, encouragement for future iterations of the library resource were strongly declared and proposed. The revelations brought about through the discussion modules from both groups gave insight through the eyes of participants (e.g., seniors and juniors); which heightened and strengthened the results of the study. Overall, the outcomes received and tracked through the discussion modules from both groups suggested that the current training and development research administration infrastructure within Arizona State University's research community needed adjustments.

DEDICATION

I would like to first dedicate this to my Mother, Bettie Brown, who I lost a few years ago; you have always inspired, encouraged, and motivated me to achieve greatness. I remember you often praying for your children and grandchildren early in the morning before the sun would rise; to God be the glory!

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Larger Context

Research administration as a vocation is an ever-changing field requiring education and training that consists of varying levels of complexity and components. The demands on research administration departments are increasing across the United States due to a variety of influences. "Research administration is essentially a service delivery system. This system interacts with federal, state, and private sponsors; the academic communities and school systems; the employees of all these organizations and the communities they serve; the environment; and the nation as a whole" (Cole, 2007b, p. 12).

The demands placed on the role of the research administrator require an increasingly higher caliber of skills and knowledge to keep up with the rising global expectations in the research administration profession. Junior and new/on-boarding research staff are faced with ever-changing guidelines and increasingly competitive proposal submissions. For Arizona State University (ASU) to keep a competitive edge in the world of research administration, they must equip their research administration community with the essential tools and resources to meet the demands and requirements that lurk ahead.

Research administrators generally go through a series of stages in their careers based on management decisions in which each change or step confirms that they are mature enough to leave one stage and enter the next. In this case, the next expected career step would be for new and junior level research administrators to develop in all

aspects of training and professional development, demonstrate competency as they progress through the research administration career and planning life cycle, and work towards earning a promotion.

A junior research administrator just entering the field of research administration is tasked with learning both the university processes associated with their profession and the federal and sponsor guidelines applicable for each proposal and award. At ASU, each department is responsible for the training of department research administrators. The individual training, process guidance, and resources available to each position is dependent on the department that they are working within and vary considerably across the institution in terms of quality. There is no standard list of tasks for which the research administrator is responsible and topics with which they need to be familiar. Many research administrators learn this information through trial and error; others are instructed and guided to watch video selections and visit several websites at the beginning of their tenure to acquaint and understand the purposes of ASU's research administration guidance, processes, systems, and available resources (e.g., Research Academy, Training Toolbox, Research, and Sponsored Projects Manual-RSP, Research Administration at ASU, Proposal Information and Resources, Process and Work Instructions, 0365 OKED Research Administrators, ASU Dashboards and the Upcoming RA Seminars and Events).

The majority of standardized institutional training and process guidance that is currently available at ASU is from the perspective of central workers, contains outdated information, or is not detailed enough to help guide new research administration in the

actions they need to take to complete standard processes; it also often does not provide the information that they need to be aware of in order to make appropriate and knowledge-based decisions within the management of proposal submissions and sponsored awards. Often training is done on a "one-off" basis by shadowing a more experienced research administrator who takes time from their other duties to pass on their knowledge. Due to the non-standardized format this training can be inaccurate, incomplete, or limited by the level of knowledge of the trainer.

A Delphi method study conducted at the Nevada Cancer Institute in Las Vegas, Nevada gives an example of results of pooling the perspectives of the experiences of research staff and faculty at an intensive research institution. This study describes processes that in the short-term have worked to improve the research administration profession overall. According to Cole (2007b), the Delphi study identified areas needing improvement within the research administration profession for a great number of years, in hopes that the cycles of research that were involved would inspire institutions to implement the proposed action plan. Cole's (2007a) first Delphi study gathered expert opinions primarily from research faculty who were asked to respond to focus group-type questions based on their experiences. "A second Delphi study was undertaken to obtain the perspectives of research administrators to identify the future direction of the research administration profession and to identify ways for building stronger working relationships between research faculty and research administrators" (Cole, 2007b, p. 11).

The Delphi studies found that both research faculty and research administrators support the need for improvement in the organizational structure of research

administration. The general areas identified for growth and development in the study were:

> (a) more administrative support such as reduction in paperwork, education on emerging issues and regulations, and electronic proposal preparation, (b) improved systems for financial status reporting and budget management; (c) improved communication and interaction between faculty and research administrators; (e) better understanding of motivators of faculty and research administrators; and (f) university administration participation in establishing a better working environment that foster collaboration and partnership. (Cole, 2007b, p. 20)

Marina and Davis-Hamilton (2016) introduced another approach to implementing important changes in the research infrastructure. For instance, in their Tufts Model, these were clusters of trained research administrators that were locally positioned and managed through matrix reporting to schools and centers and a centralized office. Research administrators were able to support departmental investigators within centers and schools with a hands-on approach to the pre- and post-award side. This model encouraged local research administrators to communicate successful methods and gained knowledge with the purpose to improve the overall support to research investigators. The Tufts model supports research administrators in their quest to produce successful results while collaborating with research faculty at the research-intensive universities across the United States (U.S.).

Local Context and Background

Arizona State University ranked as a top 20 institution within the field of research among U.S. universities without a medical school. ASU sets the standards high for research staff and faculty – geared towards advancement. The six Fulton Schools of Engineering at Arizona State University are well known all over the world for their

successful research collaborations, in particular, that bring in many research dollars to ASU. This study will focus on bettering the training and professional development infrastructure for new and junior research administrators to ensure the continuation of successful research collaborations in support of the research-intensive faculty within the Fulton Schools of Engineering (FSE). The study pulled participants from the six schools of Fulton Engineering who are supported by the FSE Dean's Office.

The Fulton Schools of Engineering Dean's Office Research Team supports all six schools primarily the overflow for both the pre-award and post-award tasks. In 2014, President Crow set an ambitious research expectation across the four campuses of ASU: to enhance research competitiveness to more than $700 million in annual research expenditures by 2020 (ASU, 2014, para. 4). The expenditure expectation has now moved to $815 million by 2025. This expectation by the faculty in turn increases the expectation of the research administration staff to deliver expert services in support of ASU's research faculty in their quest to attain research funding and meet the demands.

Role of Researcher

I have been a part of the research administration profession for several years. I am currently positioned at ASU's Tempe campus now working under the Fulton Schools of Engineering Dean's Office. My role is that of an insider. Thus, as a research manager, my positionality is internally seated with the research administration staff. I work closely with the research administrators and faculty daily to assist with research administration tasks, such as overseeing all aspects of the grant management cycle and

providing management support to help ensure that research goals are achieved while funders' regulations are followed.

The aim of the research management team of the Fulton Schools of Engineering Dean's Office is to provide exemplary customer service and support in the pursuit of externally funded projects and post-award management. These services and support are to extend throughout all of the six schools of Fulton Engineering – School of Biological and Health Systems Engineering, School of Computing, Informatics, and Decision Systems Engineering, School of Electrical, Computer and Energy Engineering, School for Engineering of Matter, Transport and Energy, School of Sustainable Engineering and the Built Environment and The Polytechnic School.

My observations and experience with new and junior research staff are that they have few resources and minimal direct knowledge coming into these research administration positions. However, there is clearly an expectation that they keep up with competitive and complex proposal and award management demands. I have found that they are eager to receive additional resources and training to develop their proposal knowledge and improve their research portfolios to enable a journey of success and to obtain promotions. Therefore, it is important to equip staff with the necessary tools to reach their goals successfully.

The information concerning sponsor processes, accounting preparation, and delivery and award management processes are kept in different places: internally and externally. Presently resources for developing research administration expertise is limited. The lack of training and development opportunities for research administrators

at Arizona State University in the past left many experienced professionals changing careers. There has been improvement concerning the amount of educational information available to the ASU research administration community within the past few years. However, the information is still somewhat scattered. There has also been an increase in systems changing without the appropriate guidance and with training materials that focus on central office functions rather than departmental research administration functions. To address the problem of practice, this study aims to develop a portal entitled The Library for Research Administrators (the Library portal) would deliver training and development, proposal resources, mentoring, and sponsor links.

Purpose of Study

The purpose of this action research study is to understand, evaluate, and offer a solution for Arizona State University research administration training and developmental needs for new and junior research administration staff within the six schools of Fulton Engineering. The focus is primarily on those research administrative staff who support research faculty's attainment of research funding and the management of funded projects. This study extended those efforts of support by exploring research administration training and development resources and implementing a resource library which will cater to the needs of the research administration community and better equip the research administration staff through successful training, development, and learning experiences.

Chapter 2: Literature Review

This action research study addresses the training and professional development of new and junior research administration staff within the research administration community at Arizona State University's Fulton Schools of Engineering (FSE).

Theoretical Framework

This research identifies with the Communities of Practice (CoP) theory developed by Wenger by way of grouping individuals together who share a similar passion for something they do or are part of and learning how to enhance what they do or may engage in as they interact. According to Wenger (1998), the communities of practice's social position is as informal relations and understandings that developed in mutual engagement on an appropriated joint enterprise. However, the overall focus highlights the impact on individual identity.

Wenger (1998) describes the establishment and process of negotiation within practice as an accomplishment of the collaboration of CoPs within the many facets of one's context, negotiating the meaning of elements from someone else's perspective (the other side) as well as the perspective from within (insiders) simultaneously. To support these processes, an infrastructure of engagement should include facilities of mutuality, competence, and continuity. The second theory, Experiential Learning Theory, developed by David Kolb (2014), informs this action research by way of cyclical learning phases – creating a successful learning experience and professional training and development platform for junior and senior research administrators participating in this study.

Communities of Practice Theory

Wenger (1998) presents the Communities of Practice theory with the assumption that engaging in social practice is part of the building blocks to individual's learning and becoming who they are. In other words, individuals identify with the social uniformity within Communities of Practice as they engage, share, and discover themselves. The theory explores the connection between the issues of community, social practice, meaning, and identity. Wenger (1998) breaks down the components of social participation as a process of learning and knowledge into four categories:

1. Meaning – to present and talk about one's ability to experience life and the world;
2. Practice – the combination of historical, social resources, frameworks and perspectives that sustain an individuals' mutual engagement and actions;
3. Community – the communication expressed via social platforms which define an individual's worth within the pillar of competence; and
4. Identity – illustrated as communication surrounding individual learning changes, which create personal histories in the context of communities (e.g., research administration community).

The overarching meaning and context behind each concept's analytical power lie in how it integrates the components [meaning, practice, community, and identity] while referring to a recognizable experience.

Wenger (2010) describes three dimensions of the relation by which practice is the source of coherence of a community: (1) mutual engagement, (2) a joint enterprise, and

(3) a shared repertoire. Mutual engagement refers to practices that exist among a group of individuals within a community who are open to the shared relationships among the community; negotiated between individuals within the community, which is defined by similar characteristics. Joint enterprise refers to a collective process, which defines a role among participants within the community who are in pursuit of clarity, creativity, mutual accountability transferrable within the community. The social connection which ties into this action research is with research administrators' engagement while attending conferences that are geared toward their specialty areas. Building a foundation which consists of identifying funding opportunities, demonstrating a commitment to learning about grant proposal processes together, engaging in collaborative meetings in which brainstorming sessions are essential, and sharing ideas related to research administration practices and procedures are also strong connection indicators. Importantly, individuals who are having the most considerable amount of success exhibit a meshing of research practices across diverse organizations and fields.

Experimental Learning Theory

Experiential learning is a four-stage cyclical theory of learning in which Kolb (2014) introduces a holistic perspective that combines experience, perception, cognition, and behavior as a life-cycle model. Kolb builds on a learning process in which knowledge is created through the transformation of experience. The four stages are:

1. Concrete Experience – the participant or learner actively experiences an activity, such as going through training modules in a field.

2. Reflective Observation – the participant or learner reflects on the activity or experience performed within the concrete experience component.
3. Abstract Conceptualization – the participant or learner consents to a reflection to give rise to new ideas or an amendment of an existing abstract concept.
4. Abstract Experimentation – the participant or learner applies the ideas or concepts to the world (e.g., research administration community) around them to see what materializes.

Kolb identified four learning styles, which correspond to the four stages:

Assimilators – individuals who learn better when they are presented with sound logical theories to consider.

Convergers – individuals who learn better when provided with practical applications of concepts and theories.

Accommodators – individuals who learn better when provided with hands-on experiences.

Divergers – individuals who learn better when they are allowed to observe and collect a wide range of information.

The primary goal for the new and junior research staff who enter a research administration career is to acknowledge their need for career advancement and specialization. The pressure is placed on them to perform at a high level. This goal is consistent with Kolb's experimental theory because it suggests that there are high-productivity stages of career interests for research staff, which peaks at the beginning of their careers and then again at the time of their retirement. Kolb's perspective and

position that knowledge is fashioned through the transformation of experience will be revealed throughout the use of the Research Administration Library, which aims to assist research administrators to transform and grow professionally.

Kolb's experiential theory stresses how experiences, such as demonstrative practices, environmental factors, intellectual applications, and interactive conversions influence the learning process. The relationship and influence in which Kolb's experimental theory and learning stages connect with this study are by way of the expression of the cyclical phases, thoughtful observations, and active experimentations that were acquired and engaged by the research administrators throughout the six schools of Fulton Schools of Engineering. The initial focus and responsibility were on the RA seniors' and managers' who experienced and took part in developing and implementing the research administration portal by evaluating, reviewing, and suggesting modifications and tweaks (e.g., pilot test). Kolb's learning stages and styles identified with the study through the cycles, and stages, in this case, going through Phase 1-3 in which the intervention revealed and transformed the experiences of the group of research administrators (e.g., Phase 1-RA seniors' experiences during the pilot test; Phase 3-RA juniors' performance and exploration experiences in the portal).

The intervention stages of this study are categorized within Kolb's four stages in the following ways. The senior research administrators and managers employed the concrete experience as they reviewed and evaluated the training components during Phase 1 (pilot test). The junior and mid-level research administrators practiced the concrete experience through the performance of activities in the three Modules within the

portal (Module 1 – Knowledge and Information Links, Module 2 – Boot Camp Module and Module 3 – Discussions Module) which consists of training and developmental themes highlighted within the research administration field. Kolb's reflective observation stage was identified and experienced by the senior research administrators and managers in Phase 1's reflection on the portal's platform and components. Secondly, Kolb's reflection observation stage was experienced when the junior research and mid-level administrators reflected on their experiences following their performance and exploration within the research administration module during Phase 3. Kolb's abstract conceptualization stage was identified and experienced when the senior research administrators transferred their knowledge as they shared their perceptions and gave feedback on the resource. Kolb's abstract conceptualization stage was identified and experienced again with the junior and mid-level research administrators' views and perceptions following their live learning and performance experiences within the Library for Research Administrators. Kolb's abstract experimentation stage resulted from the plans and objectives made following the senior administrators' evaluation, feedback, and suggestions (e.g., data dissemination activities in Phase 2). Kolb's abstract experimentation stage will be further identified and followed with the data collected by the junior and mid-level research administrator's learning experiences in Phase 3.

The identification made by Kolb's four learning styles, which correspond to the four stages, is first clear during Phase 1 of the intervention in which a group of senior research administrators participate in the testing and evaluating of the components within the research portal. During this phase, the participants (senior research administrators)

completed an ongoing survey to keep track of their experiences, perceptions, positions, and evaluation of the resource.

Kolb's four-stage cyclical theory of learning relates to this action research as it also builds on a learning process in which knowledge is created through the transformation of experience. The senior research administrators and managers would be considered Divergers and Assimilators based on Kolb's four stages. Divergers, due to their senior research administrator positions, are individuals who learn better with the allowance of observation and the collection of information. They are leading the charge through the pilot test process (Phase 1). Senior research administrators' roles also position them as assimilators, individuals who learn best when presented with sound and logical theories. The senior research administrators were presented with logical research administration resources and tools and must consider and evaluate research administration policies, procedures, and practices. Kolb's assimilator's view and position are clear during Phase 3, with the plans and objectives to be presented following the junior and early career research administrators learning experiences within the research administration library.

Conceptual Framework

Research administrators at public universities are grappling with declining state funding and are faced with identifying other potential sources for revenue support at all levels with the main goal of supporting research-intensive faculty. The extended expectations of research administrators call for innovation to take place within departments and institutions to train their faculty and staff to meet the periodic shifts in

the centralization and decentralization of duties that result from financial insecurity and leadership changes.

Chun (2010) encouraged both sides of research administration, staff and faculty, to institute a collaborative effort. Through self-sufficiency and professional development, they should reduce the administrative burden tied to federal funding. Cole (2007a) imagined a system in which faculty and research administrators work in harmony. Her Delphi study highlighted the necessary changes in the research administration system from a research faculty perspective. The study allowed research faculty to take a step back and objectively consider the current research administration processes that were in place and then gather expert opinions and recommendations for system changes to bring about growth and collaboration.

Because research faculty produce grants which impact administration capacity and proposal functions and services, their opinions and participation are an integral part of the improvements in the system of research administration (Cole, 2007a). This problem of practice contains similarities to the Delphi study, as historical interviews investigated the opinions and recommendations for change in the research administration system to bring about growth and collaboration. For example, the senior research administrator recommended such resources as calling in experts to go through proposal formats and offer more outside and inside instruction and preparation for new and junior research administrators. The senior research administrator also felt that it would be necessary to pair the junior with a senior as a mentor. The junior research administrator of the historical interview expressed their appreciation of the current environment, which

consists of knowledgeable research administrators to whom research administration queries could be presented. However, the junior research administrator also mentioned that many of their counterparts expressed a feeling of overwhelmedness and times of confusion and uncertainty when tackling proposal submissions and award management at Arizona State University.

Cole (2007a) concluded that both research faculty and research administrators share some of the same opinions about how research administration could be improved; they identified the future direction of research administration, as well as ways for building stronger working relationships between research faculty and research administrators. This problem of practice is to expand the knowledge, training, and developmental needs of new and junior staff within the six Fulton Schools of Engineering. The need to integrate and revamp the current infrastructure of ASU's research, training, and development tools have become even more apparent. Arizona State University, like many other research institutions, depend highly on research funding through state, local, and federal funds by way of proposal submissions. This support and integration, in turn, would lead to a decrease in turnover and retention of the staff support on the side of research administration and a reduction of proposal rejections on the faculty side of research administration.

Chapter 3: Methods

This study sought to better understand the current situation of the research administration community with respect to addressing the training and development needs to support new and junior staff within ASU's Fulton Schools of Engineering as well as other departments and units at ASU. The study extended on those efforts of support by implementing an innovative resource library as a foundation to decipher the research administration community's needs and better equip the research administration staff through additional training, skill development, and learning experiences. The innovation associated study was designed to measure perceptions, build experience and confidence, and promote professional career growth and development. The hypothesis was that the research administration seniors and managers would bring their extensive knowledge to strengthen and confirm the necessary components within the library to solidify the resource for the junior research administrators to interact with and provide feedback. Theoretical frameworks by Etienne Wenger (e.g., Communities of Practice theory) and David Kolb (e.g., Experiential Learning Theory) guided the study. The study assessed the existing training and development platforms in Arizona State University's research administration and other institutional platforms (e.g., NCURA, NSF, GRANTS.GOV, and NIH) to identify the necessary training and educational pieces needed to design, develop, and implement the innovative library resource.

Setting

The study took place during the fall 2019 semester and continued through to the spring 2020 at the Fulton Schools of Engineering, Dean's Office of Research at Arizona

State University, and the Fulton Schools of Engineering (FSE) Dean's Office which leads the six schools. The problem of practice focused on the training and developmental needs of new and junior research staff within the research administration profession in each of the six schools of Fulton Engineering. There are approximately 40 research administrators within the six FSE – ranging from individuals at the beginning of their research administration careers (e.g., research advancement specialists) to seasoned research administration professionals (e.g., research advancement administrators, research advancement administrator seniors, and research advancement managers). To make the study more reflective of the broader institutional landscape an additional group of participants from other units or departments from the overall research administration community at ASU were added to the study (e.g., 5-RA Seniors and 5-RA Juniors). The overall research administration community is made-up of approximately 200 research administration staff. The study participants included 20 participants, which makes up 25% of the FSE research administration community and 10% of the overall ASU research administration community.

Historical Study Information

During spring 2017, two individuals from the Polytechnic School were interviewed: a junior research advancement administrator (e.g., research administrator specialist) and a senior research advancement administrator (e.g., research advancement administrator senior). The interview outcomes assisted with gaining additional perspectives, feedback, and ideas to add to the overall proposed training and professional development resource.

While the junior research advancement specialist is currently in the early stages of her career (e.g., 1-2 years in the research administration profession), the senior research advancement administrator (e.g., three or more years in the research administration profession) has overcome countless research challenges and obstacles, training, and resource woes. The junior research administrator had less than a year of research experience, which helped give the study a fresh perspective of what is needed for an administrator just starting out in the field and it demonstrates whether or not additional research administration resources and professional development tools were needed.

The results of the historical interviews with one junior and one senior research administrators brought additional clarity to the study's contextual views. The need for a new and improved research administration resource was even more apparent based on the interviewees' perceptions, views, and shared experiences. Two themes were evident during the interviews: the importance of adequate training solutions and that opportunities to build mentoring relationships were desired.

The senior research administrator shared that she had found an improvement in today's research administration resources at ASU. However, in her opinion, there was still a significant lack of useful guidance and training. Many resources were available, but scattered in terms of location and organization which resulted in work time being consumed trying to find a solution or the steps needed to complete the grant administration processes. To their benefit, ASU has improved in organization of training and resources over the years, but continued innovation is needed to make searches for information and instructions more efficient.

During the interview, the junior research administrator shared that she would welcome additional information, training, and a means to better her career as a research administrator. Both research administrators (e.g., junior and senior) shared that they had watched many of their counterparts leave the research administration profession due to the high expectations forced on research administrators, particularly within FSE. For example, their perception was that a task would be assigned to them without adequate resources to meet their overall need to successfully perform the tasks. In turn, if anything went wrong with the task, the ownership for the failure would be pinned on the research administrator.

Research Questions

The action research in this study was guided by the following two questions:

RQ1: How and to what extent does participation in an educational research and training resource impact research administrators' experience, knowledge base, and confidence?

RQ2: Given the opportunity to participate, in what ways can research administrators contribute to the development of a training and development portal?

The focus of the study measured the experience, knowledge base, and confidence level of junior research administrators through the implementation of the professional training and development portal. The study also aimed to determine the ways research administrators could contribute to the development and implementation of a training and professional development resource within a research administration environment. The data collection in the study was intended to guide the design, development, evaluation, and implementation of a successful research administration resource which would bring

great benefits to the research administration community by bettering their efforts to support research intensive faculty' retainment of research funding and the management of awards.

Participants

During the fall of 2019, a mixed group of research administrators (e.g., junior and senior research administrators) participated in the intervention process. The senior research administrators tested and evaluated the portal; the junior and early stage research administrators went through training and professional development activities within the portal. An e-mail invitation was sent to select individuals on the Fulton Schools of Engineering Research Administrators' Distribution List (DL.WG.FSE.ResearchAdv**)** and distinct members of ASU's research community. The email invitation (Appendix C) to the senior research administrators requested their participation in an upcoming pilot test on a new research administration portal research tool.

The pilot test was Phase 1 of the study's intervention. Phase 2 of the study involved data collection efforts on the senior research administrator participants' engagements, feedback, evaluations (e.g., piloting) in Phase 1. Phase 3 of the study involved the performances by the junior and mid-level participant group. There are approximately 40 members on the Fulton Schools of Engineering Research Administrators' Distribution List who met the requirements to participate in the study. Table 1 displays the number, levels, classifications and tasks area of the selection of research administrator participants (e.g., engaged in the study's performances) who are currently assigned appointments either under the six schools of Fulton Engineering or

other departments at Arizona State University. The study consisted of ten research administrators at the senior level and ten research administrators at the junior and mid-levels.

The email invitations (Appendix C and Appendix D) were sent to specific individuals from FSE's research administrative list-serve and additional members were selected from ASU's research administrative list-serve. The selections were based on the research administrators' levels, classifications, and tasks (e.g., 10 members/each per level-juniors and seniors). Additional invitations were sent out to potential participants who met the research administrative qualifiers (e.g., levels, classifications, and tasks) until confirmations were made (e.g., 10 participants for each group). Those who participated in the study's innovation/library resource during Phase 1 (e.g., RA Seniors and Managers) and Phase 3 (e.g., RA Juniors and Mid-level) were paid a $20 Visa gift card following the confirmation of their active contributions.

Table 1

Research Administrator Participants' Levels and Tasks

	Pre-Award	Post-Award	Both (Pre & Post Award)
Number of Senior Research Administrators (RA Seniors, Managers, Assistant Directors)	6	3	1
Number of Junior Research Administrators (RA Specialists and Research Administrators)	4	6	0

Table 2 indicates the demographics identifiers for both groups of participants (RA Seniors and Juniors) in the study. The average age range of both groups of participants was 31 to 45 years of age.

Table 2

Demographic Identifiers of both Research Groups (e.g., RA Seniors and Managers and RA Juniors and Mid-Level Staff); Level (PeopleSoft)

	Minimum	Maximum	Mean	Std. Deviation
Level:	1	3	2.20	.768
Years:	.5	15.0	6.525	4.4113
Age Range: (1) 18 - 30; (2) 31 - 45; (3) 46+	1	3	2.10	.641

Note: N = 20.

Innovation

The innovation consisted of three phases and led to a training and professional development portal, the Library for Research Administrators, which would allow new and junior research administrators to receive adequate training, knowledge, and skill development to perform their roles successfully.

This form of support encompasses proposal submissions as well as the management of awards. By receiving the necessary professional guidance, training, and

developmental support, a research administrator will support the faculty's success through effective grant administration on both the pre-and-post award sides of tasks.

Innovation – Phase 1 – The Library for Research Administrators – Senior RAs and Managers (Pilot Test)

The participants in Phase 1 of the study's intervention portion consist of senior research administrators and managers. An email invitation was sent to fifteen senior research administrators to confirm five individuals from the FSE research administrators distribution lists and to confirm the participation of five individuals from other departments at ASU. The correspondence requested their participation in the Library portal evaluation and the "look-and-feel stage" via pilot testing (Appendix C). Following their acceptance and consent to the invitation to participate, they were called on during a select date and time to participate online in a pilot test on the portal's components (Appendix D).

During this phase (Phase 1) of the intervention, the senior research administrators began the actual pilot test on the Library portal. They were asked to complete an ongoing survey. The questionnaire consists of a Likert-scale survey with a list of additional open-ended and essay style questions to enable the participants to keep track of their experience, perceptions, and ideas and to aid in the testing and evaluation of the Library portal (Appendix H). The participants had an opportunity to also to probe any questions, concerns, and give their feedback during their experience.

The tools for this action research are housed within the Canvas Management System. Canvas is an educational management system used to administer and manage

course information, training programs, and learning procedures for ASU's faculty, staff, and students. The Library portal components were evaluated and tested by the senior group of research administrators within the sections via a pilot testing method within Discussion Forums on the Canvas Management System.

The Library Design, Organization, and Components. The research administration resource links and knowledge bases within the portal (Canvas) were obtained from sponsored specific sites such as the National Science Foundation (NSF), the National Institutes of Health (NIH), the Department of Energy (DOE), and the Department of Education (DoEd). Information and knowledge resources were retained and developed from ASU's Research Administration sites and other professional research administration organizations such as the National Council of University Research Administrators (NCURA). NSF has a standard practices and procedures manual which is published annually called the Grant and Proposal Guide (GPG). The GPG could be utilized by research administrators to attain the mandatory requirements, expectations, and guidance relating to proposal submissions to NSF and other federal sponsor agencies.

Arizona State University has several research administration sites in which information could be assessed (e.g., Research Academy, Training Toolbox, Research, and Sponsored Projects Manual-RSP, Research Administration at ASU, Process and Work Instructions, 0365 OKED Research Administrators and the Upcoming RA Seminars and Events). NCURA also gives access to research administration training platforms to help assist research administrators through education and professional development with centers posted across the U.S. NCURA's overall mission is to advance

the profession of research administration through education and professional development programs by the sharing of knowledge and experiences. The knowledge and experiences are exhibited in NCURA's professional training and development platforms. These resources include research administration seminars, videos, conferences and other training and development resources where universities and other research institutions, such as hospitals and other research centers and educational facilities, have the opportunity to pay reasonable fees to utilize and make available to their research administration staff, faculty, and students. A considerable amount of information and resources within the portal relates to sponsor-specific proposal submission processes (pre-award) and financial award management processes (post-award).

The Library for Research Administrators is organized into three sections within the portal (Appendix F). Figure 1 displays the design, organization, and components in the portal. The Knowledge and Informational Resources section consists of sponsor-specific links and professional organization platforms that extend and deliver knowledge about processes, procedures, guidelines and offer successful strategies, programs, seminars, and courses which would aid in a research administrator's professional development within the research administration profession. The Boot Camp Module consist of a line-up of workshops, seminars, lessons, and programs on research administration themes that are voiced and exhibited exclusively by avatars. The set-up of the Boot Camp was built with an assistive learning technology tool called "Voki" – a collection of customizable speaking avatars for teachers and students that enhances lesson comprehension, teaching, and class participation. Voki has a selection of avatars

that allows students to engage student voices (e.g., avatars of choice) and have a significant degree of control and choice in what, when, and how they learn. The initial sessions were presented by avatars, and were created structured, and designed using ASU's Research Academy training and development video selections (e.g., a website available to the ASU research administration community by way of a credentialed log in). The Discussion/Survey Module became an opportunity for representatives/participants from ASU's Research Administration Community to exercise, evaluate, and survey the library resource components – Knowledge and Information Resources Module and the Boot Camp Module.

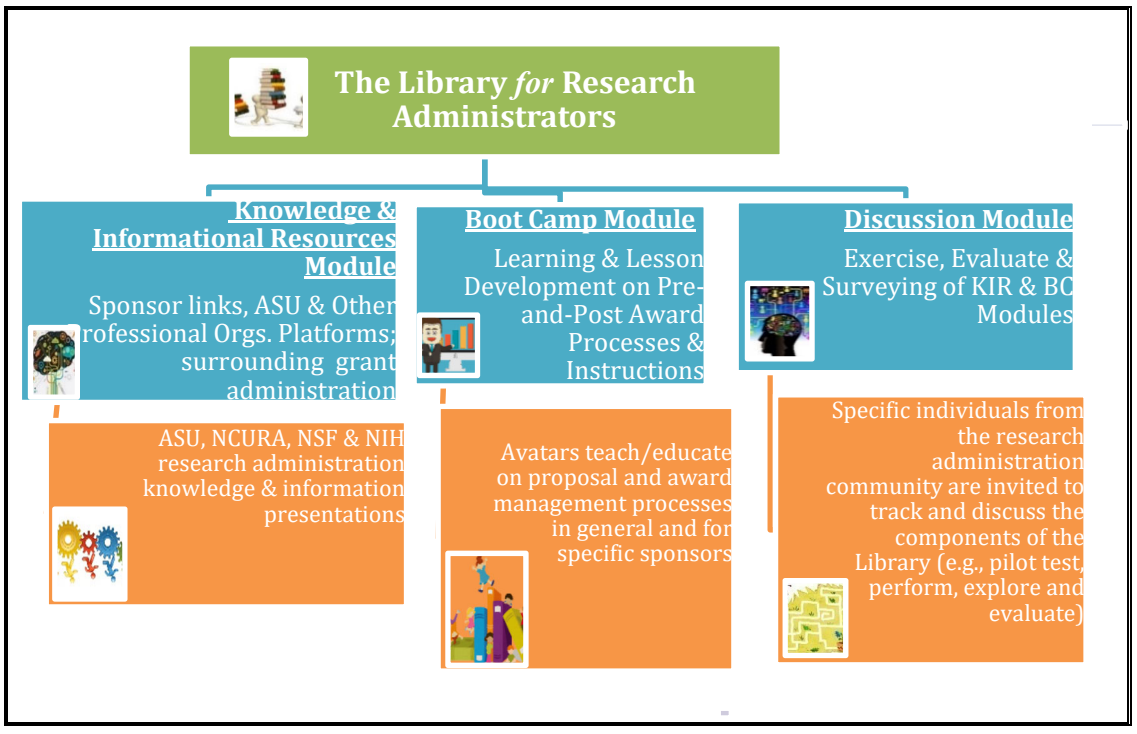

Figure 1. A graphic of the Library for the Research Administrators Portal

Innovation – Phase 2 – The Library for Research Administrators – Senior RAs and Managers (Outcomes)

The outcome of results from the participants in Phase 2 of the intervention was pulled from the group of senior research administrators activities from Phase 1 (e.g., pilot test data). During this stage of the intervention, the senior research administrators' data from the pilot test on the library portal were reviewed and disseminated. Following this process, I used portions of the information (e.g., collected data) to adjust and revise the library portal components where appropriate. According to Kumar (2011), the evaluation process in studies is often the opinions of those engaged in providing a service as an evaluator – resulting in the receipt of invaluable information from service providers (or users) for improving the efficiency of service or phenomenon. In this action research, the ideas, feedback, evaluation, and perceptions of the research administrators (or users) were instrumental for the successful implementation of the Library for Research Administrators portal. The service in question would be the research administrators receiving the adequate training and development to perform successfully in the research administration profession, encompassing proposal submissions as well as the management of awards, professional guidance; training and developmental provisions to support research faculty's success through the attainment of awards and their improved research portfolios. The experience and knowledge gained through the completion of the pilot test assisted with implementing an effective and sufficient research administration resource. In addition, the data received from the senior research administrators were used

towards future cycles of building and improvements to the overall training and developmental research administration infrastructure.

Innovation – Phase 3 – The Library for Research Administrators – Junior and Mid-level RAs (Performance and Exploration)

The participants in Phase 3 of the intervention portion of the study consisted of junior and mid-level research administrators. An email invitation was sent to fifteen junior and mid-level research administrators' to confirm five individuals from the Fulton Schools of Engineering research administrators distribution lists and to confirm the participation of five individuals from other departments at ASU. The correspondence requested their participation in the Library (portal) to evaluate, perform, explore, and experience (Appendix C). Following their acceptance to consent to the invitation to participate, they were called on during a select date and time to participate online in the activities within the portal (Appendix D): Section 1 (Knowledge and Information Module), Section 2 (Boot Camp Module) and Section 3 (Discussion Module).

The expectation for the participants was that they would maneuver through each section and explore the available activities. First, the participants read and reviewed the information and knowledge resources in Section 1, then listened and tuned-in to the seminars and workshops (videos) selections of their choice and interest in Section 2. The participants were asked to complete an ongoing survey tracked within the Discussion Module in Section 3. The questionnaire consists of a Likert-scale survey with a list of additional open-ended and essay style questions to enable the participants to keep track of their experience, perceptions, confidence, and comfort levels in the Library portal

(Appendix H). For example, a question for the junior research administrators would be, "How satisfied were you with your experience (performing activities) within the library for research administrator's portal"? with choice responses of *(a) Extremely Satisfied, (b) Very Satisfied, (c) Moderately Satisfied, (d) Slightly Satisfied,* or *(e) Not Satisfied*

The discussion module also allowed the junior research administrators to engage in conversations about their experience, ideas, perspectives, and inquiries and have an open dialog about concerns and give feedback.

Data Analysis, Instruments, and Data Sources of Measurement

Qualitative and quantitative instruments and data sources were utilized to collect and disseminate data during the portal intervention phases; methods used and explored through this action research were mixed methods. The measurement instrument (e.g., Pilot Test - Discussion Forum) for Phase 1 of the intervention assessed and observed the participants experiences, perceptions, ideas, and evaluation. Phase 2 measurement instrument (e.g., Evaluation Outcomes Report) included coding themes, field notes, and deciphering the information received (within a report) to give the necessary insight for improvements, modifications, and adjustments before the launch the Library portal. The reporting tool informed the discoveries, findings, and conclusions of the pilot test and encouraged future iterations for a continuous cycle of improvements and site-building. The instrument contained Likert-scale selections, multiple-choice, open-ended, and essay-style questions. For example, open-ended and essay questions would run along the following lines:

Do the components and contents (sections) of the portal contain the necessary ingredients to enable successful training and development experiences for the research administration community?

What do you think is missing?

What would be beneficial to add-on to improve the experiences to entail professional growth and development?

The Performance and Evaluation Discussion Forum for Phase 3 included analyzing experiences, perceptions, and confidence and comfort levels. In other words, these questions were answered:

Does this experience within the portal increase the participants' take on a robust research administration resource?

Does it improve their comfortability level when searching for research administration processes, practices, procedures, and guidelines?

Does this resource strengthen their ability to become successful research administrators?

Do they feel that something is lacking or missing within the portal?

If their answer was *Yes*, they were encouraged to give the study a few suggestions of areas in which improvements are requested to promote future iterations to the Library resource. Through the experience, feedback, and implementation of the intervention, administrators had an opportunity to decide whether the portal lines up with a platform that would deliver the necessary tools to receive the adequate training streams and knowledge bases to perform successfully in the research administration profession.

The qualitative approaches provided data to better understand the portal's influence and value for the research administration community with future enhancements. According to Kumar (2011), "the qualitative to a quantitative approach to research is comprehensive and worth consideration" because it "involves starting with qualitative

methods to determine the spread of diversity, using quantitative methods to quantify the spread then going back to qualitative to explain the observed pattern" (p. 104). The qualitative methods portion of this action research included qualitative instruments to measure the data: experiences, perceptions, comfort, and confidence levels. The instruments used to collect the qualitative and quantitative data were a Discussion Forum of Queries (e.g., Likert-scale, open-end, essay, or directive style questions). Kumar (2011) suggests that qualitative methods are instituted when the research aim is an in-depth, contextual analysis of a phenomenon. These methods are useful for answering the what and who questions but are not well suited to answering why and where research questions. This action research identified with Kumar's (2011) exploratory studies based on the library assessments being conducted to develop, refine, and test measurement tools and procedures (e.g., RA seniors experience with the pilot test). In other words, study sections or phases went through exploration phases and cycles before the confirmed implementation of the Library portal. An example of a quantifiable Likert-scale question for the senior research administrators would be "How satisfied were you with the portal's design, sections, and components? *(a) Extremely Satisfied, (b) Very Satisfied, (c) Moderately Satisfied, (d) Slightly Satisfied,* or *(e) Not Satisfied*."

Statistical tests such as survey instruments and descriptive statistics (e.g., open-ended questions and essay survey questions) were utilized to analyze qualitative and quantitative data; evaluations, perceptions, and ratings were analyzed and studied via SPSS-23 and grounded theory. Adjustments and modifications were made to the portal to exhibit comparable and reasonable suggestions by the senior research administrators

presented on the survey within the discussion module. Therefore, the outcomes received and addressed by the senior research administrators enabled an improved learning experience for the junior research administrators in Phase 3's activities within the Library portal. The themes identified during Phase 1-3 of the intervention were primarily seen in the participants' perceptions, experiences, confidence, and comfort levels. Table 3 details the instruments and data sources utilized during the study's intervention phases.

Table 3

Instruments and Data Sources

Phase	Data Tool & Source	Participants and Anticipated Number	Purpose	Time-to-be-Spent
1	Pilot test / Discussion Forum I & II	Senior Research Administrators (N = 10)	Senior research administrators test and evaluate the components	Projection of up to 45 minutes per module
2	Evaluation Outcomes Report I / Discussion Forums	Senior Research Administrators (N = 10)	Senior research administrators' ideas, feedback, and receipt of the evaluation results	Projection of two -week timetable
3	Performance & Exploration / Discussion Forum I & II	Junior Research Administrators (N = 10)	Junior and mid-level research administrators tracking of experience, perceptions, confidence, and comfort level	Projection of up to 45 minutes per module
3	Evaluation Outcome Report II / Discussion Forums	Junior Research Administrators (N = 10)	Junior and mid-level research administrators' outcome of experience, perceptions, confidence, and comfort level	Projection of two-week timetable

The Library's discussion module was divided into two sections for each group of participants (e.g., the Juniors and Mid-Level Research Administrators Group and Seniors and Managers Research Administrators Group). The participants' ages were factored into

the demographics section as a set of ranges into three areas or age groups; all participants stated they were over 18. Because the discussion forum was open to all the participants, the participants' exact ages were not disclosed. The complete protocol for the Library portal innovation was approved with an exempt status by Arizona State University. (Appendix B).

Steps in Intervention Plan – Fall 2019 through Spring 2020

The following schedule depicts the steps in the intervention plan. The time frame along with the action and procedure are listed here.

September - October 2019	Development, Design, Creation, Structuring, & Implementation *the Library portal*	The researcher developed, created, structured, and implemented the Library for Research Administrators within the Canvas portal.
October 2019 - December 2019	Preparation and submission of materials and documents to IRB office for processing and approval.	Prepared documents and submitted for review and approval by IRB office; IRB documents approved with EXEMPT status on 12/3/2019.
November 2019	Seek and select participants (Phase1)	Prepared and emailed an invitation (to participate in a pilot test to review and evaluate a research administration Library portal) to 5 senior research administrators on the Fulton Schools of Engineering Research Administrators distribution list, and 5 individuals from other Departments/Units at ASU - include informed consent information.
December 2019	Prepare for the testing and evaluation of the	Ten senior research administrators accepted the invitation to participate in the testing and evaluation of the portal. Prepared and sent out a confirmation

	Library portal (Phase 1)	email to the participants (senior research administrators) of the proposed times and a web link to go online (Canvas) to review and evaluate the portal's components.
December 2019	Test & Evaluate the Library portal components (Phase 1)	The senior research administrators chose a time to test and evaluate the components within the portal. The senior research administrators performed the test and evaluation cycles within the portal (pilot test). During this phase, the participants were asked to complete an ongoing questionnaire to keep track of their experience, perceptions, position, and evaluation of the resource (Library portal).
January 2020	Collect data (Phase 2)	Receipt of the data on the experiences and evaluation of portal are now in play (received from Phase 1) - following the pilot test and completion of a questionnaire by the senior research administrators with their ideas, feedback, and evaluation results. Data analysis methods utilized to review and disseminate collected data.
January 2020	Adjustments & Revisions to the Library portal (Phase 2)	The researcher used the information received from the senior research administrators to adjust and revise the Library portal components (if necessary).
January 2020	Confirm Implementation and Launch of the Library portal (Phase 2)	The researcher confirmed the implementation and launch of the portal.
February 2020	Seek and select participants (Phase 3)	Prepared and emailed an invitation (to participate in activities within a new research administration portal) to 5 junior research administrators on the Fulton Schools of Engineering Research Administrators distribution list, and 5 junior research administrators in other Departments/Units at ASU - included informed consent information.
February 2020	Research Administration	The junior research administrators at this stage maneuvered through and participated in activities within the Library portal. During this phase, the

	Library portal 'Live' (Phase 3)	participants were asked to complete an ongoing questionnaire to keep track of their experience, perceptions, confidence, and comfort level.
March 2020	Collect data (Phase 3)	Receipt of the data on the experiences, perceptions, confidence, and comfort level survey outcomes by junior research administrators. Data analysis methods utilized to review and disseminate collected data. Met with FSE leadership to discuss an opportunity to institute the Library portal resource into future training and development platforms for new and junior research administrators.

Research Methods: Summary

This intervention went through three phases to get to the point of implementation and launching of a Library for Research Administrators portal. Phase 1 consisted of ten senior research administrators going through a pilot test to evaluate the research portal and complete a multi-faceted questionnaire to track their experiences, perceptions, and suggestions. Phase 2 consisted of reviewing and disseminating the data received from the Phase 1 participants and utilizing their suggestions to adjust and modify the necessary components to prepare for the portal's launch. A contingency goal for the action research processes is in future studies to use the data collected from Phase 1 participants to improve the Library portal for future phases of the study. Phase 3 consisted of 10 junior and mid-level research administrators maneuvering through, participating in activities within the Library portal, and completing a survey within the Discussions Module to track their experiences, confidence levels, and perceptions. The end period of Phase 3 consisted of reviews and evaluation of the junior research administrators' information – a continuity of cycling to encourage future iterations for improvements to the overall

research administration training and development infrastructure. This study utilized mixed methods such as descriptive statistics and frequencies to conduct, assess, and retain measurements of participants, perceptions, experiences, confidence, and comfortability levels. The study, therefore, further explored the differences in the novice and experienced research administrators regarding the atmosphere and training and development infrastructures and professional and development growth through engagement and experience in the research administration community.

Validity, Reliability, and Data Analysis

The research administration Library portal and the instruments went through significant iterations, modifications, and tweaks (e.g., Phases 1-2 piloting stages where senior research administrators evaluated the components, and the researcher implemented suggested changes) before moving to the implementation of this study, as described in the previous section. To stay in line with the mixed method approach, data pulled from the results and findings from the instruments (e.g., Library Discussion Module) were used to inform and modify the components, content, make-up, and proposals for future iterations. Therefore, the information used from the senior research administration group of participants allowed for member checking of early findings based on the quantitative and qualitative data, which brought to the study a significant amount of experience, knowledge, and skills presented through the discussion module instrument. To further strengthen the study, the results and findings from the group of junior research administrators (e.g., Phase 3 – Performance and Exploration) helped to reinforce the current training and developmental needs throughout the research administration

community at ASU. In addition, the results and findings further inform and gave insight and instructions to the study for future iterations. The experience and newness for the early stage research administrator gives the study a direct connection and informs of the current encounters taking place. The two participants groups combined, therefore, bring past and present (e.g., all-in-one) experiences. To further address the study's research questions, a mixed-method design was utilized based on descriptive and inferential statistics, along with member checking to ensure that good data was collected (Creswell, 2015). Grounded theory (e.g., open and in vivo coding, noting, and memoing) was another technique used to decipher and analyze the qualitative data used to interpret participant responses within the discussion forums (e.g., Topics 1 and 2 for Seniors and Topics 1 and 2 for Juniors). The process and procedures involved in analyzing qualitative and quantitative data are further elaborated and explained in the Results and Findings section.

Chapter 4: Findings and Results

This chapter contains an in-depth review of the quantitative and qualitative data associated with this study. In addition, a discussion is included of the findings and results surrounding the questions responsible for driving this research. This study has been guided by the following two research questions:

RQ1: How and to what extent does participation in an educational research and training resource impact research administrators' experience, knowledge base, and confidence?

RQ2: Given the opportunity to participate, in what ways can research administrators contribute to the development of a training and development portal?

Research question 1 explored the impact of an educational research and training resource on the research administration community while looking through the lens of experience, knowledge base, and confidence levels. The results of research question 1 helped to answer whether the Library portal resource or innovation and experience would reap benefits for the research administration community and what modifications were indicated. The combination of research questions then helped answer whether the Library resource or innovation and experience would reap benefits for the research administration community or if the addition, tweaking, and/or modifications of the infrastructure were necessary.

Participant engagement and performance within the Library portal was demonstrated and tracked by the entries made by the RA juniors and seniors into the Discussion Module and Discussion Questionnaire (instrument) sections of the Library portal hosted on ASU's Canvas system. The topical questionnaires consisted of three

constructs with 11 questions for the RA seniors and managers group and three constructs with 12 questions for the RA juniors and mid-level group. The Discussion Module (e.g., topical questionnaires) was broken into two subsets (Topic 1 and Topic) of questions for both groups (Appendix H).

This research study was broken out into three phases to confirm and identify the current needs and necessary modifications for the research administration community training and development infrastructure. The Library portal was categorized into three modules. The three modules were named according to context and structure: (1) Knowledge and Informational Resources Module, (2) Boot Camp Module; and (3) Discussions Module - to complete the portal observation and evaluations and scientific tracking for both groups (e.g., RA seniors and managers pilot test data and juniors and mid-level RA's performance and evaluation data).

Respondents could participate in one of four data gathering instruments: Test Pilot-Discussion Forum I, Test Pilot Discussion Forum II, Performance and Exploration - Discussion Forum I, and Performance and Exploration Discussion Forum II. All Discussion Forum research instruments were kept and hosted in the Discussions Module of the Library portal within Canvas. The study utilized descriptive and statistical instruments (e.g., SPSS-23) and grounded theory methods to decipher and analyze qualitative and quantitative data from the discussion module.

The Discussion Module (Appendix H) was constructed into two sections (Topic 1 and Topic 2) for the two participant groups. The first section requested a mixture of demographic information to identify possible patterns in knowledge, confidence, and

comfort levels by employment category, gender, age, experience (i.e., years), and job role. Employment category and levels were defined using the university's PeopleSoft designations: student worker, wage (part-time) staff, and classified (full-time) staff. Age was bundled into ranges with a significant gap due to the irrelevance of age within the population sizes: 18-30 years, 31-45 years, and 46 years or older.

The study consisted of two cohorts of participants who are members of the research administration community at ASU. The first cohort was made up of staff with varying levels of experience from the research administration community in the FSE and other departments/units (10 RA seniors and managers) and the other cohort of participants came from FSE and other departments/units (10 RA juniors and mid-level staff) at Arizona State University. A total of 20 participants agreed to take part in the study. A list of individual participant demographic identifiers is found in Appendix G. The employment category and job role were defined using the university's PeopleSoft designations: research advancement specialist, research advancement administrator, research advancement manager, grant and contract officer, grant and grant officer senior, research accountant, and student worker.

The quantitative and qualitative findings and results for Phase 1 including the piloting activities and data collection are presented first. Then the findings for Phase 2 are presented, encompassing the data analysis methods to review and disseminate the data collected from the RA seniors and managers group of participants (outcomes). This is followed by the quantitative and qualitative findings and results for Phase 3 including the performance and exploration activities and data collection for the RA juniors and

mid-level participants. Discussion queries were set up using Likert-scale type questions to have participants in both groups rate the benefits of the Library portal innovation components to test the main research questions that have guided the research. In other words, does the foundational setup look-and-feel to be compatible and suitable to meet the needs and objectives behind the study? The possible responses on these questionnaires ranged from a scale of *1–not very beneficial* to *5-very beneficial*. According to Mertler (2014), the role of data analysis is a way to break chunks of data down into smaller sets of information to enable an opportunity for the study to have ease with the management of data. To put it best, Mertler generalizes quantitative research methods as the collection and analysis of numerical data (e.g., test scores, opinion ratings, and attitude scales), qualitative research methodologies necessitate the collection and analysis of narrative data (e.g., observation notes, interview transcripts, journal entries) and ethnographic field notes.

Quantitative Findings - Phase 1 (Pilot) – Senior RAs and Managers

Phase 1 of the study involved the group of senior research administrators (10 participants) performing a pilot test of the Library portal's components. The group of RA seniors and managers account for many years of experience. The experience, length, timing, and knowledge of the senior research administrators strengthen the study. Also, looking through the lens of experience, knowledge base and confidence levels of the seniors and managers brought an additional layer of security and comfort to the purpose and objectives of the study, while addressing a combination of the overarching research questions: *How, and to what extent, does participation in an educational research and*

training resource impact research administrators' experience, knowledge base, and confidence while contributing to developing a training and development portal when given the opportunity?

Table 4

Study Participants - Senior Research Administrators and Managers: Statistics

Characteristic	N	Mean	Std. Deviation	Std. Error Mean
Yrs. Employed (Yrs.)	10	10.20	2.8887	0.9135
Level	10	2.80	0.422	0.133

The data collected in Table 4 on the senior study participants' experience and current job levels verifies their expertise in the current field of practice (e.g., research administration). The results from the group of 10 senior research administrator participants demonstrate a mean of 10.2 (e.g., average years of experience is 10 years amongst the group) for years employed and a standard deviation of 2.8887 and a mean of 2.80 for the job level rated on a scale of 1 to 3 in the job-class. The data presented further confirms that longevity and experience factor into the career and job levels for the group of senior research administrator. The results included the participants' reported perceptions of the past and acknowledgment of the current state of the research administration training landscape through their own experiences of the present day and those experiences reported by their research administration staff and/or lower level peers.

Table 5

Pilot Test Scales - FSE and ASU's Other Dept. Infrastructure - Senior RAs and Managers

Question: Training and Development Infrastructure	Response	Rating	Percent
FSE: Please rate FSE's current RA training and developmental infrastructure 0-no response/unknown 1-not very beneficial 2-somewhat beneficial 3-average 4-pretty beneficial 5-very beneficial and needed	no response or unknown	2	20%
	not very beneficial	1	10%
	average	6	60%
	pretty beneficial	1	10%
ASU Other Dept: *Please rate ASU's overall RA training and developmental infrastructure* 0-no response/unknown 1-need improvements 2-limited resources 3-average 4-feel comfortable 5-very beneficial and aid in growth	need great improvements	1	10%
	average	7	70%
	feel comfortable with finding information	2	20%

The data in Table 5 displays participant ratings of FSE's and ASU's other departments, training, and developmental infrastructure. The data represents the responses from the survey (Appendix H) in the discussion forums under the RA senior research administrators and managers. These items were used to rate the participant's views and perceptions of available resources (e.g., FSE and ASU's other departments). The response scales for FSE's rating consisted of a five-point Likert scale with *1-not very beneficial* to *5-very beneficial*. ASU's other department's Likert-scale consisted of a

rating of 1-5, *1-need major improvements* to *5-being very beneficial*. From the group of 10 participants of the senior research administrators' group, the results indicate that 30% did not answer the FSE item (e.g., inquiry rating training and development infrastructure) due to their lack of experience with FSE's current training and development infrastructure. The results further indicated that 10% of the respondents selected *1-not very beneficial*, 40% selected *3-average*, and 20% of the respondents selected *5-very beneficial* when it came to their perceptions of FSE's current training and developmental infrastructure. The results from ASU's other departments' item (e.g., inquiry rating training and development infrastructure) indicate that 10% of the respondents selected *1-need great improvements*, 70% selected *3-average* and 20% indicated that they *4-feel comfortable with finding information.*

Table 6

Pilot Test Scales – Library/Innovation Infrastructure - Senior RAs and Managers

Question: Training and Development Infrastructure	Response	Rating	Percent
The Library for RAs: *Please rate the readiness of the RA Library training and developmental implementation*	Not quite	2	20%
1-not quite ready 2-yes, ready with a few revisions 3-not ready	Yes, with a few revisions	8	80%

The data in Table 6 displays participant ratings of the readiness to implement the new innovative library portal research administration training and developmental infrastructure. The new library resource Likert-scale consisted of a rating of 1-3, 1-*not quite ready, 2-Yes, ready with a few revisions,* and *3-being not compatible*. The results from the library resource/innovation item indicated that 20% selected *1*-not quite ready and 80% selected *2-Yes, ready with a few revisions*. In this case, there were no missed scores or mid-range selections.

Table 7

Pilot Test Statistics – FSE and ASU's Other Dept. Infrastructure - Senior RAs and Managers

Scales	FSE	ASU/Other Dept.
N=	10	10
Mean	2.1	2.95
Median	3	3
Mode	3	3
Std. Deviation	1.663	0.762
Variance	2.767	0.581

The data in Table 7 shows a mean score of 2.10, a median score of 3 (e.g., meaning majority of the respondents selected an average rating) and a standard deviation of 1.663 for FSE's training and development infrastructure and a mean score of 2.95 and a standard deviation of 0.762 for ASU's other departments' training and development infrastructure. The mean and SD scores indicate that the respondents (e.g., RA seniors and managers) rate FSE's current training and development infrastructure slightly below average, and the mean and SD scores for ASU's other departments' current training and development infrastructure demonstrates a strong average rating among the group of participants. Considering the 10 participant scores overall, as shown in Table 7, the below average and average ratings from the respondents would indicate the need for training and development improvements.

Table 8

Pilot Test Statistics – Library / Innovation Infrastructure Readiness - Senior RAs and Managers

Scales	Library Resource / Innovation
N =	10
Mean	1.8
Median	2
Mode	2
Std. Deviation	0.422
Variance	0.178

The data in Table 8 shows a mean score for the library resource/innovation of 1.80 and a standard deviation of 0.422 on a Likert-scale of 1 out of 3 scale choices (*1-being not quite ready, 2-Yes, ready with a few revisions,* and *3-being not compatible*). The scores indicate that the respondents' rates were “high” on the readiness of the library innovation; this means that the participants (e.g., RA seniors and managers) considered the library resource to be ready for the implementation in Phase 3 (e.g., RA juniors and mid-level staff activities within the portal) with the addition of a few tweaks and modifications.

Qualitative Findings - Phase 1 (Pilot) – Senior RAs and Managers

The data collected from the group of senior research administrators and managers acted as specific aims for the study's objectives, which were (1) to share, reflect, and deliver on their experiences, perceptions, and knowledge base, (2) to help foster improvements with the design, structure, and format of the components of the library resource/innovation, and (3) to collect ideas and feedback for future iterations. The main question to be answered was "Does the data collected confirm the need for the implementation of a new research administration library to offer a solution to the problems (e.g., scattered and limited resources) that the research administration community is experiencing within their training and developmental environment?" The participants' history, experience, and statuses added reliability and validity to the study due to their longevity, job experience, and wealth of information and knowledge.

After the performance and evaluation period (e.g., pilot test) of the senior participants, the results helped identify recommended changes to the library module and exercises to improve the potential outcomes moving into the later phases of the study. The future steps and iterations would follow modifications and adjustments, if necessary. The first question to be answered before moving forth with the library implementation was "Is the library fully equipped to allow new and junior research administrators to performance (Phase 3)".

The qualitative approach with the group of seniors (Phase 1) allowed an opportunity to receive the distinctive perceptions, stories, evaluations, and observations of participants. Charmaz (2014) shares that empirical events and experiences are studied

through grounded theory, which leads us to attend to what we hear, see, and sense while gathering data (e.g., scenes, interview statements, documents, discussions, or some combination of these). In the case of the library for research administrators' (e.g., phenomenon/innovation), the senior group of participants pilot testing is the empirical event of focus. The grounded theory journey started with the stories and reflections from the data of the pilot test with the RA senior participants that was read and coded to identify the central themes that emerged. The topical questionnaires (Appendix H) were developed under thematic formats to be analyzed and reviewed strategically from the study's onset. Therefore, this process of in vivo coding utilized the senior research administrators' own words to categorize the data.

The questions and items associated with subconstructs research administrators' perceptions and experiences sought to trigger and engage the group in the topical discussions surrounding the training and developmental environment and status of the past and present. The data collected at this stage of the study allowed the researcher to make informed decisions to improve and better the RA juniors' upcoming experiences within the portal. The data collected would also open the door to extend upon future iterations that would encourage continued growth and development of a stable, secure, and successful training and developmental research administration infrastructure overall.

Participants in the pilot test shared and made suggestions for future additions for training and developmental instruction. Components of the library innovation contain information and encourage sessions surrounding research administration to better the

careers and success curves of other research administration members (e.g., senior research administrators, managers, and junior research administrators). The participants could draw knowledge and instruction from each other and engage their own prior experience and expertise while facilitating, offering, and clarifying knowledge and learning streams and cycles. They were also given the ability to reference past and present training content to encourage developmental improvements for the upcoming performance of the junior research administrators, future ideas, and iterations.

Topical questions pulled the participants' data (e.g., in vivo coding – participants own words to answer the main research questions). The first question was "In your current position (e.g., manager/leader/senior) would you allow your research administration team to experience the library modules that are made available in-an-effort to improve and build upon their skill level, knowledge base, confidence, professional development and attainment of additional resources?" All ten senior participants overall answered *Yes* to this query.

The participants mostly took the position that the library would be ideal if there were also a way in which exclusivity could play a part in building the library modules based on best practices. This update would cater to the specific needs, skill set, tasks area (e.g., pre-or-post award) of individual research administrators. The theme of learning experiences was particularly recognizable in this context due to the language and focus on educational formats and competencies being revised based on an individuals' specific skill level, experience, and instructive needs. Overall, avatar use was encouraged due to the creative and engaging characters which would help hold individuals' attention while

learning tedious processes within the research administration profession. A common response amongst the participants was to encourage the push of the library resource due to the constantly shifting landscape of the research administration field, which they felt would highly benefit an individuals' advancement. The participants agreed that an educational tool such as the library resource is highly recommended for such an ever-evolving environment as research administration. To flourish in their roles, the participants stated that continued learning of this sort would need to become standard practice. Also, the group disclosed that past frustrations with the lack of such tools and resources (e.g. library portal) added an extra layer of hope for the next class of junior RAs.

A second question provided further information on the potential impact of a research library. The question was "In your brief opinion, would the learning and informational resources (that are presented) assist in improving and allowing a new and fresh prospective to new and junior research administrators outlook of ASU's research administration training and professional development infrastructure?" Through evaluations, conversations, and experiences surrounding the context during the pilot test resulted in participants elaborating on the library's simplicity on select components. The participants shared that the library contained the necessary ingredients as an excellent starting point or basis. However, a few participants recommended more robust training resources for future iterations. They continued that they would be open to adding context and revisions based on the skill level, experience, and needs of the RA being hired or at

the onset of their research administration career. Participants further agreed that the library was a warm and inviting introduction with the avatars, graphics, and links.

The participants also felt that an added benefit is with the library structured as a "one-stop-shop" (e.g., quick access to sites, steps for completion on institutional policies, actions to submit select proposals successfully were bonuses). Additional ideas, suggestions, and feedback from the participants consisted of finding an avenue to fulfill the need to collaborate and work together more across the RA community, creating announcements identifying experts for specific sponsors, and identifying ways to combat the challenges that would come with the library portal's upkeep. The learning experiences and relationship themes are present with the structuring of the library being that of a one-stop learning resource and the need and desire to collaborate and build relationships with others within the research administration community to lessen the challenges that may surface.

The data collection information received from the third and fourth questions were used to push the action research activities and offer encouragement for necessary tweaks and/or enhancements to the components of the innovation in the preparation of Phase 3. Highly practical themes demonstrated were the relationship and learning experiences themes from the third question, "What are your thoughts (in a few words) on the components and make-up of the library (look-and-feel)?" and the fourth question, "Do you think research administrators would be fulfilled with the delivery of the library modules; would they be on track to reap success in the research administration

profession?" Participants backed the need for shadowing and hands-on experience for research administrators.

In particular, a feature the participants thought would be beneficial would be the addition of a checklist feature, to be initiated by a trainer, leader, or coach to build a training program in-house around these resources (e.g. handouts, links that take the participant to appropriate reading material, videos, shadowing, and hands-on practice sessions.) Overall, the participants liked the "look-and-feel," structure, and layout of the library portal; however, a few suggestions were made: (1) to update a few of the broken links (e.g., grant policies, NCURA YouTube Channel), (2) remove large graphics on landing pages, (3) Identify meanings behind color schemes on site, (4) add short videos, podcasts, live pics of RAs – allow them the ability to enhance the site, (5) add a more detailed or easier to navigate contents page.

The fifth question provided further information on the potential impact and need for a research library. The question was "In your opinion are the current research administration (training and development) systems scattered and limited? Please give a few examples of your reasons behind your selection." The prevalent themes on display were learning experiences and relationships. A vast number of the senior research administrators did not hesitate with an immediate *Yes* to the limitations and scattering of resources. Many participants have found themselves visiting other sponsor sites such as NSF and OMB Uniform Guidance to get more detailed explanations and guidance. Therefore, a suggestion or idea would be to reach out to other educational institutions to find additional formats and best practices to add to the library resource. Also, the

participants recommended finding and referencing those solutions that have worked for the other institutions related to their training and development infrastructure within the library resource. The purpose of reaching out to other educational research institutions was to understand and study their training and development infrastructure and encourage building and improving ASU's current practices and plans. This suggestion is pushed by the participants to position individuals within the research administration community to fulfill the challenges that may take place outside of the four walls of ASU.

The sixth question brought additional clarity as to whether a need exists for the research administration library/innovation to implement, improve, and better the training and development infrastructure for junior and mid-level research administrators with continuity and impact throughout the research administration community as a whole. For the question, "In your opinion, are the current training and development systems in place enough for the steady professional growth and development for incoming and junior research administrators?" The participants reported their interest in the growth and success of their team and their suggestions for institutional improvements were described with scenarios that would encourage professional growth and development to be geared to the individual. The respondents also felt that an RA mentee/mentor program would be beneficial to the training and development infrastructure. The prevalent themes displayed in this scenario are the expectations and relationship themes.

Findings and Analysis - Phase 2 (Outcomes) – Senior RAs and Managers

The findings and results that were analyzed and reviewed during Phase 2 (e.g., RA Senior Outcomes) utilized such methods as a grounded theory to successfully direct,

manage, and streamline the data through the senior research administrators' lens. First, I fixed broken links within the Knowledge and Information module. This included an update to the NIH's training and resource link to embed it on its landing page and an update to NCURA's YouTube video page to embed it within the appropriate source code area of display. Then I created, constructed, and included additional learning and lesson development videos to the Boot Camp module that were also taught by avatars. The additions also answered suggestions and ideas made on behalf of the senior group of participants to increase federal sponsors within the library resource. A new video addition included NCURA's Contracting Primer in Research Administration (structured into an educational program) within the portal. Three lessons were made available, with nine courses to be added with future iterations. Another new video addition included one of FSE's cost sharing lessons, best practices, and steps taken specifically within the FSE. Finally, I removed the large graphics on landing pages and added reasonable sizes (e.g., font sizes from 18 to 14 in some cases) and added additional details to navigation pages (e.g., directions on welcome pages).

Quantitative Findings – Phase 3 (Performance and Exploration) – Junior and Mid-level RAs

Phase 3 of the study involved the group of junior and mid-level research administrators (10 participants) performing, exploring, and experiencing the library portal's activities. The quantitative data collected from the group of junior and mid-level research administrators consisted of their ratings on FSE and ASU's other departments' training and development infrastructure within the research administration environment.

The quantitative data collected also includes the respondents' ratings on their exploration and performance experiences in the new library portal/innovation. Also, at this phase of the study, the researcher looked through the lens of early stage research administrators' experience, knowledge base, confidence and comfort levels to the purpose and objectives of the study, while addressing a combination of the overarching research questions.

Additionally, results collected on participants' demographics could indicate how a participant's time on-the-job, level, and experience could relate to and make a difference in the individual's progression within the research administration profession. For instance, a question presented to the group from 'Topic 1' of the Discussion Forum for the junior research administrators' asked "How long have you worked within the Research Administration field?"

Table 9

Study Participants - Junior and Mid-Level Research Administrators: Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Yrs. Employed (Yrs.)	10	2.65	1.4729	0.4658
Level	10	1.50	0.5270	0.1670

The data collected in Table 9 on the junior and mid-level research administrator participants' experience and job level, attests to their novice status within the research administration field. The results from the group of 10 junior research administrator participants show that 80% of the group is just starting in the research administration

profession – with a mean score of 2.6 for years employed and a standard deviation of 1.47.

Table 10

Performance and Exploration Scales – FSE and ASU's Other Dept. Infrastructure - Juniors and Mid-level RAs

Question: Training and Development Infrastructure	Response	Rating	Percent
FSE: Please rate FSE's current RA training and developmental infrastructure 0-no response/unknown 1-not very beneficial 2-somewhat beneficial 3-average 4-pretty beneficial 5-very beneficial and needed	no response or unknown	2	20%
	not very beneficial	1	10%
	average	6	60%
	pretty beneficial	1	10%
ASU Other Dept: *Please rate ASU's overall RA training and developmental infrastructure* 0-no response/unknown 1-need improvements 2-limited resources 3-average 4-feel comfortable 5-very beneficial and aid in growth	need great improvements	1	10%
	limited resources	3	30%
	average	2	20%
	feel comfortable with finding information	4	40%

The data in Table 10 displays participant ratings of FSE's and ASU's other departments training and developmental infrastructure. The data represents the responses

from the survey (Appendix H) in the discussion forums under the RA juniors and mid-level staff. These items were used to rate and measure the participants' views of the available resources and tools in place within the research administration community (FSE and ASU). The Likert-scale for both items consists of a five-point evaluation. The Likert-scale for FSE's 1-5 rating exhibited, *1-being least beneficial* to *5-very beneficial*. The Likert-scale for ASU's other departments, performance rating, displayed *1-need major improvements* to *5-being very beneficial.*

From the group of 10 participants of the junior research administrators' group, the results indicate that 20% did not answer FSE's inquiry item due to their lack of experience with FSE's current training and development infrastructure. The results for FSE's inquiry item, further indicated that 10% of the respondents selected *1-not very beneficial*, 60% selected *3-average*, and 10% of the respondents selected *5-very beneficial* when it came to their perceptions of FSE's current training and developmental infrastructure. The results from ASU's other departments' inquiry item indicated that 10% of the respondents selected *1-need improvements*, 30% perceived that there were *2-limited resources*, 20% selected *3-average,* and 40% indicated that they *4-feel comfortable with finding information.*

Table 11

Performance and Exploration Scales – RA Library/Innovation - Juniors and Mid-level RAs

Question: Training and Development Infrastructure	Response	Rating	Percent
The Library for RAs: *Please rate the RA Library training and developmental resource based-off performance experience*	Average	3	30%
0-no response or unknown 1-need great improvements 2-limited resources 3-average 4-feel comfortable with finding information 5-very beneficial and aids in growth	Feel comfortable with finding information	5	50%
	Very beneficial and aids in growth	2	20%

Table 11 displays the participant ratings of the performance and exploration activities of the new innovative library research administration training and developmental infrastructure. The new library resource Likert-scale consisted of a rating of 1-5, *0-no response;* 1-*need improvements, 2-limited resources, 3-average, 4-feel comfortable,* and *5-beneficial*. The results from the library resource/innovation item indicated that, 30% selected *3-average*, 50% selected *4-feel comfortable*, and 20% indicate *5-beneficial*. In this case, there were no missed scores or mid-range selections; the data was based on a 1-5 scale. The data further details whether the make-up, resources, and training and developmental infrastructure can meet the research administration community's needs.

Table 12

Performance and Exploration Statistics – FSE and ASU's Other Dept. Infrastructure - Juniors and Mid-level RAs

Scales	FSE	ASU/Other Dept.
N =	10	10
Mean	2.4	2.9
Median	3	3
Mode	3	4
Std. Deviation	1.35	1.101
Variance	1.822	1.211

The data in Table 12 show a mean score of 2.4 and a standard deviation of 1.35 for FSE's training and development infrastructure and a mean score of 2.9 and a standard deviation of 1.101 for ASU's other department's training and development infrastructure. The mean and SD scores indicate that the respondents (e.g., RA juniors and mid-level staff) rate FSE's current training and development infrastructure slightly below average, and the mean and SD scores for ASU's other department's current training and development infrastructure demonstrates a strong average rating among the group of participants. Considering the 10 participant scores overall, as shown in Table 12, the below average and average ratings from the respondents would indicate the need for

training and development improvements almost a mirrored image of RA seniors and the respondent group's ratings.

Table 13

Performance and Exploration Statistics – RA Library/Innovation - Juniors and Mid-level RAs

Scales	Library Resource / Innovation
N =	10
Mean	3.9
Median	4
Mode	4
Std. Deviation	0.738
Variance	0.544

The data in Table 13 shows a mean score for the library resource/innovation of 3.9 and a standard deviation of 0.738 on a Likert-scale of 1 out of 5 scale choices. The high average rating by the respondents of 3.9 indicates that the group of participants felt comfortable and experienced an increase in their professional growth and comfort levels when based on ratings of the library (e.g., 50%-*felt comfortable with finding information* and 20%-*very beneficial and aids in growth*; the remaining 30% gave an *average* rating).

Qualitative Findings – Phase 3 (Performance and Exploration) – Junior and Mid-level RAs

The data collected from the group of junior research administrators and mid-level staff acted as specific aims for the study's objectives: (1) to share, reflect, and deliver on their experiences and perceptions of the research administration training and developmental environment, (2) to confirm whether their performances and explorations within the new research administration library resource/innovation contributed to building their confidence and comfort levels when judgments are based on the state of training and development environments, and (3) to collect ideas and feedback for future iterations.

The qualitative approach used in collecting data on the junior research administrators' performance demonstrations and activities were descriptions of stories told on the experiences, perceptions, confidence, and comfort levels that helped drive the study. The group shared with their reflections, experiences, perceptions, and feelings surrounding the need to receive adequate training and development necessary to perform successfully in the research administration profession. The questions proposed in the topical discussions (Appendix H) helped answer the main research questions which were the drivers of the action research.

How, and to what extent, does participation in an educational research and training resources impact research administrators' experience, knowledge base, and confidence while contributing to developing a training and development portal when given the opportunity? Based upon the findings, the junior group of participants (Phase

3) expressed a high degree of uniformity with the senior group's (Phase 1) engagement experiences in the library portal/innovation environment.

Library Innovation Performances and Exploratory Learning Experiences

The first question sheds light on the learning experiences theme and caliber of a library resource infrastructure that would meet the research administration community's needs. What are your thoughts on the components and make-up of the library (look-and-feel)? The junior and mid-level research administrator participants viewed the library as clear, felt the modules' identifiers gave specific titles and descriptions and that informational components within the library were incredibly useful, organized, and easy to navigate. The participants also stated that the integrated screen (e.g., moving forward with the space bar) was impressive, making the information easily accessible and easy to maneuver. Also, the details of the grids' modules were apparent and understandable to the junior research group. Additional benefits were that the coverage of training and developmental needs for both pre-and-post award research administrators was readily available.

Library Innovation Performances and Exploratory Activities Increase Knowledge, Confidence, and Comfortability Levels. A second question acknowledged the theme of learning experiences, "After performing select activities throughout the library (portal) modules, do you feel an increase or improvement in your knowledge and performance level, or are you dissatisfied?" Many participants agreed that the library set-up and components would increase their knowledge and better their performance abilities. The group shared that the library modules included more

information than they have had access to in the past within the ASU training and developmental environments. They continued that their knowledge level has improved as they have proceeded through the portal, and they found an increase in familiarity and comfort level.

Library Innovation Performances and Exploratory Experiences Build Confidence in Job Expectations. Results from the third question, "To what extent will the integration of the library resource into the overall research administration training infrastructure within FSE and extended through the research administration community at ASU assist in improving your knowledge base, performance, and confidence level?" and the fourth question "Are the current training and development systems in place enough for your steady professional growth and development as a research administrator? Please give a couple reasons behind your selection." Many participants agreed that the integration of the library resource would assist in their confidence, knowledge, and performance level. These responses reinforced that having one place to go to find everything would be beneficial. Their beliefs are that there are great benefits to have such a resource and reference to improve their knowledge base, performance, and confidence level. To their knowledge there are not many onboarding resources currently available, so having all the key information integrated into one space would be useful as a new hire. The participants argue that the current training systems are not enough.

According to the group of junior research administrators, the research administration training within ASU training and development environment was characterized by links that were not updated or did not work, absence of quizzes to help

test the knowledge gained from training sites, and inability to access any information and research administration sites. The respondents also shared that there were no team meetings to ask questions or to discuss problems, changes, processes. They agreed that team meetings are extremely important to correct any misinformation and to disseminate updates. A participant elaborated in more details with the following response:

> In many areas, there isn't sufficient funding to send staff to activities such as NCURA conferences, SRA, APMP, etc.… The Career Edge training isn't great, the content has no dates (you don't know what you are consuming or from when, I understand the concept of evergreen content but when it comes to training on technology etc., we need to know when something was made), is very random and poorly manufactured in most cases. Some examples of me culling together my own training: attending sessions by funder program officers, subscribing to journals and publications on research, workshops on Social Science research, the Meg Bouvier seminars, taken a grant writing certificate through AAAS, joined APMP and taken their online sessions, online learning through EdX, NLM (Nation Library of Medicine), Elsevier's Research Academy, National Academies, and actually Grants.gov has some good resources.

The participants also shared their views on how links such as the main research administration site with ASU Research Operations contains a wealth of information that is largely conceptual and definition-based rather than process-based. The junior research administrators reported that to be successful in their new roles, it would be helpful to have a short training section with current step-by-step instructions describing how to complete requests such as payroll redistributions, instructions with screenshots for ERA processes, and guidance of where to locate specific information on topics such as sub-awards and IRB study numbers. One participant responded with this description:

> My dream is that training would start with a philosophical approach, an introduction to the field, a why and how we do this thing. Should embed folks in the excitement and interest of the work, orient them to the research and what is happening. Help them understand the diversity of research and researchers. Inspire and integrate. Then information could be interwoven with exercises and

tasks and possibly even mentorship. One example: I know I'm not going to go read up on NASA until the next time someone comes to me with a NASA submission, but if I'm given a complex problem in a training module (such as Dr. X would like to apply to this RFP and budget for X - is Dr X and ASU eligible to apply, and are these specific costs allowable based on this funder's guidance or special funding announcement, etc) then the information becomes more real-world. Lastly, I would like our environment to be where we encourage vulnerability and the ability to openly say "I need help", "I don't know this thing", "what do you think", etc.. The field is a moving target with a lot to stay on top of and we all need each other.

Library Innovation Performances and Exploratory Ideas, Suggestions, Feedback, and Implications for Future Iterations. Junior participants' suggestions for what to include in the library innovation were:

1. Revise the Welcome Page link (e.g., update to the module).
2. Possess the ability or opportunity to read transcripts instead of listening to avatars.
3. Improve avatars to current brands/versions, due to mechanical voices in some cases.
4. Add/include more federal sponsors to the structure of the training and developmental format. To the environment of research administration overall, the junior research administrators expressed desires of revisions such as (1) training schedule updated to current; (2) working links in ERA and Workday, add links and instructions for Amazon Workspaces.

Chapter 5: Discussion

This chapter addresses the study's findings expressed through the phases that emerged (Phases 1-3), and it addresses the main themes that evolved from the quantitative and qualitative findings. Additional discussions include the limitations of the study, implications for practice, implications for future research, reflection on lessons learned, and ends with a conclusion.

Discussion of Results

Phase 1 (Pilot) – Quantitative and Qualitative Results

The study results from the senior research administrator participants provided insight that influenced improvements via necessary modifications and tweaks to the portal. The intention was for the results to support a successful performance experience within the library portal for the junior research administrator participants who joined in Phase 3 of the study. The senior research administrators' group of participants also offered knowledge and insight for the continuation of future cycles to improve and better the study's library portal to become a beneficial resource to the research administration community.

For Phase 1, the results initially made it clear that a need exists for the library resource/innovation and based on the data the group of participants' current status, perceptions and position indicated that research and administration training and development resources in FSE are determined to be just below average (e.g., 2.1 mean score) and limited. Another factor that tied into the mean score was a result of the lack of experience (e.g., participants from other schools and departments) within the Fulton

Schools of Engineering (FSE) to make an objective determination with regards to the current research administration resources that are in place. For instance, the quantitative results revealed that 80% of the participants indicated that the new library resource/innovation was ready for implementation and performance with a few revisions.

The suggested revisions from the qualitative results by the group at this stage were reasonable. The group of RA senior participants' recommendations and suggested revisions included training add-ons such as tailored video training sets, job shadowing, identifying mentee and mentoring opportunities, collaboration opportunities with other research administrators throughout the community, announcements identifying experts for specific sponsors, the addition of a checklist training feature, an increase of federal sponsor specific training, the creation of a training podcast and short videos from research administrators, updating or fixing errors to broken links to websites and videos with avatar malfunctions, the removal of large graphics on landing pages, providing additional details on navigation pages, and reaching out to other universities or educational institutions to inquire about best practices for training and development processes.

Phase 2 (Outcomes) – Results

Although time did not permit 100% completion of the requested tweaks and modifications prior to the launch of the library in preparation for the junior research administrator group of participants, a significant portion was still completed. The data dissemination efforts on the experiences, evaluation, and knowledge gained through the completion of the pilot test assisted with moving forward with implementing an effective

and efficient research administration resource. The senior research administrators' updates enabled fresh training and developmental streams across ASU and outside of ASU's standard research and administration systems. The additions also answered suggestions and ideas made on behalf of the senior group of participants to increase federal sponsors within the library resource. The addition of one of FSE's cost-sharing lessons, best practices, and steps taken specifically within the FSE was an example of an urgent selection needed by the research administrators. Cost-sharing is a topic that has held grave challenges for many research administrators. Based on the senior participants' evaluations and feedback, I felt that it was essential to include this video to demonstrate what a step-by-step-training session would look like specifically and directly catered to an individual's need. Future installments and modifications will also include educational platforms to be set up and structured within the portal, such as the National Science Foundation, National Institutes of Health, and the Department of Education.

Some of the suggested revisions by the group were not appropriate at this stage. Still, they could be brought up for further discussions with future installments and iterations - revisions and training add-ons such as:

- tailored video training sets
- job shadowing
- identifying mentee and mentoring opportunities
- collaboration opportunities with other research administrators throughout the community
- announcements identifying experts for specific sponsors

- the addition of a checklist training feature
- an increase of federal sponsor specific training
- the creation of a training podcast and short videos from research administrators
- reaching out to other universities or educational institutions to inquire about best practices for training and development processes.

Phase 3 (Performance and Exploration) – Quantitative and Qualitative Results

The study's goal on behalf of the junior research administrators sought to measure their perceptions, experience, confidence, and comfort levels by their performances and exploration within the library portal. Based on the quantitative results from the junior research administrators' performance and experiences from the onset, overall, the group exemplified positive encounters. A sense of comfortability began to develop and shape as their time within the portal evolved. For instance, quantitative results concerning their comfortability level and views of the library resource indicated that 30% of the respondents rated the library resource as *3-average*, 50% indicated that they 4-*felt comfortable maneuvering through the resource*, and 20% gave a rating of *5-very beneficial* (e.g.,5 of 5 rating), making the total of positive marks stand at 70% or 7 of the 10 participants.

The quantitative results confirmed that the current makeup, resources, and training and developmental infrastructure in place for FSE and other ASU departments minimally meet the group's needs when it comes to sufficiency. Sixty percent of the respondents rated FSE's training and development infrastructure as *3-average*, and over 30% of the respondents perceived ASU's overall infrastructure as having *2-limited*

resources. The qualitative results described junior research administrator participants' encounters and performance experiences within the portal, providing efficient, significant, firm, and grounded results. The ideas, feedback, knowledge, and suggestions received from the participants at this stage (Phase 3) would benefit the continuous cycling of positive training and development growth added to the portal for future studies and iterations.

The group conveyed that their engagements, chats, and exchanges with their peers and cohorts within the research administration library allowed them to share, learn and exchange knowledge with others in a similar situation and maybe to journey down a similar path in their careers. Through this experience, the group members suggested ways to encourage mentoring, shadowing, and extended community learning events. The participants insisted that significant revisions and updates would benefit the research administrators' experiences within the portal. For example, the group felt that a need existed to get links to work in ERA, Workday, and Amazon Workspaces. However, the group also shared areas within the portal that reaped immediate benefits to their training and development. They would not hesitate to utilize and add to their current tablet of information. The respondents agreed that the library was easy to maneuver; the modules and lessons within the portal gave specific titles, links, and descriptions. According to the participants, this gave them a sense of confidence with future searches for grant administration guidance and information. The participants also shared that the separation of the pre-and-post award lessons is excellent for the library resource's structuring and make-up.

The results of the study, in this way, hold great connections with Wenger's Community of Practice theory: engaging in opportunities to connect and share knowledge and information with other individuals in the same community. According to Wenger (2010), mutual engagement does not entail homogeneity, but it does create relationships among people to sustain and connect participants in ways that can become deeper than more abstract similarities in terms of unique features or social categories.

Main Themes

This study's focus has been to explore, address, and evaluate the training and developmental needs of junior research administrators within FSE and other departments at ASU. My research also examined the impact of implementing a library for research administrators on RA's perceptions, experiences, confidence, and comfort levels. The study was guided by two theoretical frameworks, including Wenger's (2010) Communities of Practice theory and Kolb's (2014) Experimental Learning theory. Based on this mixed methods research approach, three emerging themes surfaced regarding relationships, learning experiences, and expectations. I found that relationships played a major role when it came to the growth, nurturing, and development and success of the research administrators' career trajectory. Qualitative results demonstrated the need, importance, and influence of relationships on institutional growth and career advancement. The welcoming of collaborative relationships with other members of the research administration community was of high regard (e.g., in the form of shadowing, training events, and one-on-ones). Additionally, the theme of learning experiences plays a vital role in participants receiving adequate training and development to thrive within

the research administration profession as community of research administrators strive to better themselves both individually and as a group. The theme of expectations ties into the institution's assigned tasks or rating of individual performance roles.

Relationships

The theme of relationships emerged through the initial conversations surrounding the importance of establishing and building ties to individuals within the Communities of Practice. Qualitative results have highlighted the interest of shadowing, collaborations, and mentee/mentoring relationships. The interest was shared for leadership to assist junior research administrators with setting up collaboration opportunities to enable growth and development in task and careers. The junior participants backed the need for shadowing and hands-on experiences for research administrators. In particular, a handy feature and tweak the participants thought would be beneficial would be the addition of a checklist feature, to be initiated by a trainer, leader, or coach in order to build a training program in-house around these resources (e.g. handouts, links that take participant to appropriate reading material, videos, shadowing, and hands-on practice sessions).

Wenger's (2010) Communities of Practice theory first shares the theme of developing communities of like minds and skills. Wenger (2010) describes three dimensions of the relation by which practice is the source of coherence of a community: (1) mutual engagement, (2) a joint enterprise and (3) a shared repertoire. Mutual engagement refers to practices that exist among a group of individuals within a community who are open to the shared relationships among the community.

Learning Experiences

The learning experiences theme comes initially following the participants' live experiences within the library portal. The junior research administrators shared that the library resource would enable a successful learning experience where the resources and tools could be utilized in one area. This would eliminate the need to search tirelessly and lose precious time to achieve success within the research administration field. The group of participants shared their views on how links such as the main research administration site with ASU Research Operations contains a wealth of information that is largely conceptual, and definition based. Also, the group of senior research administrators agreed that select learning experiences that would help junior research administrators adjust to their new roles included such things as a short training section with current step-by-step instructions to complete requests such as payroll redistributions, instructions with screenshots in ERA of where to locate specific info such as sub-awards, IRB study number etc. would be helpful to succeed in roles.

Expectations

The theme of expectations emerged through the participant's identification of their expectations of FSE, other ASU's departments, and themselves. The RA seniors and managers in the study communicated that the search for training and developmental resources were very scattered, limited, and scarce. However, they encourage additional training and development opportunities for their staff and other junior research administrators that may endure similar struggles. The juniors shared that they are open and interested in identifying avenues to succeed at their expectations. Many of the junior

participants also communicated how they plan to take advantage of the many opportunities (e.g., library resource) to grow and develop in the area of research administration. Therefore, they are aspiring to establish and develop themselves in their skills and career in order to successfully cater to the needs of the research faculty, through proposal submissions and account management. They continue to speak of the high expectations of the department of engineering and the research administration area within ASU. They spoke how they often get nervous and feel pushed into a corner, without someone acknowledging that they may need assistance. If a question is asked or an area of grant administration is missed, they often feel that they are not of the caliber to succeed within the area of research administration. The junior research administrators expressed that expectations in their mind are tied to the institution's tasks or deliverables. Since expectations are not clear when it comes to proposal submissions, proposal rejections are often blamed on the appointed RA responsible for managing the proposal.

Respondents conversed about incidents when they felt pressured due to the expectations for the completion of job tasks that fell outside their research administration level and experience. One participant stated that they were in a dire situation where they were assigned a Department of Energy (DOE) proposal but had never submitted a proposal that requested a task budget. They did not receive direction, so they attempted to search in Google and still came up short in finding useful guidance. The submission happened, but it did not result in a positive experience on the end of the research administrator.

Limitations of Study

The study first endured challenges with the limited number of participants to represent the entire research administration community at ASU. Limitations of the study also come with the lack of participation and involvement of research faculty; future studies should include their voices and perceptions to get a better idea of the missing pieces or the current areas of concern within grant administration (e.g., proposal submissions and award management processes).

Limitations came with the inability to invite outside participants due to the firewalls and security set-up for ASU. Therefore, the study could not be set-up objectively since testing behind firewalls was not possible. This is the main reason for using an internal sample only. There may have been limitations with transparency due to my position as an insider or member of the research administration community. Limitations came with the Canvas site, as there was not an active chat mechanism. The participants did not have the capacity to chat in real time which reduced some forms of transparency. Limitations were acknowledged with somewhat-dated avatars and a couple members of the junior participant group stated that they had felt somewhat hindered by the mechanical voices in some cases.

Lessons Learned

The door stands open wide for future iterations of additions to the library resource. The study helped set up the foundation; however, a lesson learned would be to invite more individuals from the research community to gather their thoughts for bettering and improving the training and developmental research administration

experiences for the research administration community at ASU. I was able to pull information from the groups of participants; however, significant details were lacking and very generic from some participants. To build on theory, a lesson learned would be to increase my population size throughout the research administration community; even polling some research faculty may prove to reap benefits through context and experience. The second lesson learned would be to pull more context and information from sponsor-specific sites. I only included minimal information as a foundation or basis from major sponsors; this caused limitations to pictorial outlook. A third lesson would be to dive more into other universities' processes to get a better idea of practices that worked and are worthy of building on a foundation for training and development resources for research administrators on a national and global level. A fourth lesson would be to encourage the addition of assistive technological devices to the training and development infrastructure to enable individuals with disabilities to keep up with the challenges and modifications that come with being equipped to perform successfully even through setbacks that may unexpectantly surface. For example, due to physical challenges mid-way through my dissertation planning, I became incapable of performing on a normal level. Standing in front of a dissertation committee and presenting my proposal fluently with my full voice and physical standards were all-of-a-sudden not an option for me. I had to depend on an educational technology resource called 'voki' – with the capabilities to act as an assistive tool. This platform, I originally used to begin the building of my innovation (e.g., avatars to teach courses), I depended on this platform to speak for me to present my dissertation proposal.

Implications of the Study

The study's implications further acknowledged and confirmed information concerning sponsor processes, accounting preparation, and delivery and award management processes – the necessary resources and training and development mechanisms to support the research administration community are kept in different places (e.g., scattered). Presently resources for developing research administration expertise are limited, and the development of research administrators at Arizona State University has left many changing careers due to insufficient learning experiences. There has been growth concerning the wealth of information within the past few years. There has also been an increase in systems changing without the appropriate guidance and training materials that focus on central office functions rather than departmental research administration functions. To address the problem of practice, this study developed and implemented a portal entitled The Library for Research Administrators, a preliminary foundation that would deliver training and development, proposal resources, mentoring, sponsor links, and more in one area; it would be a one-stop shop for the research administration community.

Conclusion

The learning and development experiences for research administrators has caused a need of a relationship approach in community building. For junior research administrators entering the profession in their first few years, the development and professional growth environment has been limited and scattered. The benefit to participation is the opportunity to reflect, evaluate, give feedback and suggestions, and

think more about bettering/improving the training and developmental infrastructure for new and junior staff within the research administration profession. The experiences, survey/discussions also informed future iterations of the study and continued the cycle of improvement of the current processes. Thus, there is potential to enhance the experiences of our research administration community. My dissertation experiences have proven to be a great start to explore and enact future iterations of research in this area. Future studies will include pre-and-post-tests to measure the participants' learning curve as they move through the cycles of the portal modules. Focus groups will also be encouraged for my future studies to connect with the literature reviews (e.g., Cole – Nevada Institute study). Moving forward, I am committed to bettering the training and developmental infrastructure for research administrators throughout the research administration community within FSE and ASU. I am hopeful to attain these goals through future cycles of research.

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APPENDIX A

THE LIBRARY FOR RESEARCH ADMINISTRATORS PORTAL OUTLINE

1. KNOWLEDGE AND INFORMATIONAL RESOURCES Module

    1. ASU Research Operations and FSE knowledge and information links on the following topics
        1. Submitting a Proposal (Pre-Award)
            a. Steps to submitting to Standard Sponsors (e.g., NSF, NIH, DOE, DOEd); items needed; breakdown guidelines
        2. Managing an Award (Post-Award)
            a. Expectations by Sponsors when a PI has been awarded a grant
            b. Allowed parties, activities, and budgetary items.

    4. ASU research administration knowledge and informational links:
        a. Research Academy
        b. OKED research administration – work instructions
        c. ERA professional development site

    5. A-21 Policies and Procedures - OMB's knowledge and informational links
       A-21 Circular is through the Office of Management and Budget (OMB)
       Cost Principles for Educational Institutions establishes principles for determining costs applicable to Federal grants, contracts, and other sponsored agreements with educational institutions.

    4. NSF knowledge and information links on the following topics:
        1. Submitting a Proposal (Pre-Award)
            a. Successful steps to submitting a research proposal
            b. What are the types of agreements to be utilized in cases of collaborations?
            c. The GPG tells you to do what if you are traveling internationally.
        2. Managing an Award (Post-Award)
    5. NIH knowledge and information links on the following topics:
        1. Submitting a Proposal (Pre-Award)
            a. What paperwork is needed when submitting with collaborators on a proposal?
            b. What happens when a consultant is listed on your budget?
        2. Managing an Award (Post-Award)
    6. NCURA knowledge and information links on the following topics
        1. Submitting a Proposal (Pre-Award)

a. Steps to submitting to Specific Sponsors; items needed; breakdown guidelines

2. Managing an Award (Post-Award)
   a. Expectations by Specific Sponsors when a PI has been awarded a grant
   b. Allowed parties, activities and budgetary items.

NCURA knowledge and informational links

The National NCURA advances the profession of research administration through education and professional development programs, the sharing of knowledge and experiences, and the fostering of a diverse, collegial, and respected global community.

3. Financial Research Administration Conference (videos and links) – offered annually to those research administrators who seek to gain new knowledge, expand their professional network, and strengthen their connection to the research community -- the context of post-award financial management.
4. Pre-Award Research Administration Conference (videos and links) – offered annually to those research administrators who seek new knowledge, expand their professional network, and strengthen their connections to the research community – the context of pre-award proposal submission and management
5. Training and Development on Contracts (Education and Industry) – terms, policies, processes, and procedures.

2. BOOT CAMP Module

Avatars will teach lessons, seminars and workshops on research administration topics and provide guidance on grant administration - work instructions (specific to ASU); additional instructions provided on proposal processes and procedures internal and external to ASU.

Training and Developmental Lessons, Seminars, and Workshops:

1. How to define an opportunity? Identify funding, locate opportunity, submit an internal and external proposal.
2. Develop and submit a proposal?
3. Review RFP, prepare a checklist, route proposal internally, prepare technical and cost proposal, submission of a proposal.
4. How to submit and negotiate an award?
5. How to set-up and manage an award?
6. How to manage Subawards?
7. How to execute a project?
8. How to close out a project?
9. Using the budgeting tools in Workday
10. Pulling a revenue report in Workday

3. DISCUSSIONS Module

Groups of Participants (e.g., RA Seniors and Managers and RA Juniors and Mid-Level Staff) exercise evaluate and survey the Library modules.

A. Discussion Topics for RA Seniors and Managers

1. Topic 1 – Piloting of the Knowledge and Information Resources Module by the RA Seniors and Managers Group.
2. Topic 2 – Piloting of the Boot Camp Module by the RA Seniors and Managers Group.

B. Discussion Topics for RA Juniors and Mid-Level RAs

1. Topic 1 – Performance and Exploration of the Knowledge and Information Resources Module by the RA Juniors and Mid-Level RA Group.
2. Topic 2 – Performance and Exploration of the Boot Camp Module by the RA Juniors and Mid-Level RA Group.

APPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL

EXEMPTION GRANTED

Kathleen Puckett
Division of Teacher Preparation - Polytechnic
Campus 480/727-5206
Kathleen.Puckett@asu.edu

Dear Kathleen Puckett:

On 12/3/2019 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Research Administration Developmental Provisions for Staff: Professional Developing and Structuring of a Library for Research Administrators
Investigator:	Kathleen Puckett
IRB ID:	STUDY00011102
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Discussion-Questions-Merged-Instrument.pdf, Category: Other; • Invitation to participate in library study-RA-merged-11-30-19.pdf, Category: Consent Form; • Kelbrina Davis IRB Protocol-update 12-2-19.docx, Category: IRB Protocol;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 on 12/3/2019.

In conducting this protocol, you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

APPENDIX C

CONSENT FORM

TO: THE RESEARCH ADMINISTRATION COMMUNITY OF RA SENIORS AND MANAGERS

Dear Colleague:

My name is Kelbrina Davis and I am a doctoral student in the Mary Lou Fulton Teachers College at Arizona State University. I am conducting a research study to measure the effectiveness of a research administration resource designed to prepare new and junior research administrators for success in the research administration profession within the Fulton Schools of Engineering and extend throughout the research administration community at Arizona State University.

We are asking for your help, to evaluate, perform, explore, experience, determine, give additional perspectives, ideas, feedback and suggest improvements for the design and format (e.g., pilot test) of the components of this research administration resource (e.g., inclusive of discussion questions within the canvas system). We anticipate this activity would take approximately 30-45 minutes. We encourage you to complete the study activities in one sitting. You will have an opportunity to access the site/portal over a select period-of-time. The presentation of activities will be open to a select group of individuals who are a part of the research administration community at Arizona State University. Participants will receive a visa gift card for $20 to participate and actively perform in the research study.

Your participation in this study is voluntary. If you choose not to participate or withdraw from the study at any time, there will be no penalty whatsoever. You must be 18 years of age or older to participate.

The benefit to participation is the opportunity for you to reflect on and think more about training and developmental needs for research administration staff within the research administration profession. The purpose in doing so will enable, us to disseminate and make-adjustments to ensure that the library portal/resource is fully equipped to allow research administrators to receive the adequate training, guidance and development to perform successfully. Thus, there is potential to enhance the experiences of our research administration community. There are no foreseeable risks or discomforts to your participation.

Your responses will be open to select members of the research administration community (e.g., participants involved in the study). Any reports or publications based on this research will use only group data and will not identify you individually. If you have any questions concerning the research study, please contact the research team Kathleen Puckett at Kathleen.Puckett@asu.edu or Kelbrina Davis at Kelbrina.Davis@asu.edu.

Please let me know by email (Kelbrina.Davis@asu.edu) if you wish to be part of the study and I will send additional information (e.g., link to canvas/study site). Your correspondence will serve as consent of your participation.

Thank you,

Kelbrina Davis, Doctoral Student

If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

TO: THE RESEARCH ADMINISTRATION COMMUNITY OF RAS AND JUNIORS

Dear Colleague:

My name is Kelbrina Davis and I am a doctoral student in the Mary Lou Fulton Teachers College at Arizona State University. I am conducting a research study to measure the effectiveness of a research administration resource designed to prepare new and junior research administrators for success in the research administration profession within the Fulton Schools of Engineering and extend throughout the research administration community at Arizona State University.

We are asking for your help, to evaluate, perform, explore, and experience the components of this research administration resource (e.g., inclusive of discussion questions within the Canvas system).

We anticipate this activity would take approximately 30-45 minutes. We encourage you to complete the study activities in one sitting. You will have an opportunity to access the site/portal over a select period-of-time. The presentation of activities will be open to a select group of individuals who are a part of the research administration community at Arizona State University. Participants will receive a visa gift card for $20 to participate and actively perform in the research study.

Your participation in this study is voluntary. If you choose not to participate or withdraw from the study at any time, there will be no penalty whatsoever. You must be 18 years of age or older to participate.

The benefit of participation is the opportunity for you to reflect on and think more about training and developmental needs for research administration staff within the

research administration profession. The purpose in doing so will enable, us to disseminate and make-adjustments to ensure that the library portal/resource is fully equipped to allow research administrators to receive the adequate training, guidance and development to perform successfully. Thus, there is potential to enhance the experiences of our research administration community. There are no foreseeable risks or discomforts to your participation.

Your responses will be open to select members of the research administration community (e.g., participants involved in the study). Any reports or publications based on this research will use only group data and will not identify you individually. If you have any questions concerning the research study, please contact the research team Kathleen Puckett at Kathleen.Puckett@asu.edu or Kelbrina Davis at Kelbrina.Davis@asu.edu.

Please let me know by email (Kelbrina.Davis@asu.edu) by **Friday, January 24, 2020**, if you wish to be part of the study and I will send additional information (e.g., link to canvas/study site). Your correspondence will serve as consent of your participation.

Thank you,

Kelbrina Davis, Doctoral Student

If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects

Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

APPENDIX D

DIRECTIONS TO PARTICIPATE IN THE LIBRARY FOR RESEARCH ADMINISTRATORS (RA SENIORS AND MANAGERS)

TO: THE RESEARCH ADMINISTRATION COMMUNITY OF RA SENIORS AND MANAGERS AND RAS AND JUNIORS

Dear Colleague:

Thank you for agreeing to participate in the research study. Please follow the steps below to successfully navigate the *library* resource.

You will receive an email shortly to confirm your access/entry into the canvas site.

Step 1: Click here to go to the Welcome Page of the *Library* for Research Administrators

- At the bottom of the screen, you will find *links* to the welcome pages of the three modules (e.g., Knowledge and Information Resources, Boot Camp and Discussion Modules)

Step 2: Click here to go directly to the Modules page or *click* Modules from the welcome screen.

- Please maneuver through the library components - evaluate, perform, explore, and experience

- 1st Knowledge and Information Module
  2nd BootCamp Module

Step 3: Complete your final activity within the portal – The Discussion Module or go directly through the Module selection screen.

- 3rd Discussions Module contains a selection of questions, *click* each of the following Topics (**Topic 1 and Topic 2**) to assist with completing this section of the Library Resource.

- Click reply to respond to the questions.

**Following your active participation/completion, please forward a physical address to Kelbrina.Davis@asu.edu to receive your visa gift card for $20; or I will send via internal office mail.*

Thank you,

Kelbrina Davis, Doctoral Student

If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

APPENDIX E

DIRECTIONS TO PARTICIPATE IN THE LIBRARY FOR RESEARCH ADMINISTRATORS (RA JUNIORS AND MID-LEVEL RAS)

TO: THE RESEARCH ADMINISTRATION COMMUNITY OF RA JUNIORS AND MID-LEVEL RAS

Dear Colleague:

Thank you for agreeing to participate in the research study. Please follow the steps below to successfully navigate the *library* resource.

You will receive an email shortly to confirm your access/entry into the Canvas site.

Step 1: Click here to go to the Welcome Page of the *Library* for Research Administrators

- At the bottom of the screen, you will find *links* to the welcome pages of the three modules (e.g., Knowledge and Information Resources, Boot Camp and Discussion Modules)

Step 2: Click here to go directly to the Modules page or *click* Modules from the welcome screen.

- Please maneuver through the library components - evaluate, perform, explore, and experience

- 1st Knowledge and Information Module
  2nd BootCamp Module

Step 3: Complete your final activity within the portal – The Discussions Module or go directly through the Module selection screen.

- 3rd Discussions Module contains a selection of questions, *click* each of the following Topics (**Topic 1 and Topic 2**) to assist with completing this section of the Library Resource.

- Click reply to respond to the questions.

**Following your active participation/completion, please forward a physical address to Kelbrina.Davis@asu.edu to receive your visa gift card for $20; or I will send via internal office mail.*

Thank you,

Kelbrina Davis, Doctoral Student

If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

APPENDIX F

THE LIBRARY FOR RESEARCH ADMINISTRATORS

PICTORIAL VIEW

THE LIBRARY FOR RESEARCH ADMINISTRATORS

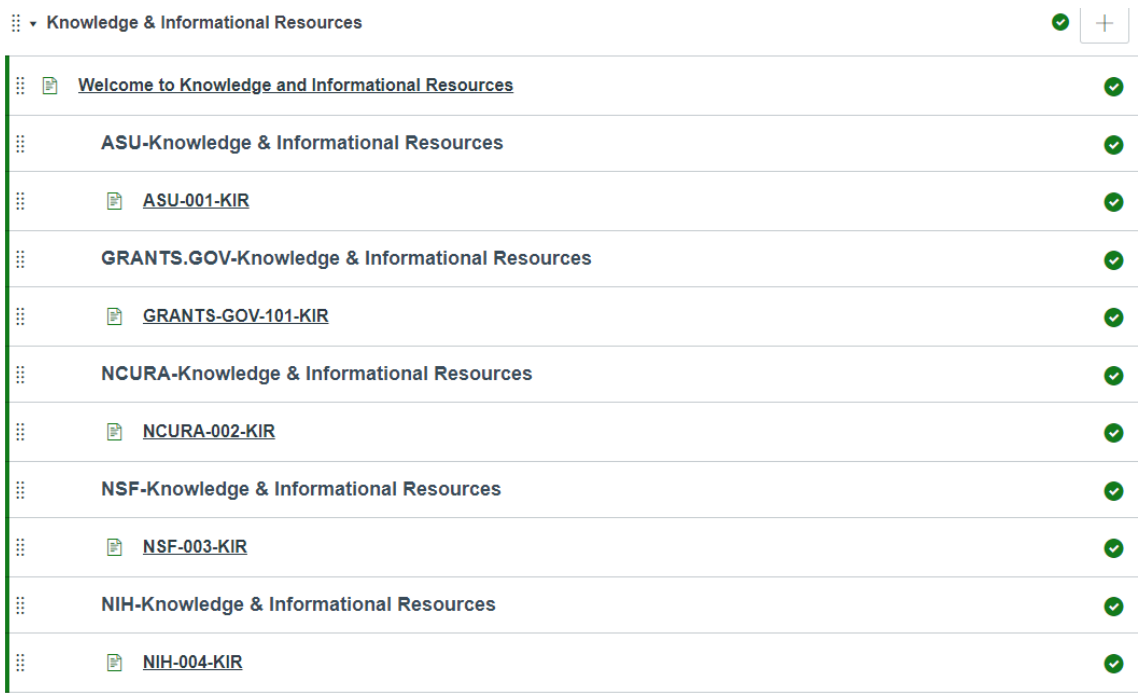
This research innovation (library) allows new and junior research administrators to receive adequate learning and lesson development, training, and guidance to perform successfully within the research administration profession. In some cases, this resource will be used as a refresher for some research administrators (varying levels) to develop and improve their skills and abilities to prepare for career advancement. The components of the library have been set-up as a foundation for a one-stop-shop (in-an-effort) to combat the scattering of pertinent research administration information locally and universally.

The Library is organized into two performance modules and one discussion/survey module.

1. **Knowledge and Information Resources Module**
2. **Boot Camp – Learning and Lesson Development and Training Module**
3. **Discussions – Exercise, Evaluation and Surveying of Library Module**

THE KNOWLEDGE AND INFORMATIONAL RESOURCES MODULE

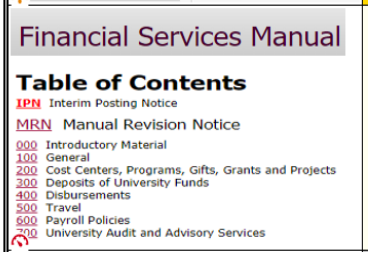
The Knowledge and Informational Resources module consist of sponsored specific links and professional organization platforms that extend and deliver knowledge about processes, procedures, guidelines and offer successful strategies, programs, seminars and courses which would aid in a research administrator's professional development within the research administration profession.

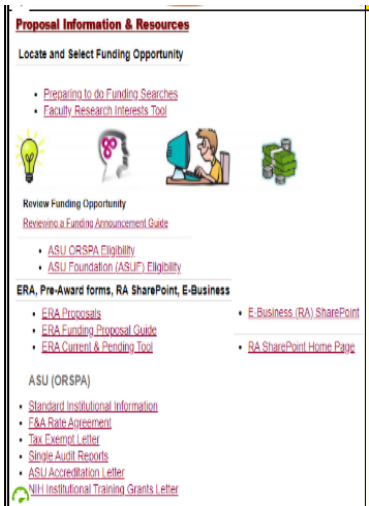
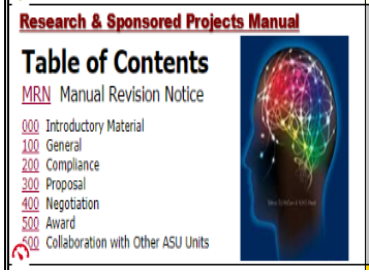


To set-up the foundation for the Knowledge and Informational Resources (KIR) module, ASU's research administration training and development platforms and a few other platforms/institutions were assessed and utilized (e.g., NCURA, NSF, GRANTS.GOV and NIH).

ARIZONA STATE UNIVERSITY – KNOWLEGE AND INFORMATION RESOURCES

ASU-001-KIR

Library Identifier Source Codes		Arizona State University - ASU-001	Pre/Post Award
	ASU-001-115-365-OKED-RA	0365 OKED Research Administrators - RA SharePoint	Pre+Post
	ASU-001-112-ERA-TRIR	Enterprise Research Administration System - Training & Info Resources	Pre+Post
	ASU-001-112-FSM	Financial Services Manual	Post
	ASU-001-114-POSTAWD-LFC	Life Cycle of a Sponsored Project Award	Post

	ASU-001-109-PR-RAADM	Proposal Info & Resources-Research Administration	Pre
	ASU-001-111-RSPM	Research & Sponsored Projects Manual	Pre+Post
	ASU-001-104-RAACDMY	Research Academy	Pre+Post
	ASU-001-101-RAADM	Research Administration	Pre+Post

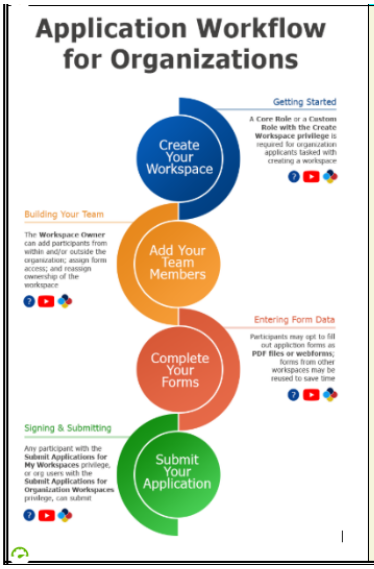
Research Operations  Websites: Research Administration: https://researchadmin.asu.edu Enterprise Research Administration: https://era.oked.asu.edu Research Integrity and Assurance: https://researchintegrity.asu.edu **Team Services** PRE-AWARD SERVICES COMPLIANCE)ST-AWARD SERVICES	ASU-001-102-RO	Research Operations	Pre+Post
Standard Institutional Information **Institutional Information for Use in Completing SF 424 Forms**  General Mailing Address for Research Operations Team Members AUTHORIZED OFFICIALS AND POINTS OF CONTACT ENVIRONMENTAL PROTECTION AGENCY VENDOR CODE EUROPEAN COMMISSION RESEARCH PIC # Employer Identification Number (also called TIN or IRS number) DUNS Performance Site Federal-wide Assurance Number Lab Animal Welfare Assurance Number ASU ORSPA W-9 FORM NAICS NSF ORGANIZATIONAL CODES PHS FINANCIAL CONFLICT OF INTEREST CAGE CODE (COMMERCIAL & GOVERNMENT ENTITY) COGNIZANT AUDIT AGENCY AND AUDITOR TAX EXEMPTION STATUS 2 STATEMENT	ASU-001-103-SRI	Standard Research Information	Pre+Post
Topical Guides  Capital Equipment Consortiums Fellowships Foreign Travel Institutional Eligibility NSF HERD Survey NSF Research Experiences for Undergraduates (REU) Participant Support Costs PI Eligibility Program Income Small Business Innovation Research (SBIR) Small Business Technology Transfer (STTR) Subrecipient vs. Vendor / Contractor vs. Consultant	ASU-001-110-TG-RAADM	Topical Guides-Research Administration	Pre
Training Toolbox  **Training Resources for OKED and Research Operations Staff** Research Academy **OKED Professional Development Resources for RAs** RA Seminars > Professional Development RA Seminars > Technical Knowledge **Resources for RAs to share with Investigators** **OKED** Research Academy	ASU-001-108-TT-RAADM	Training Toolbox-Research Administration	Pre+Post

Workday Instructions and Information   Purchases Favorites Work Instructions and Information Department Reports	ASU-001-107-WD-WI	Work Day-Work Instructions	Post
Process & Work Instructions Manual  • Define Opportunity • Develop Proposal • Submit and Negotiate • Award Setup • Manage Subawards • Execute Project • Close Out	ASU-001-105-PRE-POST-WI	Work Instructions-Pre & Post-Research Administration	Pre+Post

GRANTS.GOV – KNOWLEDGE AND INFORMATION RESOURCES

GRANTS-GOV-101-KIR

Library Identifier Source Codes		GRANTS.GOV - GRANTS-GOV-101	Pre/Post Award
Grant Lifecycle Timeline  **Grant Lifecycle Timeline Phases** **Pre-Award Phase** - Funding Opportunities and Application Review **Award Phase** - Award Decisions and Notifications **Post Award** - Implementation, Reporting, and Closeout	GRANTS-GOV-101-201-GRA-LFCYL	Grant Lifecycle Timeline	Pre+Post
 • Grants 101 • Grant Policies • Who's Who in the Federal Grant Policy • OMB Grant Memoranda • GONE Act (2016) • OMB Uniform Guidance (2014) • DATA Act (2014) • Executive Order 13576 (2011) • Recovery Act (2009) • FFATA Act (2006) • Public Law 106–107 (1999) • Single Audit Act Amendments (1996) • Lobbying Disclosure Act (1995) • Federal Grant and Cooperative Agreement Act (1977) • Grant Eligibility • Grant Terminology • Grant-Making Agencies • Grant Systems • Grant Programs	GRANTS-GOV-101-202-GRA-POL	Grant Policies	Pre+Post

 	GRANTS-GOV-WORK-SPC	WORKSPACE Overview & Process	Pre+Post

NCURA – KNOWLEDGE AND INFORMATION RESOURCES

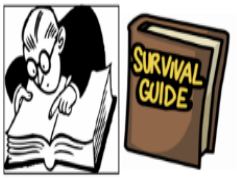
NCURA-002-KIR

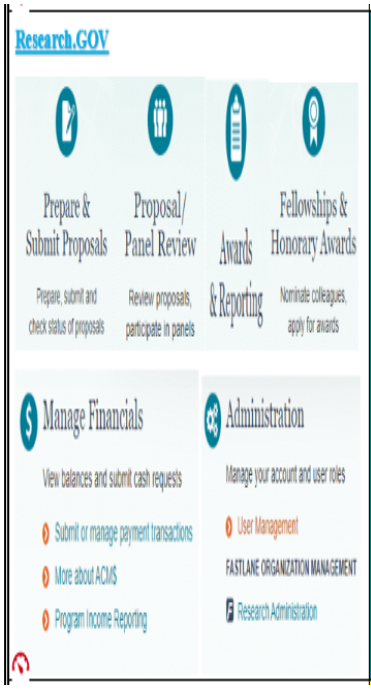
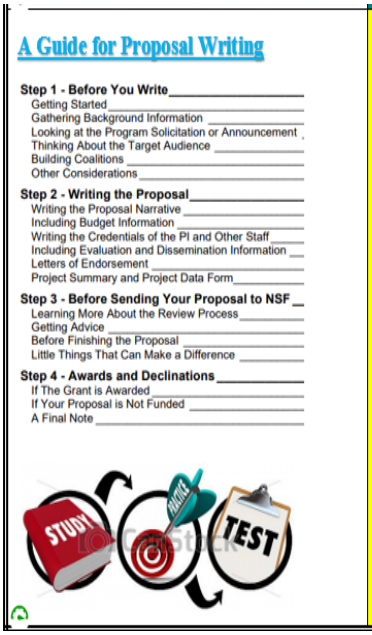
Library Identifier Source Codes		National Council of University Research Administrators - NCURA-002	Pre/Post Award
Education and Programs  Online Education National Conferences Traveling Workshops	NCURA-002-101-ED-PROG	NCURA Education and Programs	Pre+Post
NCURA's YouTube Tuesday  YouTube Videos Subcontracts Subrecipient Montoring What is a PUI 10 Best Practices for Beginners in the Field of International Research Collaboration A Proposal…A Subaward	NCURA-002-102-YTTV	NCURA's YouTube Tuesday - Lessons/Training Videos	Pre+Post

NCURA Online Learning  Upcoming Webinars Webinar – Introduction to Impact Reporting Webinar – Implementing Impact Reporting How to Audit=Proof Your Department On Demand Webinars Metrics For Post-Award/Research Finance Research Development for Research Administrators: Understanding, Mapping and Leaveraging Assets Finance Compliance: Cost Transfers: Minimizing the Need, Monitoring the Process and Managing Risk NDA, MTAs, and Other Ancillary Agreements	NCURA-002-103-ON-LRN	NCURA Online Learning - Webinars	Pre+Post

NSF – KNOWLEDGE AND INFORMATION RESOURCES

NSF-003-KIR

Library Identifier Source Codes		National Science Foundation - NSF-003	Pre/Post Award
Proposal & Award Policies & Procedures Guide   Table of Contents Part I – Proposal Preparation and Submission Guidelines I. Presubmission Information II. Proposal Preparation Instructions III. NSF Processing & Review Part II – Award, Administration and Monitoring of Grants & Agreements	NSF-003-101-PAPPG	Proposal & Award Policies & Procedures Guide	Pre+Post
 **Proposals, Awards and Status** Proposal Functions - Letters of Intent - Proposal Preparation - Proposal Status - Disabled in FastLane. Sign in to Research.gov - Display Reference Status - Revise Submitted Proposal Budget - Proposal File Update Award and Reporting Functions - Notifications and Requests - Continuation Funding Status - View/Print Award Documents - Project Reports System - Disabled in FastLane. Sign in to Research.gov - Supplemental Funding Request Change PI Information **Research Administration** Accounts Management Letters of Intent Proposals/Supplements/File Updates/Withdrawals Award Documents Forwarded/Submitted Revised Budgets Notifications & Requests Organizational Reports Project Reports – Disabled in FastLane. Log in to Research.gov	NSF-003-104-FAST-RA-WEB	Fastlane-Research Administration Overview	Pre+Post

	NSF-103-105-RES-GOV-WEB	Research.gov Overview	Pre+Post
	NSF-003-103-GU-PRO-WRI	A Guide for Writing a Proposal	Pre

NIH – KNOWLEDGE AND INFORMATION RESOURCES

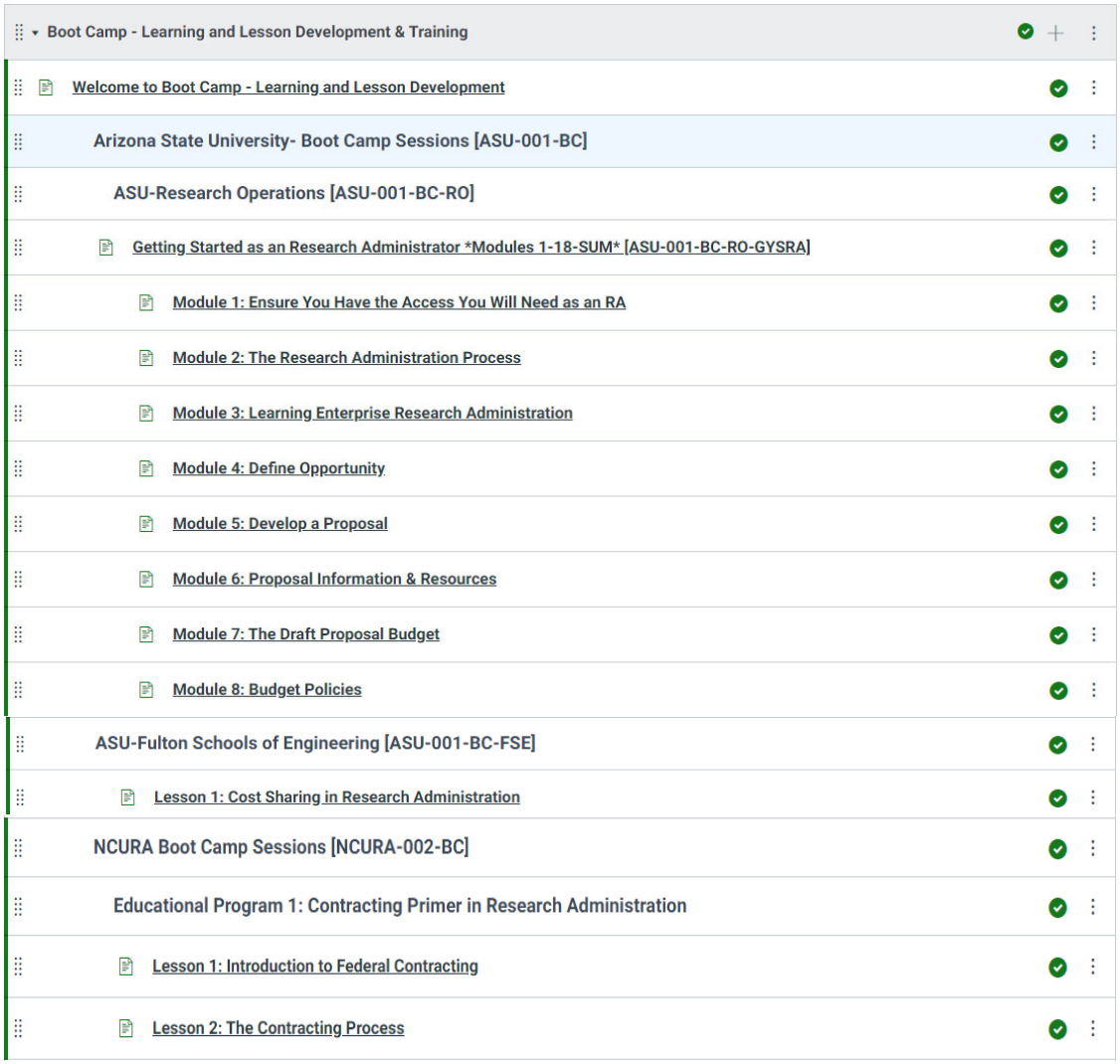
NIH-004-KIR

Library Identifier Source Codes		National Institutes of Health - NIH-004	Pre/Post Award
	NIH-004-101-APP-PREP-GUID	GRANT Application Preparation & Submission Guide	Pre
	NIH-004-102-FUND	NIH Grants & Funding Overview	Pre+Post

NIH GRANTS & FUNDING NIH Central Resource for Grants and Funding Information **Policy & Compliance**    • NIH Grants Policy Statement • Notices of Policy Changes • Compliance and Oversight	NIH-004-101-APP-PREP-GUID	GRANT Application Preparation & Submission Guide	Pre/Post

THE BOOT CAMP – LEARNING AND LESSON DEVELOPMENT AND TRAINING MODULE

The Boot Camp module encompass a line-up of workshops, seminars, lessons, and programs on research administration themes that are presented, voiced, and exhibited by avatars and other professional experts in the field.



To set-up, the foundation for the Boot Camp (BC) module, ASU's research administration training and development platforms were assessed and utilized (e.g., ASU Research Operations, inclusive of the Research Academy, FSE and NCURA).

Getting Started as an Research Administrator *Modules 1-18-SUM* [ASU-001-BC-RO-GYSRA]

ASU-Research Operations

ASU-001-BC-RA-GYSRA	Getting Your Start as An Research Administrator
Research Academy	Presenter: Jamie - Research Administration Expert

Modules 1-18 - GYSRA Summarized

Please click the specific Module to access the lesson/quiz:

- Module 1 : Ensure You Have the Access You Will Need
- Module 2 : The Research Administration Process
- Module 3 : Learning Enterprise Research Administration
- Module 4 : Define Opportunity
- Module 5 : Develop a Proposal
- Module 6 : Proposal Information & Resources
- Module 7 : The Draft Proposal Budget
- Module 8 : Budget Policies
- Module 9 : Understanding Costs
- Module 10 : Direct Costs
- Module 11 : Facilities & Administrative Costs
- Module 12 : Cost Accounting Standards (CAS)
- Module 13 : The Budget Justification
- Module 14 : Cost Sharing
- Module 15 : Research Integrity & Assurance (ORIA)
- Module 16 : Submit and Negotiate a Proposal
- Module 17 : Award Setup
- Module 18 : Financial Accountability

Lesson 1: Cost Sharing in Research Administration

ASU-Fulton Schools of Engineering-Research Services

ASU-001-BC-FSE-CSRA-LESS 1	Lesson 1: Cost Sharing in Research Administration
Fulton Schools of Engineering - Research Services	Presenter: Brina - Research Administration Expert, approx. 3:45 minutes
Lesson 1- CSRA Cost Sharing Basics in Research Administration	

Lesson 1: Introduction to Federal Contracting

NCURA

NCURA-002-BC-IFC-LESS 1	Lesson 1: Introduction to Federal Contracting
	Presenter: Ashley - Research Administration Expert, approx. 3:45 minutes
Lesson 1- Introduction to Federal Contracting (IFC)	

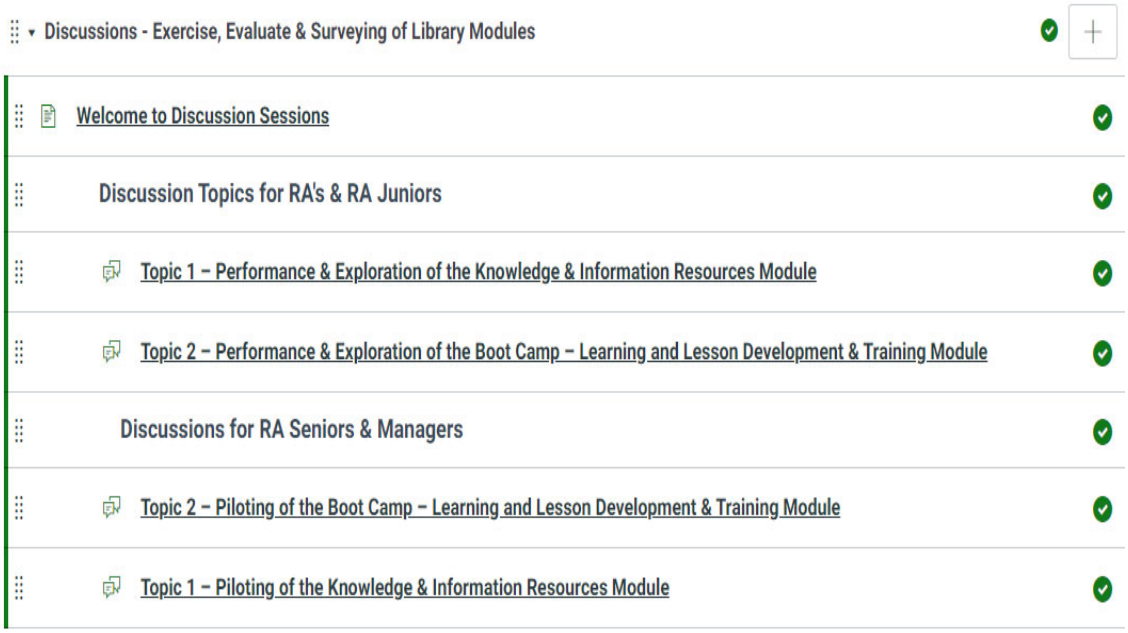
Lesson 2: The Contracting Process

NCURA

NCURA-002-BC-LESS 2	Lesson 2: The Contracting Process
	Presenter: Allison - Research Administration Expert, approx. 6:30 minutes
Lesson 2- The Contracting Process (TCP)	

DISCUSSIONS – EXERCISE, EVALUATE AND SURVEY OF LIBRARY MODULE

The Discussions module is an opportunity for representatives from ASU's Research Administration Community/Participants to Exercise, Evaluate and Survey the components of the Library Modules (e.g., Knowledge and Information Resources module and the Boot Camp module).



APPENDIX G

PARTICIPANT GROUPS DEMOGRAPHIC IDENTIFIERS

DEMOGRAPHIC IDENTIFIERS FOR RA SENIORS AND MANAGERS

Demographic Identifiers: Role/Title, Level, Years of Experience, Gender, Age Range and Grant Administration Specialty Area

Participants Group: Seniors and Managers

Participant no.	Role	Level	Years	Gender	Age Range (1) 18-30; (2) 31-45; (3) 46+	Participant Group	Pre/Post
1	Research Advancement Administrator, Sr.	3	8	Female	2	Seniors & Managers	Pre-Award
2	Grant & Contract Officer	2	15	Female	3	Seniors & Managers	Post-Award
3	Research Advancement Administrator, Sr.	3	11	Female	3	Seniors & Managers	Pre-Award
4	Research Advancement Administrator, Sr.	3	9	Female	2	Seniors & Managers	Pre-Award
5	Grant & Contract Officer, Sr.	3	14	Female	2	Seniors & Managers	Pre-Award
6	Research Advancement Administrator, Sr.	3	6.5	Female	3	Seniors & Managers	Post-Award
7	Research Advancement Manager	3	12	Female	3	Seniors & Managers	Pre & Post Award
8	Research Advancement Administrator, Sr.	3	6.5	Female	2	Seniors & Managers	Pre-Award
9	Research Advancement Administrator	2	10	Female	2	Seniors & Managers	Post-Award
10	Research Advancement Manager	3	10	Male	2	Seniors & Managers	Pre-Award

Demographic Identifiers for RA Juniors and Mid-Level RAs

Demographic Identifiers: Role/Title, Level, Years of Experience, Gender, Age Range and Grant Administration Specialty Area

Participants Group: Juniors and Mid-Level

Participant no.	Role	Level	Years	Gender	Age Range (1) 18-30; (2) 31-45; (3) 46+	Participant Group	Pre/Post
11	Research Advancement Administrator	2	2	Male	2	Juniors & Mid-Level	Post-Award
12	Research Advancement Specialist	1	2	Female	2	Juniors & Mid-Level	Post-Award
13	Research Advancement Specialist	1	1.5	Female	2	Juniors & Mid-Level	Pre-Award
14	Project Coordinator	1	0.5	Female	2	Juniors & Mid-Level	Pre & Post-Award
15	Research Advancement Administrator	2	5	Female	2	Juniors & Mid-Level	Pre-Award
16	Research Advancement Student	1	3	Male	1	Juniors & Mid-Level	Post-Award
17	Grant & Contract Officer	2	5	Male	1	Juniors & Mid-Level	Pre & Post-Award
18	Research Editor	2	3	Female	3	Juniors & Mid-Level	Pre-Award
19	Research Advancement Administrator	2	5	Female	2	Juniors & Mid-Level	Pre-Award
20	Research Advancement Administrator	2	1.5	Female	1	Juniors & Mid-Level	Post-Award

APPENDIX H

DISCUSSION TOPICS

PARTICIPANT GROUP: RA SENIORS AND MANAGERS

Topic 1 – Piloting of the Knowledge and Information Resources Module

Discussion Prompt

You are invited to evaluate, experience, determine, give additional perspectives, ideas, feedback and suggest improvements for the design and format (e.g., pilot test) of the components of the Knowledge and Information Resources module of the Library for Research Administrators. The purpose in doing so will enable the Action Researcher to review, disseminate and make-adjustments to ensure that the library portal is fully equipped to allow new and junior research administrators to receive the adequate training, guidance and development to perform successfully.

Please answer the following discussion/survey questions as accurate as possible. Your responses will be received and exchanged with some of your colleagues within the research administration community.

1. What is your current position?
2. How long have you worked within the Research Administration field?
3. In your current position (e.g., manager/leader/senior) would you allow your research administration team to experience the library modules that are made available in-an-effort to improve and build upon their skill level, knowledge base, confidence, professional development and attainment of additional resources.
4. What are your thoughts (in a few words) on the components and make-up of the library (look-and-feel)?

5. In your brief opinion, would the learning and informational resources (that are presented) assist in improving and allowing a new and fresh prospective to new and junior research administrators outlook of ASU's research administration training and professional development infrastructure.
6. After experiencing the activities within the Knowledge and Information Resources Module, what links do you think would be the most helpful? Please name a few.

PARTICIPANT GROUP: RA SENIORS AND MANAGERS

Topic 2 – Piloting of the Boot Camp – Learning and Lesson Development and Training Module

Discussion Prompt

You are invited to evaluate experience, determine, give additional perspectives, ideas, feedback and suggest improvements for the design and format (e.g., pilot test) of the components of the Boot Camp – Learning and Lesson Development and Training module of the Library for Research Administrators. The purpose in doing so will enable the Action Researcher to review, disseminate and make-adjustments to ensure that the library portal is fully equipped to allow new and junior research administrators to receive the adequate training, guidance and development to perform successfully.

Please answer the following discussion/survey questions as accurate as possible. Your responses will be received and exchanged with some of your colleagues within the research administration community.

7. In your opinion are the current research administration (training and development) systems scattered and limited? Yes/No
8. Please give a few examples of your reasons behind your selection.
9. In your opinion, are the current training and development systems in place enough for the steady professional growth and development for incoming and junior research administrators?

10. Do you think research administrators would be fulfilled with the delivery of the library modules; would they be on track to reap success in the research administration profession?
11. Do you find that the library resource could also become beneficial to improving and refreshing the skills, professional development and career growth of research administrators on varying levels (e.g. research administrator and research administrator senior)?
12. After experiencing the activities and evaluating the Boot Camp Module, which learning experiences would be most helpful? Please name a few.
13. Please rate the module selections. In your opinion, which module would be the most beneficial? 1-being lowest to 2-being the greatest benefit.
14. Please rate FSE's current research and administration training and development infrastructure. 1-being least beneficial and 5-being very beneficial and needed.
15. Please rate ASU's overall current research and administration training and development infrastructure. 1-need great improvements, 2-limited resources; 3-average-not bad; 4-feel comfortable with finding available information and 5-being very beneficial and aids in growth and development within the research administration profession.

16. Do you think the library resource is ready for the research administration community to perform activities?

    a. Not quite.

    b. Yes, with a few revisions.

    c. Not compatible for training and development

DISCUSSION TOPICS

PARTICIPANT GROUP: RA JUNIORS AND MID-LEVEL RAS

Topic 1 – Performance and Exploration of the Knowledge and Information Resources Module

Discussion Prompt

You are invited to perform, explore, experience, make-a-determination, and give your perspectives, of the components of the Knowledge and Information Resources module of the Library for Research Administrators. The purpose of doing so will enable the Action Researcher to review and disseminate (the data collected), encourage future iterations and launching. This future step comes following the confirmation (e.g., making additional adjustments, if necessary) of the portal being fully equipped to allow new and junior research administrators to receive the adequate training, guidance, and development to perform successfully.

Please answer the following discussion/survey questions as accurate as possible. Your responses will be received and exchanged with some of your colleagues within the research administration community.

1. What is your current position?
2. How long have you worked within the Research Administration field?
3. What type of resources have been accustomed to in the research administration field?

4. After experiencing the activities within the Knowledge and Information Resources Module, what links were the most helpful? Please name a few.

DISCUSSION TOPICS

PARTICIPANT GROUP: RA JUNIORS AND MID-LEVEL RAS

Topic 2 – Performance and Exploration of the Boot Camp – Learning and Lesson Development and Training Module

Discussion Prompt

You are invited to perform, explore, experience, make-a-determination, and give your perspectives, of the components of the Boot Camp – Learning and Lesson Development and Training module of the Library for Research Administrators. The purpose of doing so will enable the Action Researcher to review and disseminate (the data collected), encourage future iterations and launching. This future step comes following the confirmation (e.g., making additional adjustments, if necessary) of the portal being fully equipped to allow new and junior research administrators to receive the adequate training, guidance, and development to perform successfully.

Please answer the following discussion/survey questions as accurate as possible. Your responses will be received and exchanged with some of your colleagues within the research administration community.

1. What are your thoughts on the components and make-up of the library (look-and-feel)?

2. After performing select activities throughout the library (portal) modules, do you feel an increase or improvement in your knowledge and performance level or are you dissatisfied?
3. Please rate the content within the modules a, b or c. (a.) The information presented has assisted and improved my professional growth, knowledge base and insight as a research administrator. (b.) The information presented did not add or take-away from my status as a research administrator. (c.) The information presented seems limited; a nice amount of additions is necessary in order to suggest the library (portal) to new and junior research administrators.
4. To what extent will the integration of the library resource into the overall research administration training infrastructure within FSE and extended through the research administration community at ASU assist in improving your knowledge base, performance and confidence level.
5. Are the current training and development systems in place enough for your steady professional growth and development as a research administration? Please give a couple reasons behind your selection.
6. Do you find that the library resource could also become beneficial to improving and refreshing the skills, professional development and career growth of research administrators on varying levels (e.g. research administrator and research administrator senior)?

7. After experiencing the activities and performing within the Boot Camp Module, which learning experiences were the most helpful? Please name a few.
8. Please rate the library from your experience (1-5): 1-being least beneficial, necessary, and 5-being very beneficial and needed.
9. Please rate Fulton Schools of Engineering current research and administration training and development infrastructure (1-5): 1-being least beneficial and 5-being very beneficial and needed.
10. Please rate ASU's overall current research and administration training and development infrastructure. 1-need major improvements, 2-limited resources; average-not bad; 4-feel pretty comfortable with finding available information and 5-being very beneficial and aids in growth and development within the research administration profession.
11. What stands out the most with the components and make-up of the library resource?
12. Please give your feedback on additional options or items that should be included to help improve the professional development, knowledge bases, resources, and preparedness of a research administrator.