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The Journal of Research Administration (JRA) is the premier scholarly publication in the field of research administration and management. We publish timely critical work that adds to the knowledge base for research administration and contributes to enhancing the work of research administrators across the globe. Through these contributions, JRA serves as an essential educational and career development resource for our field. Our contributors share best practices and innovative approaches to address the challenges and opportunities that research administrators confront in our fast-paced, ever-changing contexts while advancing their careers by publishing peer-reviewed scholarly journal articles that enhance our field.

As the current Editor-in-Chief of JRA, I would be remiss if I did not express my gratitude to those who have previously served in the editor’s role and led the JRA to a level of excellence I am privileged to build upon. The success of JRA is also built on the hard work and dedication of our current and prior incredible staff, deputy and associate editors, reviewers, and the SRAI communication committee members. I also want to thank our authors, editorial board members, and staff for all their contributions and efforts as we assembled another exceptional issue of JRA. Once again, the current issue is characterized by high-quality, important manuscripts from our outstanding authors that will contribute to the knowledge base and work of those in research administration and those who depend on that work. The continuing excellence of the contributions we
receive for inclusion in JRA reflects the ongoing growth of the field that so many in SRAI and our field, more broadly, have nurtured over the more than 50-year history of JRA and SRAI. On behalf of JRA, I want to encourage you to think of JRA as an outlet for your manuscripts regarding your work in research administration.

The articles in the current issue of JRA come from researchers and research administrators who represent SRAI’s international emphasis. We thank them for continuing to view JRA as a preferred outlet for their work and a source of critical conceptual and practical scholarship to guide that work. As always, the manuscripts herein reflect the broad range of settings in which research administrators conduct their work, key issues and challenges they deal with daily, and the innovative and essential solutions research administrators bring to bear as they perform their work. The manuscripts range from consideration of the development of a process for enhancing the efficacy of the support available to investigators in a research-intensive university, where such support is distributed across dozens of offices, to the strategies employed by a Research Management Office to promote multi-disciplinary research. Additionally, our authors address the development of a more efficient approach to dealing with the critical task of reducing the turnaround time for generating high-quality NIH Data Training Tables for NIH training grants. Importantly, this issue also offers a thoughtful consideration built on equity, diversity, and inclusion principles, specifically addressing the challenges of establishing accessibility for those who are differentially abled as an integral part of the research enterprise.

More specifically, team members from Duke University, including members from a wide array of backgrounds, bring us our first article, “myRESEARCHpath: An Interactive Tool for Investigators and Research Administrators.” Team members, including Jamie S. Wylie, MA, PMP, Rebecca J. Namenek Brouwer, MS, Derek M. Jones, M.Div, and Geeta K. Swamy, MD, describe the development of a process in a large, research-intensive university to address the challenges of helping investigators and research administrators locate and access critical information when that information is distributed across multiple locations and offices in the institution. They describe how they developed a web-based interactive research roadmap called “myRESEARCHpath” to guide those who use it in accessing what they need when they need it, and how this information relates with that provided by other support offices. They also discuss initial data on the use and impact of the tool.

Our next manuscript, entitled “Researching Multi-Disciplinary Diversities and Optimizing Their Inherent Strengths and Opportunities: The Role Played by UNILAG Research Management Office,” is from the University of Lagos. Dr. Emeka P. Okonji, Gbadamosi Morufu, MS, and Dr. Amuda Mohammed Olawale Hakeem Ph.D. provide a discussion of the strategies employed by the Research Management Office of the University to promote multi-disciplinary research, the results of efforts to encourage collaboration across a broad range of academic and research disciplines among researchers in over 12 faculties of the University, and the challenges faced. They close by providing recommendations for advancing these strategies and suggestions for pragmatic solutions to challenges experienced.

In their article “A Method for Creating NIH Data Training Tables with REDCap and NIH xTRACT,” Sally Lu and Dr. John E. Kerrigan from Rutgers University, take on one of the more challenging tasks confronted by research administrators in institutions that have received training grants
funded by the National Institutes of Health (NIH). That challenge results from the tight turnaround time for generating high-quality NIH Data Training Tables for NIH training grants. These tables, “are required for training grant submission proposals to the NIH. They provide an overview of the different approaches that Universities with dedicated training grant submission offices versus those with less or no dedicated support for training grant submissions may employ an ad hoc approach. In these cases, department or program administrators may collect the data manually, in Excel or REDCap, or similar manually maintained methods for those tables requested to address the requirements of the NIH grant announcement for the relevant (including clinical) training programs across the university.” They then describe what they propose as a more efficient “federated” method of data collection and construction for NIH Tables for new and renewal applications by combining the use of REDCap and NIH xTract, leveraging each of their strengths.

Our final manuscript comes from Carleton University in Ontario, Canada. In their article “Accessibility in Research Administration,” Catherine Malcolm Edwards, Jessie Gunnell, Vicente del Solar, David Phipps, and Jeffrey Edwards address the critical issue of increasing accessibility in the research enterprise, particularly for those who may be differently abled. The manuscript builds on a facilitated workshop at The Canadian Conference on Research Administration. In this reflective inquiry piece, the authors discuss the workshop “EDI, eh? How does accessibility factor in” and the learnings generated from the peer group who attended. The goals were for the insights obtained to foster a culture of accessibility and inclusivity within academia, where understanding and addressing academic ableism require a language and mindset shift that goes beyond the ‘duty to accommodation.’ The author ends by addressing lessons learned and the recommendations that stem from them.

I hope you enjoy this issue as much as I do.

IMPORTANT NOTICES:

I want to draw your attention to several significant changes in how we process submissions and reviews for the JRA.

1. As discussed in prior issues, as reflected on our webpage, there has been a significant advancement in the infrastructure of JRA to facilitate and enhance the journal’s operation. JRA has “gone live” in its move to using ScholarOne software to aid in submitting, reviewing, and managing manuscripts. This will lead to a significant increase in efficiency, speed of review, and ease of communication. The information necessary to use this system, including the process for creating an account to sign in, is available at https://www.srainternational.org/resources/journal/become-a-journal-author.

2. With the implementation of the Scholar One system, updated author guidelines have also taken effect. Please refer to the JRA webpage https://www.srainternational.org/resources/journal/become-a-journal-author to ensure you are using the guidelines in effect if you are submitting a manuscript or intending to do so in the future.

3. The JRA is calling for manuscript submissions to be considered for an upcoming special issue on “Clinical Trials.” If you or a colleague are interested in submitting a manuscript, please use our online platform, ScholarOne, to submit your manuscripts by October 4, 2024.
As Editor-in-Chief of JRA, I am grateful to play a role in continuing to help move our field forward. Having the opportunity to receive and read the incredibly diverse and exciting submissions we receive is one that I feel very honored to have. Those submissions reflect the work of so many talented and committed professionals. Please email me directly with any input, questions, or suggestions you may have. On behalf of all of us at JRA, we encourage you to send manuscripts to JRA. As always, it bears repeating that the team behind the Editor is essential to the success of the Journal. The administration of SRAI and the communications committee of JRA provide crucial guidance and input on all phases of JRA, and they are vital resources for addressing unique situations.

The Editorial Board members are essential partners in ensuring that the manuscripts that appear in the Journal are exceptional and that they make valuable contributions to the work of our readers and the field of research administration more broadly. They put in countless hours for no compensation beyond the significant demands of their formal roles in their home institutions. The continued growth of the JRA would not have been possible without their contributions. I am in awe of their commitment to both JRA and the continued growth in excellence of the work of research administrators. Under the direction of our Deputy Editor Holly Zink, the Author Fellowship Committee and the Author Fellow Advisors provide essential guidance to the Author Fellows as they develop and publish their first scholarly articles. I am grateful they will continue offering this unique and vital work for JRA. To learn more about the Author Fellowship program please visit https://www.srainternational.org/resources/journal/author-fellowship.

JRA would only be able to operate at the level of quality it does with the valuable work of the SRAI staff, who have shared their knowledge, guidance, and expertise with me in my work as Editor-in-Chief. Gina Snyder is critical to our success as she works with me, reviewers, and authors, always quickly, thoughtfully, and with kindness. As always, she merits special recognition and thanks. As I have noted many times, she is core to the success of JRA – she ensures the production of the Journal meets the highest professional standards.

Lastly, as always, if you are a non-SRAI member and wish to have the Journal delivered via email, please sign up through the online system at https://member.srainternational.org/account/login.aspx.
MYRESEARCHPATH: AN INTERACTIVE TOOL FOR INVESTIGATORS AND RESEARCH ADMINISTRATORS

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ABSTRACT

Research-intensive institutions rely on specialized central offices to support research administrators and investigators through various processes and requirements. This helps researchers successfully and compliantly conduct and manage research. However, when these support offices communicate their processes and resources from disparate locations, it can be challenging for research administrators and investigators to locate what they need at the time they need it, and to understand how this information relates with that provided by other research support offices. This can result in research administrators and investigators lacking a clear understanding of critical information and an underutilization of available support. Duke University sought to address this issue by developing a web-based interactive research roadmap to consolidate and organize information from research support offices around the institution. In this roadmap, all support office content is integrated by topic and organized across the research project life cycle. To achieve this, a dedicated project team 1) convened the research support offices to develop integrated content and a process for contributing their resources on the website, 2) solicited researcher feedback to determine the critical features and functionality of the site, 3) engaged a technical development partner to build the site, 4) engaged researchers for beta-testing, and 5) devised a communication strategy to raise awareness and adoption of the site. The interactive research roadmap, “myRESEARCHpath,” launched in 2021, and has experienced steady growth in utilization. Initial data shows that users are accessing the site to find relevant information for research information and guidance, and research support offices are encouraged by the improved discoverability of resources and services. This model of a single location to access research support office information needed to navigate the research project life cycle could be beneficial for other research-intensive institutions.

Keywords:  
Research support, research roadmap, technology solutions
INTRODUCTION

Over the past several decades, research-intensive institutions have experienced an increase in administrative and compliance-related requirements regarding the planning, conduct, and management of scientific research and scholarly activity (National Science Board, 2014; COGR, 2023). Research-intensive institutions have established specialized research support offices to assist research administrators and investigators in navigating these requirements. These support offices are essential for financial management of externally-sponsored grants and contracts, ensuring appropriate quality assurance, and providing consistency in research management and integrity (Taylor, 2006). These offices work together to support researchers, often with complex collaborative processes that can be challenging for research administrators and investigators to navigate independently.

Simultaneously, institutions are increasingly reliant upon technology for more efficient operations and to expand their support services. Therefore, use of technology to automate manual systems or complex processes is becoming more important in higher education (Rice & Miller, 2001). In addition, academic faculty seeking information to facilitate their research are, like most US adults, likely to turn to internet searches rather than making phone calls or talking with colleagues (Iskiev, 2023). While there are advantages to leveraging technologies to better support researchers, developing new technologies face challenges with implementation and adoption, including resources available, organizational culture, faculty readiness, anticipated degree of resistance, and the degree of variance from the status quo (Roberts, 2008).

As a research-intensive institution Duke University is no exception, having developed a robust research infrastructure that includes both specialized offices staffed with knowledgeable personnel, and websites and platforms with supportive resources and information. As each research support office was created, it developed its own method for surfacing the information needed to understand and navigate the specific processes relevant to their office. Typically, each office had its own standalone website or other web-based platforms. In this model, a research administrator or investigator seeking support would need to be aware of each research support office, know which are involved in the various stages throughout the research project life cycle, and ultimately access multiple websites or web-based platforms to obtain the full extent of information needed.

Table 1 indicates the areas of support at Duke University that assist the research community in each stage of the project life cycle, representing 42 unique support offices. Within each support area, there may be multiple support offices depending on the type of research or institutional area in which that office supports (e.g., one IRB that supports biomedical research and one for non-biomedical research).
In 2018, institutional leadership recognized that this model increases confusion and reduces the chances that critical information is accessible and understood by research administrators and investigators. In addition, the research support offices themselves shared two primary concerns: 1) support services and resources were being underutilized due to lack of awareness, and 2) frequent problems could be avoided if research administrators and investigators encountered the support office at the appropriate stage of the research process.

With both leadership and support offices recognizing the need, the Duke University School of Medicine included the development of an interactive research roadmap as a “critical enabler” to successful research in its 2018 Strategic Plan (Duke University School of Medicine, 2018). In 2019, institutional leadership determined that the interactive research roadmap could provide benefit institution-wide, and thus should not be limited to the School of Medicine. Therefore, the tool would be developed to support all research conducted at Duke University.

Ultimately, a solution to these problems was conceived: myRESEARCHpath (MRP), a lifecycle-based interactive research roadmap. At its core, the goal of MRP is to provide the research community (research administrators, investigators, and scientific staff) a single web-based platform to find the information needed for their research activities organized by the research process, as opposed to organizational unit. Key requirements for the interactive research roadmap were to: 1) harmonize the location of content available from all research support offices, 2) surface required processes, policies, and guidelines alongside tools, trainings, and resources throughout

| Table 1: Areas of Research Support Involvement Across the Project Life Cycle |
|---------------------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Idea Generation                                              | Project Planning | Proposal Development & Submission | Project Initiation | Project Management | Activities & Management | Award Management | Project Close Out |
| Animal Care and Use                                          |                 |                 |                 |                 |                 |                 |                 |
| Audit, Compliance, and Regulatory                            |                 |                 |                 |                 |                 |                 |                 |
| Clinical Research Support                                    |                 |                 |                 |                 |                 |                 |                 |
| Contracting                                                  |                 |                 |                 |                 |                 |                 |                 |
| Grants Administration                                        |                 |                 |                 |                 |                 |                 |                 |
| Humanities Support                                           |                 |                 |                 |                 |                 |                 |                 |
| Information Technology                                      |                 |                 |                 |                 |                 |                 |                 |
| Institutional Review Boards                                  |                 |                 |                 |                 |                 |                 |                 |
| International Support                                        |                 |                 |                 |                 |                 |                 |                 |
| Libraries                                                    |                 |                 |                 |                 |                 |                 |                 |
| Licensing                                                    |                 |                 |                 |                 |                 |                 |                 |
| Occupational Safety                                          |                 |                 |                 |                 |                 |                 |                 |
| Procurement                                                  |                 |                 |                 |                 |                 |                 |                 |
| Research Development                                         |                 |                 |                 |                 |                 |                 |                 |
| Research Finance                                             |                 |                 |                 |                 |                 |                 |                 |
| Resource Cores and Service Centers                           |                 |                 |                 |                 |                 |                 |                 |
| Scientific Integrity                                         |                 |                 |                 |                 |                 |                 |                 |

In 2018, institutional leadership recognized that this model increases confusion and reduces the chances that critical information is accessible and understood by research administrators and investigators. In addition, the research support offices themselves shared two primary concerns: 1) support services and resources were being underutilized due to lack of awareness, and 2) frequent problems could be avoided if research administrators and investigators encountered the support office at the appropriate stage of the research process.
the entirety of a research project life cycle, 3) tailor the experience as much as possible to the person seeking information, and 4) integrate with existing research support platforms and services.

**METHODOLOGY**

A project team was assigned to drive the development of MRP in February 2019. Development was a two-year collaborative effort between the project team (one full-time and one approximately quarter-time staff member), research support offices, an external web development vendor, and the research community. Development activities and involvement from each of the groups are described below.

**Developing Content and Integrating Additional Resources from Research Support Offices**

To address the goal of harmonizing the location of institutional research support content, the project team identified all research support offices and the specific topics and tasks they support throughout the project life cycle. In this initial exercise, 42 research support offices were included. The project team met individually with each of the 42 research support offices to outline which topics and tasks they support. Input from these meetings was used to determine which primary topics should be included in MRP. For a topic or task to be included as a primary topic page in MRP, at least two support offices needed to be involved in supporting that task, and there needed to be high-level guidance along with supporting resources (consultations, policies, trainings, forms, etc.). Topics that did not reach this threshold but were deemed essential for navigating the project life cycle were combined with another related topic. For example, there were not enough resources for a standalone page for research computing or for data storage, but combined these related topics had robust enough content to warrant a standalone topic page called “Determine compute and data storage solutions.” Through this exercise 45 primary topics were identified.

The project team and research support offices determined early on that content in MRP would be organized from the perspective of the research community, oriented towards the tasks or topics needing consideration at each stage of a project. Each “topic-based page” would contain high-level, integrated information, along with access to related detailed information and resources including consultations and help, policies and procedures, tools and forms, and training specific to that topic. For example, a research administrator or investigator preparing a budget for an upcoming proposal could view the “Develop the budget and justification” topic-based page, accessing high-level information that generally orients them to this task (best practices on budgeting personnel effort and salary, typical budget categories that must be considered, etc.). In addition, they are presented with “related resources” that support preparing budgets or justifications. These include: 1) Consultations (meet with an expert to develop your budget); 2) Policies/Guidance (e.g., Fringe Benefit rates, Tip sheet on preparing international budgets); 3) Tools/templates (e.g., NIH salary cap worksheet); and 4) Training (Budget basics for clinical trials).

The project team convened working groups for each of the 45 topics, bringing together representatives from all research support offices involved. Office representatives discussed the most critical information and processes within that topic, how each office contributed to supporting that topic, and the integration of support between offices. From these discussions, the project team created a draft of the content for that topic’s page in MRP, promoting the most critical information determined by the working group. The draft was circulated and reviewed by the working group members with the final agreed upon content built into the site.

To surface resources related to each topic and ensure accuracy, the support offices agreed to contribute and maintain their office’s resources in one of two ways: 1) move their resources into MRP, and remove them from their current website to avoid duplication of the same information on multiple sites, or 2) keep resources on their current website and contribute the resources as hyperlinks. Each office named a delegate who would add, maintain, and tag their resources to each associated topic page, and would review their resources at least annually.
Development: Determining Critical Features and Functionality of the Platform

Input from research administrators and investigators was critical in determining the necessary features and functionality of the site, and in ensuring its long-term success. The project team conducted one-on-one interviews and convened focus groups. In all, 36 investigators (3 School of Arts & Science, 5 School of Engineering, 1 School of the Environment, 26 School of Medicine, 1 School of Nursing), 18 scientific staff (1 School of Engineering, 16 School of Medicine, 1 School of Nursing), and 9 research administrators (1 early-career, 5 mid-career, and 3 senior-career) participated in the interviews and/or focus groups.

The project team learned the most important elements were:

1. A simple, clean, and user-friendly interface
2. Easy navigation between relevant topics within each stage of the project life cycle
3. Robust search yielding curated results
4. Customizable to display information that is applicable and relevant
5. Assurance that the information was current and accurate

In the focus groups, attendees rated the perceived usefulness of MRP as a tool for supporting the research process on a scale from 1-10 (with 1 being no perceived usefulness and 10 being high perceived usefulness). Scientific staff saw the greatest utility (9.9), followed by investigators (9.3), and then research administrators (7.6).

Technical Development and Beta-Testing

Once the critical features and functionality were determined, the project team initiated a competitive bidding process, landing on a local agency who built MRP as a custom Drupal website.

Prior to launch, select investigators, research administrators, and scientific staff were invited to beta-test the website. Beta-testers (n=29) were given access to the website, provided with prompts for beta-testing activities, and a survey to record their responses. Beta-testing activities and associated feedback questions are outlined below:

1. Take a moment to scroll through the homepage and familiarize yourself with the site.
   a. What is your initial impression?
   b. What stands out as confusing or unclear?
   c. What draws your eye or seems initially most interesting or useful about the site?
2. Think of a research project in which you are currently involved or would like to propose in the future. Apply the filters in the “Customize Your Path” section based on this project.
   a. Are the instructions clear for what applying the filters will do?
3. Pick a life cycle stage and topic that interests you or is most applicable to your role. Review the main content for each topic or subtopic page and the Related Resources on the right-hand side. Provide your feedback for each page.
   a. How did the information provided compare to your expectations for this topic?
   b. What additional information would you expect to see on this page?
   c. Is any information unhelpful or inaccurate?
   d. Did you discover any resources you were not aware of or would have a hard time finding outside of this site?
   e. Do any resources seem irrelevant to this topic?
   f. Were there instances when the resource titles were not clear or meaningful to you?
   g. Overall, how helpful is this page in navigating what to do for this topic/task?
   h. What other suggestions do you have for improving this page?
At the conclusion of the beta-testing survey, Likert scales were utilized to rate the 1) likelihood of utilizing MRP as a tool for supporting their research projects or portfolio; and 2) likelihood that they would refer MRP as a tool to someone who is new to Duke or to research. Of the 24 beta-testers who responded, 22 indicated they were likely or very likely to use MRP as a tool themselves, and all 24 indicated they were likely or very likely to refer MRP as a tool to those new to Duke or research.

Integration with Existing Platforms and Services

Since a primary goal of MRP was to consolidate information and reduce confusion, it was important to make its access as seamless as possible for researchers. Therefore, MRP would be branded alongside two existing well-known research support platforms and services: 1) myRESEARCHhome (MRH) - a personalized portal for researchers to manage their portfolios; and 2) myRESEARCHnavigators (MRN) - a team of experts with research backgrounds providing consultations and a research help hotline. With the addition of MRP, the full set of services and tools fell under a new umbrella: myRESEARCHsuite.

To fully realize the new myRESEARCHsuite, two important issues were considered. First, was access to the new tool. Duke’s MRH platform launched in 2016 and has become a central hub for managing research portfolios. Given that MRH is now well-established, it was important to ensure that users could easily discover and launch MRP directly from the well-known MRH portal, allowing access to both MRH and MRP from one familiar location. Second, web tools are of great benefit for those who seek to find information on their own; however, sometimes a researcher needs a human to help wade through the myriad of details. Therefore, to ensure complementary support from the MRN team, access to their services was included throughout MRP. The MRN intake form and contact information were made easily accessible throughout the MRP topic-based pages, thereby allowing researchers to connect with experts for questions, or to request a consultation if they needed additional guidance or more personalized assistance.

Communication Strategy for Adoption of MRP

Duke leadership agreed that adoption of the tool, to be monitored via site metrics data, was the most important measure of success. To encourage adoption, a communication strategy was employed to ensure awareness of the new tool. This included:

1. Sharing a small communication kit with offices and departments (e.g., standard language and graphics for newsletters, websites, and listservs)
2. Providing virtual presentations demonstrating the features and functionality of the site
3. Asking support offices to ensure that their websites appropriately direct users to MRP
4. Integrating an overview of MRP in new researcher onboarding
5. Integrating access to MRP into other existing research support tools
6. Encouraging support offices to reference relevant MRP pages when giving presentations

Much attention was paid to ensuring effective and timely communication about the interactive roadmap. Prior to the tool’s launch, presentations were delivered to over 1,200 attendees and in its first year after go-live, 83 presentations were delivered to an estimated 2,860 attendees. The project team did not track any official measurements on the efficacy of these strategies.

RESULTS

MRP launched as a publicly accessible website in January 2021 (https://myresearchpath.duke.edu/).
Developing and Maintaining Content

All 45 topic-based pages were constructed to integrate the information agreed upon by each of the working groups, organized by the stages of the project life cycle. The delegates from the 42 research support offices were given access to the site’s backend and provided with training on how to add their offices’ resources to display on the applicable topic-based pages. Delegates were provided with a dashboard for viewing and maintaining the resources they contributed, with automated annual reminders to review and update their resources. This collaborative ownership and maintenance of content is monitored by the project team, who is alerted to the addition of or changes to content.

Determining Critical Features and Functionality of the Platform

Based on the feedback received during development, key features of the site included:

1. An easy-to-navigate homepage, with all topic-based pages organized by life cycle stage. Users click into topic-based pages to view 1) content developed by working groups, and 2) related resources contributed by the research support offices (see Figure 1).
2. Topic-based page content that can be displayed in different formats depending on the communication needs. Content types included basic formats such as text, tables, images, or videos. More interactive content types include card displays that a user can filter based on a dropdown selection, and interactive matrices, which allow the user to select multiple inclusions to receive a table of refined results (see Figure 2).
3. A curated search function, displaying topic-based pages and related resources relevant to the search term.
4. The ability to “Customize Your Path,” which allows users to select global parameters specific to their role and project inclusions. When parameters are applied, topic-based pages and resources that are not relevant to the user are hidden (see Figure 3).
5. Automated annual reminders for the research support office delegates to review and update contributed resources.
Develop and Submit Proposal

Proposal deadlines and Intent to Submit (I2S)

Prepare for the proposal process

+ Write and refine the proposal

- Develop the budget and justification
  
  Commercial or industry sponsored clinical trial budgets
  
  Federally sponsored budgets
  
  Foundations and other budgets

+ Disclose activities (Other Support/Current and Pending)

Proposal review and submission

Prepare for post-submission and Just-in-Time
**Figure 2: Interactive Features within Topic-Based Pages**

**Resources for identifying collaborators**

**Select if you are seeking resources for identifying internal or external collaborations**

**Select an option**

- **External collaborations**
- **Internal collaborations**

**myRESEARCHhome**

The “Find a Collaborator” widget in myRESEARCHhome leverages the data within Scholars to find potential collaborators here at Duke. Results of the search include web profiles that summarize a person’s research interests, activities, and roles at Duke.

- Access and contact information
- Access the Find a collaborator widget within myRESEARCHhome

**Scholars@Duke**

Scholars is a research discovery system featuring the research, scholarship, and activities of Duke faculty members and academic staff. Access web profiles that summarize a person’s roles at Duke and their connections with colleagues.

- Access and contact information
- Access the Scholars@Duke website

**Biostatistics, Epidemiology, and Research Design (BERD) Methods Core**

The BERD Methods Core can facilitate collaborative relationships between methodologists (including but not limited to experts in biostatistics, bioinformatics, data science, and qualitative research and basic and clinical investigators).

- Access and contact information
- Access the BERD Methods Core website or submit a

**CTSI Community Engaged Research Initiative**

The CTSI Community Engaged Research Initiative (CERI) provides consultations for engaging in community partnerships.

- Access and contact information
- Access the CERI website or submit a consultation request

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**Training and Job Aides**

- **Community & Stakeholder Engagement: Definitions, Principles, & Approaches**
  - Duke Office of Clinical Research (DOCRC)
- **Export compliance training and FAQs**
  - Office of Export Controls
- **Export controls: hosting foreign nationals**
  - Office of Education for Research Administration and Finance (OERAAF)

*Show 6 more*
Integration with Existing Platforms and Services

MRP, MRH, and MRN were well integrated prior to launch of the site to be able to brand the three tools together as myRESEARCHsuite. In MRH, a new widget was added to the portal that allowed users to directly access MRP through clicking into the stages of the project life cycle or utilizing the search function. Figure 4 shows how this was integrated into the MRH platform, alongside access to the MRN services. The MRN intake form was included on 30 of the 45 topic-based pages, promoting the services to users of MRP needing more personalized guidance or assistance.
Adoption of MRP and User Feedback

Google Analytics tracks site metrics, including total site sessions (number of times any user is actively engaged with the website), and pageviews for each topic-based page. In the first year, there was a steady increase in total monthly sessions from 917 in January 2021 to 3,555 in December 2021. Total sessions significantly increased in 2022, with a monthly average of 7,245 compared to 2,301 in 2021, a 215% increase (Figure 5). The significant increase in total sessions over the first two years of the site indicated researcher adoption of the site, with Duke leadership deeming this a successful launch and an essential tool for research support.
The most accessed topic-based pages for January 2021 through December 2022 are displayed in Figure 6.

Figure 6. Total Pageviews of Most Accessed Topic-Based Pages January 2021 through December 2022

- Conducting animal research
- Animal Welfare
- Activity disclosures
- Division of Laboratory Animal Resources
- Writing NIH Research grants (R series)
- Developing proposal budgets
- Managing effort commitments
- Proposal review and submission
- Proposal deadlines
- Writing and refining proposals
Users of MRP have the opportunity to provide unsolicited feedback via a feedback survey available in the main navigation menu. In the first two years, the team received 64 responses, with 37% suggesting content, 33% offering minor edits, 22% requesting assistance locating information, and 8% providing general feedback on the tool.

Below are excerpts from selected general site feedback responses received:

1. “I appreciate all the work that's gone into this and all the progress you've made in centralizing access to Duke and outside resources.” (Duke Research Administrator)
2. “There's lots of good information here but it can be hard to find unless you know just what keywords to use. I stumble on useful pages all the time and then can't find them again. Is it possible to put internal bookmarks so we can tag pages we want to find again?” (Duke Research Staff)
3. “It is [a] very helpful research site. Thanks!” (Duke Investigator)
4. “I stumbled upon this page and just want to commend you all for creating it. It looks excellent. I wish our institution had something like this. I forwarded the link to our Sponsored Research group and asked if we could have something similar. It's clear that a ton of thought went into this, and the way it's designed to help investigators and grants/contracts managers is really outstanding. Very well done.” (External Investigator)
5. “Difficult to find the appropriate forms for my study. Much of the sidebar is not pertinent.” (Duke Research Fellow)

DISCUSSION

The data from site sessions for the first two years of MRP indicate that while site access steadily grew over the first year, greater adoption of the tool was experienced in the second year. Recent trends suggest that usage of the site continues to grow.

In post-launch meetings with the contributing research support offices, anecdotal evidence suggests that MRP has helped increase awareness of resources and processes. Having all research support office resources in one location has made it easier for research administrators and investigators to discover the variety of services and resources available. Additionally, having the resources organized by the project lifecycle increases the likelihood that research administrators and investigators are discovering these services and resources at the appropriate time in the research project lifecycle. The project team will continue to evaluate the success of MRP through regular analysis of the Google Analytics site metrics, and review of responses to the feedback survey provided on the site.

The project team and institutional leadership are encouraged by the generally positive feedback, and the user engagement. Research community feedback underscores the importance of ensuring that content is well maintained and accurate. The MRP project team routinely convenes the research support office working groups for content review and enhancements for existing topic-based pages, as well as discussing any new topic-based pages that may be needed. As of December 2022, MRP now houses 80 topic pages, an increase of 35 since its inception.

While the launch of MRP has been generally successful, limitations have been discovered via the feedback survey, direct requests from users, and from the experiences of the support offices involved in the site. Below are some of the limitations and how they were addressed.

1. Having all topics organized into one stage of the project lifecycle. There are topics and tasks that can occur throughout the project lifecycle (e.g., training, professional development, conflict of interest). To address this, the project team worked with the site developers to create a new section on the homepage to display overarching research topics that do not occur solely within one lifecycle stage.
2. Not enough options with the “Customize Your Path” feature. It did not provide sufficient refinement given the
amount of content that was ultimately included in MRP and the breadth of research projects at Duke University. In 2022, the project team worked with research administrators, investigators, and support office personnel to determine and deploy refined customization options.

3. Search functionality displaying too many results and not in a relevant order. Users provided feedback that they were overwhelmed with the search results and felt like they were displayed in an order that was not relevant to the use. The project team worked with the vendor to adjust the weighting of elements that impact the search return order (e.g. title, words in the text, keywords, etc.) and eliminating results that were not directly relevant.

CONCLUSION

The success of MRP indicates that other research-intensive institutions may benefit from utilizing a similar tool to support their researchers and research administrators in navigating the complex regulations and processes involved in academic research. To develop a similar resource, an institution will need:

1. Financial support for dedicated, knowledgeable personnel to coordinate the research support offices for content creation and integration.
2. Financial support for initial technical development.
3. Dedicated project personnel to coordinate content creation and integration, research community input, technical development, and communication strategies.
4. Support from research leadership and agreement amongst the institutional research support offices to integrate their content into the site, and to participate in applicable working groups. Without an “all-in” approach, this tool would be minimally useful.
5. Long-term project personnel effort and financial support for maintenance and enhancement of the site content and technical features.

The long-term support for such a tool is critical. Other institutions considering developing a similar resource should consider the long-term personnel and technical needs to maintain the platform beyond initial development. Duke University plans to continue to leverage MRP in supporting research administrators and investigators across the institution. Funds have been allocated for ongoing hosting and maintenance associated with the site, an annual budget for technical enhancements needed to improve user experience, and a dedicated project manager to elicit research community feedback, edit site content, convene the research support office working groups, and ensure research office support delegates are maintaining their contributed resources.

Author’s Note

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REFERENCES


RESEARCHING MULTI-DISCIPLINARY DIVERSITIES AND OPTIMIZING THEIR INHERENT STRENGTHS AND OPPORTUNITIES: THE ROLE PLAYED BY UNILAG RESEARCH MANAGEMENT OFFICE

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ABSTRACT

The University of Lagos is one of Nigeria’s premiere Universities, established in 1962 with core values emphasizing commitment to quality academic learning and character, integrity, continuous improvement of staff professionalism and competence, as well as a strong commitment to cutting-edge research. In 2012, the University established the Research and Innovation Office, which was subsequently restructured into two offices: the Research Management Office, and the Innovation and Technology Transfer Office, for more efficient functioning. Over the years, the Office has provided enormous support to over 1,700 academic faculty and researchers for cutting-edge research built on a multi-disciplinary approach. This paper provides a detailed discussion of the strategies employed by the Research Management Office to promote multi-disciplinary research from inception to date, the results of efforts to promote collaboration across the currently existing wealth of diversity in academic and research disciplines among researchers in over 12 faculties of the University, the successes recorded, and the challenges faced. The paper further makes recommendations for the advancement of these strategies, and suggestions for pragmatic solutions to challenges experienced while drawing practical and applicable lessons from international best practices for supporting multi-disciplinary research.

Keywords:
Research Management, Research Administration, Multidisciplinary Research, Partnerships, Academia-Industry Research

INTRODUCTION

The University of Lagos (UNILAG) was established in 1962 with the mandate to build national capacity through learning, research, and service to the community. The University currently has three campuses—the 325 hectares Main Campus bounding the extensive Lagos Lagoon in Akoka area of Lagos; the College of Medicine sharing the sprawling campus with Lagos University Teaching Hospital at Idi-Araba area of Lagos; and the Yaba Central campus housing the Business school. The vision of the University of Lagos is: “To be a Top-class Institution for the pursuit of excellence in knowledge, character and service to humanity”; and the mission is: “To provide a conducive environment for teaching, learning, research and development, where staff and students will interact and compete
effectively with their counterparts globally”.

The core values of UNILAG include a commitment to excellence in learning and character, integrity and respect, continuous improvement of staff professionalism and competence, commitment to continuous improvement of all facilities and enforcement of innovative culture and ethical conduct. The University is a cosmopolitan University located in the Lagos megalopolis area with a population exceeding 25 million people. UNILAG currently has 50 Departments and 98 programmes spread across 12 Faculties: Arts, Basic Medical Sciences, Business Administration, Clinical Sciences, Dental Sciences, Education, Engineering, Environmental Sciences, Law, Pharmacy, Science, and Social Sciences. UNILAG also offers Master’s and Doctorate degrees in most of the aforementioned programmes. In addition, UNILAG has a Distance Learning Institute (DLI) and a Postgraduate School. It currently has a student enrolment of about 59,257 with a total staff of 5,339 out of which the academic staff constitutes around 1,700. Amongst the 1,700 Academic staff members of the University, conducting cutting-edge research remains a core mandate and this pool of researchers has a broad spectrum of research expertise with critical and specialized focus on thematic of national and global relevance such as climate change, transportation, agriculture and food security, social security and welfare, population health, Information Communication Technologies, communicable and non-communicable diseases, industrial and economic development, business and finance, social policy, drug development, and engineering. With this broad spectrum of specialization, the University prides itself as a citadel of research excellence and continues to explore avenues to harness the huge potential in the wealth of expertise of its researchers who are constantly striving to make significant contributions to national and global development through leading-edge research.

The Research Management Office (hereafter known as the RMO) was officially established in May 2021 sequel to the approval of the University Council for the restructuring of its predecessor Office—the Research and Innovation Office, created in January 2012. The restructuring of the office birthed the Research Management Office, and the Innovation and Technology Transfer Office. The Research Management Office is responsible for the central coordination and management of research conducted by researchers in the University. It also provides integrated support services for the efficient administrative management of all pre-award and post-award activities. The RMO recognizes the diverse pool of research expertise of faculty and sought, from inception, to implement strategies to harness the vast potential in the diversity of research expertise of the over 1,700 researchers of the University of Lagos. This paper presents a discussion on the strategies employed by the Research Management Office to harness the opportunities and strengths in the diversity of research expertise of UNILAG researchers and how the strategies were implemented.

Multi-disciplinary research involves exploratory studies aimed at achieving a common goal with the aid of knowledge of other disciplines (Zaiț et al., 2021; Miller et al., 2008). It is often loosely and interchangeably referred to as trans-disciplinary or inter-disciplinary research (Gethmann et al., 2015; von Wehrden et al., 2019). Multi-disciplinary research approach has increasingly demonstrated utility in the positive influence of holistic solutions to research problems. Knowledge of diverse disciplines are critically employed to proffer solutions to research problems and are complementary to one another in ways that would be otherwise impossible to draw clear-cut conclusions (von Wehrden et al., 2019). The leading-edge research strategy lies in the application of knowledge of myriad disciplines to finding lasting solutions to problems especially when the challenges are multifaceted, complex, and cross-cutting. Multi-disciplinary research partnerships could be conducted at both local and international levels (i.e., within universities in developing countries, as well as between developing countries universities and global north universities).

There are gaps in knowledge of what structures are available to encourage researchers to conduct joint work more effectively with international academic counterparts, and practitioners. Not much is known about the scope of systems available for research collaboration on the foundation of multi-disciplinary approaches to research.
and scholarships by academics in Nigerian Universities (Ezeanolue et al., 2018; Danbatta, 2016). Knowledge of such practices will better inform decisions about what structures and systems should be established or further encouraged and funded to facilitate high-quality multi-disciplinary research collaboration and how to support the use of outcomes from such partnerships. This paper presents a critical discussion on the strategies employed by the Research Management Office (RMO) of the University of Lagos to promote multi-disciplinary research from the establishment of the Office to date.

The hitherto practices of academics at the University of Lagos conformed largely to orthodox mono-disciplinary research. However, the RMO had a vision to change such narrative and to promote research visibility for the University through the implementation of several strategies to achieve set goals. The Office leveraged the support of senior administrative management staff of the University whose critical foresight and intervention led to the establishment of the Research and Innovation Office in 2012. The results of efforts to promote collaboration among researchers in over 12 faculties of the University, the successes recorded, and the challenges faced are described in this paper. Although the University is far from reaching its desired goals, it has nevertheless recorded some significant strides in the positive direction. The paper makes recommendations for the advancement of these strategies and suggests solutions to challenges experienced with major references to international best practices for supporting multi-disciplinary research.

BACKGROUND

Diversity in research teams is a manifestation of a holistic view of research focus (Wagner et al., 2011). Diverse research teams bring high value to research approach, conduct, inferences, and potentially showcase the spectrum of differences from the interpretations of research experts involved in the study. This may benefit the rigour of research (Senabre Hidalgo, 2018) by creating an opportunity for every member of the team to make contributions from their research world view thus increasing the application and relevance of research findings to various stakeholders (Bunders et al., 2010). Moreover, diversity in research is beneficial to academic research by affording a platform where each researcher has access to the same data and is allowed to mesh their analysis of data with the views of others. University research is increasingly encouraging collaboration among teams with members from diverse backgrounds. Since most universities are made up of diverse disciplines, institutions need to explore how to best harness the potential of disciplinary diversity to create impactful research for the contemporary world. This quest is even more relevant for universities in developing countries, especially with the increasing competition for limited funding and stiff competitive research proposals across global universities being judged by funders based on an overall study of the problem from various outlooks (Wollenweber et al., 2005).

Arguably, the multi-disciplinary research approach has become the gold standard for tackling current complex problems of society which demands in-depth knowledge and critical consideration of multiple dimensions such as economic, social, political, psychological, etc. (Bammer et al., 2020; Brown et al., 2010). However, an effective multi-disciplinary approach will largely entail ‘softer’ human skills—including teamwork, strong leadership, coordination, effective time management, and selflessness. The different viewpoints of team members might sometimes appear conflicting (Korb et al., 2015). However, a deeper insight of the problem should provide a more comprehensive picture and supplement the articulation of a solution to the problem under focus. All members of a multi-disciplinary team are often collectively involved in all aspects of the study, including the design, data collection and analysis (Bunders et al., 2010; Korb et al., 2015). Participants not only learn from themselves but also increase the potential for research findings to have a broader impact, thereby increasing the spectrum of relevance and translation of knowledge (Bunders et al., 2010). Some authors argue that research produced by multi-disciplinary international partnerships is not always valued by developing country institutions because they rarely speak to local contexts of problems (Lipton, 1970; Syed et al., 2012). Such an assumption makes it difficult to recruit experienced
international researchers to participate in international collaboration with faculty in emerging economies or to sustain their involvement beyond a single project.

Modern-day academic institutions are largely structured to promote interdisciplinary collaboration through a myriad of institutional strategies. The research funding landscape is increasingly becoming more favourably biased to consider and preferably fund multi-disciplinary teams (Wollenweber et al., 2005). Similarly, global metrics for university ranking are also taking deeper reviews of the strength, magnitude and frequencies of research outputs involving multi-disciplinary research collaboration in judging the strength of research, as well as the potential for impactful research (Jöns & Hoyler, 2013). For many universities, therefore, investing in institutional structures with the capacity to bolster and promote multi-disciplinary collaboration is becoming increasingly imperative. In many African Universities, there has been evidence of changes in policies governing hiring and promotion to capture engagement in multi-disciplinary research (Ishengoma, 2017; Larsen, 2016). Before this time, much of the policies governing hiring and promotion, to a large extent accorded little reward for multi-disciplinary research and worked against interdisciplinary or multi-disciplinary research as it was mainly regarded as a team rather than an individual accomplishment.

There is also an increasing level of recognition for town and gown engagement in research, vis-à-vis faculty researchers’ collaboration with industry and community stakeholders for impactful outcomes. In recent years, the performance of faculty is often measured using co-authorship of scientific articles published with multi-disciplinary teams or through citations, showing how co-authors build their scholarship with equal contribution from all authors (Boyer et al., 2017; McDonald et al., 2010). Mali et al. (2012) contend that “In reality, science never operates as a single community with hundreds of thousands of individual scientists. It is organized by many different networks that cut across the formal boundaries dividing science with regard to disciplinary sectoral, and geographical levels” (p.201). In essence, there is considerable overlapping of interests. The juxtaposition of interests, blurs boundaries and exerts mutual influence which ultimately minimizes the partial or one-sided result of the issue (Bellotti et al., 2016).

METHODS

This section presents a thematic discussion on the strategies employed by the UNILAG Research Management Office to promote multi-disciplinary research and support collaboration between researchers from diverse disciplines within the University, as well as research partnerships with external (from other universities/research institutes) researchers. The RMO’s approaches are captured under four major non-chronological themes; namely: Development of a database of researchers, supporting the establishment of multi-disciplinary research centres, promoting a culture of multi-disciplinary partnerships, and collaboration in research.

Development of Database of Researchers

Not long after the establishment of the Research and Innovation Office in 2012, the staff members of the Office worked extensively with experts in the Computer and Information Technology Systems (CITS) unit of the University of Lagos in the modelling and design of a database of researchers across the university. The modelling and design were built using MySQL. The design featured researchers’ interest areas, research grant funding experience, research publications, research groups, patents, and research outputs. This led to the design of a well-planned first-ever e-Compendium of researchers and their respective research interest areas in 2013. Information on the research interest areas was gathered through the dissemination of manually completed forms distributed to all faculty researchers requesting for their names, designation, department, research interest areas, research grants received, publications, and contact details. Over 90% of the researchers on campus were captured save a few
who were either on exchange programs or were on sabbatical at the period of information capture (August 2014–December 2014). The collated information was curated into the developed database and produced a novel research expertise profiling of the researchers on campus. The database enhanced the ease of searching for researchers, as well as their research expert areas. This electronic inventory enabled the Research Office to conduct quick searches for expert researchers as soon as there was an advertised call or request for applications by local and international funding agencies. It also enhanced the formation of multi-disciplinary groups which were aggregated through formal invitations by the Research Office based on having similar research interest areas.

In no time, the University recorded a remarkable increase in the number of formalized research groups, and applications for research grants by the various research groups soared. With increasing support from the RMO, the number of submitted research grants proportionately increased, and more successes were recorded with awarded grants from both local and international funding agencies. Table 1 shows the scholarly output from research collaboration involving multidisciplinary teams. The data compared academic publications from multidisciplinary collaboration 10 years before and after the creation of the Research Office. The results show increments in the number of scholarly outputs from multi-disciplinary research. Table 2 shows the grant revenues generated through multidisciplinary research collaboration between 2017 and 2022, while Figure 1 shows a graphical illustration of the same data.

**Table 1. Scholarly Output from Multi-Disciplinary Collaboration (Comparing 10 years pre and post the establishment of the Research & Innovation Office)**

<table>
<thead>
<tr>
<th>Pre-establishment of the R&amp;I Office</th>
<th>Post-establishment of the R&amp;I Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Number of Multidisciplinary Scholarly Outputs</td>
</tr>
<tr>
<td>2003</td>
<td>82</td>
</tr>
<tr>
<td>2004</td>
<td>127</td>
</tr>
<tr>
<td>2005</td>
<td>135</td>
</tr>
<tr>
<td>2006</td>
<td>185</td>
</tr>
<tr>
<td>2007</td>
<td>284</td>
</tr>
<tr>
<td>2008</td>
<td>337</td>
</tr>
<tr>
<td>2009</td>
<td>343</td>
</tr>
<tr>
<td>2010</td>
<td>349</td>
</tr>
<tr>
<td>2011</td>
<td>431</td>
</tr>
<tr>
<td>2012</td>
<td>418</td>
</tr>
</tbody>
</table>
Table 2. Grants Revenue from Multi-Disciplinary Research 2017-2022

<table>
<thead>
<tr>
<th>Funding Agency</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>International (Global or Outside Africa)</td>
<td>7,066,029.59</td>
<td>1,619,387.32</td>
<td>19,104,594.13</td>
<td>4,757,351.42</td>
<td>4,467,067.50</td>
<td>8,050,194.00</td>
</tr>
<tr>
<td>International (Africa-based funding Agencies)</td>
<td>101,843.00</td>
<td>*</td>
<td>846,779.00</td>
<td>*</td>
<td>82,454.63</td>
<td>*</td>
</tr>
<tr>
<td>National Research Fund</td>
<td>*</td>
<td>220,833.32</td>
<td>1,170,075.95</td>
<td>1,225,268.42</td>
<td>587,734.30</td>
<td>597,059.76</td>
</tr>
<tr>
<td>Industry/Private</td>
<td>60,590.94</td>
<td>*</td>
<td>5,555.55</td>
<td>69,950.00</td>
<td>229,834.60</td>
<td>*</td>
</tr>
<tr>
<td>Government/Ministries</td>
<td>15,738.80</td>
<td>151,151.17</td>
<td>165,215.59</td>
<td>108,333.29</td>
<td>18,116.30</td>
<td>59,470.28</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>7,244,202.33</strong></td>
<td><strong>1,991,371.81</strong></td>
<td><strong>21,292,220.22</strong></td>
<td><strong>6,160,903.13</strong></td>
<td><strong>5,385,207.33</strong></td>
<td><strong>8,706,724.04</strong></td>
</tr>
</tbody>
</table>

*No funding received.

Figure 1. Multi-Disciplinary Research Grant Revenue (2017–2022)
Supporting the Establishment of Multi-disciplinary Research Centres

In addition to the increased numbers of scholarly publications, there arose a need to further harness the strengths and opportunities in multidisciplinary collaboration. With increasing calls by funding agencies for multi-disciplinary cutting-edge research, it became imperative to further aggregate the research groups (also known as research clusters) into stronger groups with a similar focus but broader multi-disciplinary composition. This led to the quest for more Research Centres. By and large, a Research Centre is considered by the Institution as an independent, inter-disciplinary training and research unit operating under its cost-code, and typically having exclusive autonomy to appoint staff, while subject to oversight by a director, and an overall oversight by the University research management apparatuses such as the Research Management Office, the Office of the Deputy Vice-Chancellor (Academics & Research), the Office of the Vice-Chancellor, and the Senate. In response to the need for Research Centres, the RMO developed forms (approved by the University Management) for the establishment of Research Centres (RCs). Researchers from diverse disciplines with homogeneous, identical, and related interests completed the forms with a clear articulation of the justification for the establishment of the research centres of interests. Proposals for the establishment of research centres, or promotion of research groups to research centres were submitted to the Research Management Office (RMO) and forwarded for critical reviews and subsequent consideration by the Committee for approval of research centres. Recommendations were advanced to the Deputy Vice-Chancellor (Academics & Research) (DVC-A&R) by this committee following the objective review of the applications.

The DVC-A&R afterwards made recommendations to the Vice Chancellor and to the University Senate following consultation with the relevant Faculty Board(s), and Departments. Eventually, some RCs were approved and established. Today, UNILAG has specialized centers of excellence whose training and research mandates include addressing issues of national and global challenges. These Centres include: The African Centre of Excellence for Drug Research, Herbal Medicine Development and Regulatory Science (ACEDRHMDRS); African Research University Alliance (ARUA) Centre of Excellence for Urbanization and Habitable Cities; Centre of Excellence for Cinematography; African Network for Drugs & Diagnostics Innovation Centre of Excellence for Malaria Diagnosis; Centre of Excellence for Geosciences; Biodun Sobanjo Centre of Excellence for Multimedia; Institute for African and Diaspora Studies (IADS); Centre for Environmental Human Resources Development (CENHURD); Centre for Biodiversity Conservation and Ecosystem Management (CEBCEM); Centre for Economic Policy Analysis and Research (CEPAR); Centre for Autism and Neuro-Development Disorders (CAND-DO); Centre for Human and Zoonotic Virology (CHAZVY); Centre for Housing Studies (CHS); West African Regional Research and Training Centre for Low Vision Rehabilitation (WARTCLOR); and the Centre for African Regional Integration and Borderland Studies (CARIBS). This clearly shows a remarkable stride in the history of the University and highlights how the diversities and plurality in research interest areas have been harnessed to improve the University’s capacity for research. The RMO has provided invaluable support for the establishment of over 15 Research Centres since its inception. Some of this support range from identifying highly performing research groups for upgrade to research centres (especially where significant research funding has been secured by the groups) to providing support for the academic and research engagements at the various research centres.

Capacity Building for Early Career Researchers

The RMO organised regular capacity building programmes for early career researchers. During these programmes, there have always been strong emphasis on the need for collaboration with faculty from other disciplines, as well as collaboration with non-academic stakeholders. The RMO believes that engaging all stakeholders in the research process is central to capacity building. Thus, we involve stakeholders in the planning, monitoring, and evaluation of research processes in order to foster effective and efficient research outcomes. In this way, the University's advocacy for collaborative research is also enhanced, and efficient use of research outcomes is supported. Our research capacity-strengthening strategy goes beyond training to include assisting researchers with opportunities to
manage relationships between the different sectors of society (such as private, public, and community groups) that may benefit from the research. The RMO has long regarded the training of researchers as the primary benefit that it can provide to society. Therefore, the Office strives to support early career researchers who will systematically contribute to the knowledge base and national development. The RMO believes that UNILAG, being one of the highly rated higher education institutions in Nigeria, holds the responsibility of catalysing the achievement of national goals and objectives through multi-disciplinary cutting-edge research. This echoes Alan’s (2013) argument that universities as research institutions must see their positions as being at the heart of social development. Such is our institutional attitude—and reflects our position and our responsibility to society.

Catalysing Research Consortia

This approach involves creating easily accessible platforms for research collaboration and linkages (with relevant academic, industry, national, regional, or international others) so that UNILAG researchers can more effectively generate useful knowledge from cutting-edge research, thus informing better decision-making and national development. Some of the assistance provided by the RMO in this area includes communicating research information through its various media of communication with the community of researchers including emails, newsletters, WhatsApp platforms, etc. to those that might be interested in meeting new collaborators, partnering for research grant applications, or meeting with researchers from industry or other research institutions. The RMO has facilitated many stakeholder collaborations with researchers from various faculties and provided support to ensure that the benefit from the research translates to development in society. Through the RMO’s intervention, much of our generated new knowledge is tailored for effective uptake and is easily accessed by anyone in a position to make policy decisions or invest in the commercialisation of research output.

CHALLENGES ENCOUNTERED

Conflict of Interests and Ideas

Members of multi-disciplinary teams often had views that differed. Harmonization and reconciliation of divergent views to achieve a common purpose often presented a huge challenge as arguments to establish superiority of views were sometimes intense. In one instance, a team member had articulated an idea that the team lead found contrasting with hers. This led to some bouts of heated argument, and debates that divided and polarized the group, and eventually, the member exited the group for another. While this does not occur very frequently, the RMO picked some lessons concerning the constitution of groups, especially with intellectuals whose personal and philosophical paradigms contrasted sharply and were often too rigidly bound to their personal opinions.

Assigning Roles Responsibilities and Appointing Team Leadership

In instances where groups of people who did not know each other before the group formation were brought together, leaving the task of appointing a group leader to the group members did not always evolve smoothly as everyone felt entitled to the position of a group leader. They considered the stakes to be high as the group leaders often emerged as Principal Investigators for most applications and in all official dealings with the RMO. To navigate this recurring challenge, the RMO drafted a list of guidelines on the selection and determination of who should be a group leader. The document also guided decisions on the selection of Principal Investigators.

Team Compatibility and Efficiency of Cooperation

Some of the groups (research clusters) were formed through the RMO’s intervention of randomly selecting faculty with similar interests on the database (compendium of faculty research interest areas), but from diverse disciplines to reflect the multi-disciplinary foundation. However, as members were randomly selected, the RMO sometimes ran
into a challenge with selecting members who were not compatible due to personal differences or low tolerance for apparent contrasts in ideologies, perceptions, and expectations. Groups having such individualistic shortcomings soon suffered attrition and low productivity. In some cases, the RMO made conscious efforts to inject new team members who appeared more flexible and accommodating of the differences. Some of the members were a bit uptight about unlearning the methods they were already familiar with and learning a new methodology rooted in another discipline. This stalled team progress, and in some cases led to the stunting of envisaged progress.

**Meeting Deadline for Time-Bound Tasks**

Working in multi-disciplinary groups was often time-consuming as communication between people from different disciplines turned out to be a time-demanding exercise. From our observation, team members in multi-disciplinary groups took longer periods to develop and submit their proposals than conventional single-disciplinary teams would require. The multi-disciplinary team members required more time to settle down and grasp the multi-faceted complexities of the RFAs (Request for Funding Applications) than the regular mono-disciplinary projects would require. Also, the majority of the team members often mentioned that they needed more time to read more and learn about the new disciplinary perspectives involved in the research. In addition, the RMO observed that the physical proximity of partners is important to facilitate frequent meetings before the submission of RFAs. In cases where faculty members in Akoka Campus of the University (which was home to the faculties of Social Sciences, Sciences, Arts, Law, Engineering, Education, Management Sciences, and Environmental Sciences) collaborated with faculty members at the Idi-Araba Campus (which hosted the College of Basic Medical Sciences, Dentistry, Clinical Sciences, and Pharmacy), physical travels for face-to-face meetings in the traffic-congested city of Lagos was a herculean task, which often demanded leaving for such travels long before the meeting scheduled time. To address this challenge, multi-disciplinary research teams working to submit a proposal were constituted and communicated early enough about meeting schedules and provided with frequent reminders via text messages on their mobile telephones. They were also frequently reminded about what the submission would require and provided with early support to get a comprehensive breakdown of the call requirements by unpacking the calls, summarizing the call requirements and guidelines via debriefing and disseminating relevant information.

**Resistance to Change and Stereotypes**

A few faculty members were stereotyped against multi-disciplinary research. This set of people considered that multi-disciplinary research could be detrimental to their progression as academics. Their stance was that it could derail the focus of their research and publication trajectories. To this group, multi-disciplinary research was judged as non-productive as the long hours spent trying to understand each other would otherwise yield more publications if they worked in silos or within their disciplines. Another argument was that multi-disciplinary research often involved larger numbers of team members. This meant that the authorship of research papers would involve too many co-authors and as total points allotted during assessments for promotion were divided among the total numbers of authors for any single publication, having too many authors would translate to having lower scores. In essence, they believed that the evaluation of multi-disciplinary projects, either by external assessors or evaluators for triannual promotion, could lead to under-evaluation. They also contend that since multi-disciplinary research was often multi-focal, they are more likely to be under-evaluated for deviating from their discipline if not reviewed by people with multi-disciplinary background.

**DISCUSSION**

Multi-disciplinary research partnerships are mutually beneficial collaborations that allow researchers to collectively produce and use relevant research evidence. Building and maintaining the trusted structures, systems, and strategies to promote and sustain a culture of research partnership, the bedrock of multi-disciplinary research,
takes time. Establishing and developing interventions to change fixed mindsets against multi-disciplinary research partnerships usually demands collective efforts. There is evidence suggesting that universities are valued and ranked by levels of engagement in collaborative research with other research institutions (Alan, 2013). Much of the rigour in cutting-edge research produced via multi-institutional collaboration is shaped by the added value of partnerships—the work benefits from multi-regional contributions, encourages multiplicity of views and fosters multi-expert perspectives. Researchers who partner with their multi-disciplinary or multi-institutional counterparts are more equipped to understand broader contexts and address relevant, pressing questions (Bellotti et al., 2016).

The RMO at the University of Lagos considers strong multi-disciplinary research partnerships as a promising strategy for cutting-edge and value-driven research, with the potential to contribute positively to national development. Many universities in developing countries are constrained by limited resources and capacity to develop systems to support strong local and international multi-disciplinary collaboration—including collaboration with industry, Small and Medium Enterprises, and community stakeholders. The UNILAG RMO has been in existence for only nine years but has recorded significant progress from supporting faculty multi-disciplinary research collaboration. The recorded successes, however, have been attained with some challenges which have reflected the steep learning curve experience for the Office and the administrators who work in the Office. In the past decades, academic faculty members in many Nigerian universities have experienced difficulties in establishing and sustaining practices for multi-disciplinary research partnerships with Western world university faculty members (Mushemeza, 2016; Mutula, 2009). In some cases, the RMO had experienced significant challenges in seeking multi-disciplinary partnerships to meet the requirements for the submission of some international RFAs. These challenges persist in many Nigerian Universities and contribute, among many other factors, to the yawning gap in university research ranking and/or research revenue between research institutions in developed world countries and their counterparts in the developing countries.

Investments in human capital and infrastructure are usually needed to create the capacity and culture for research partnerships and such investments, usually, will enhance access to impactful research with potential for national development in the short term (Dale & Newman, 2010); higher valuation and use of research in the mid-term (Britz et al., 2006); and, ultimately, improvements to policy, resource allocation, or service delivery to promote national development (Oketch, 2006). In articulating organisational capacity building, Kaplan (2000) contends that an organisation must view itself not as a victim of the slights of the world, rather as an active player that can effect change and progress. UNILAG’s RMO adopted both training and research cluster formation approaches to encourage the development of young researchers’ skills in producing quality research that was multi-disciplinary and development oriented. This strategy worked in harnessing the inherent strengths and opportunities in diversities of faculty research expertise. Many of our early career faculty were keen to see that, through multi-disciplinary research collaboration, they were motivated to apply their research expertise to other areas. This approach, in many instances led to incremental innovation and breakthrough technologies, some of which were patented by the Technology Transfer Office. There are, however, more support systems to implement as a premier University. We understood that different competencies also mean different approaches to problems, which can sometimes generate conflicts (Hollaender et al., 2002). Therefore the management of such occasional conflicts is crucial. The RMO is currently working on a Conflict of Interest Policy. Indeed, the RMO has been an immense source of support and encouragement for multi-disciplinary research, across all faculties of the University and the establishment of the Office has been generally seen as a ‘good thing’.

**CONCLUSION**

Building a culture of multi-disciplinary research and optimizing the inherent strengths and opportunities in diversities of research interest areas of over 1,700 faculty members of one of Nigeria’s largest and foremost
Universities demand abundant infrastructural, systemic and pecuniary support apart from administrative dedication, patience, and perseverance. In the absence of these basic requirements, the objectives for multi-disciplinary research will not be attained and the entire effort will be proven futile. Embarking on total support for multi-disciplinary cutting-edge research has added value and quality to the nature of research and innovation conducted at the University of Lagos. The evidence is glaring with the increasing number of research clusters formed, the increasing number of research centres established in the last couple of years, and the increasing number of quality proposals submitted in response to RFAs. But at the same time, the approach has brought many challenges which are quite complex and full of intricacies. The RMO has provided immense support to navigate through these challenges and continues to provide support for better quality research. The support was provided with unification and coordination of the diverse members from divergent disciplines as they formed multi-disciplinary groups.

Today, the University understands, recognizes, and appreciates the importance of multi-disciplinary research. UNILAG believes that to deal more comprehensively with Nigeria's contemporary and future problems, multi-disciplinary research is of immense importance. The University is pushing for policies on promotion and recognition of excellence that will reward researchers engaging in multi-disciplinary research to enhance the University's visibility through publication in high-impact journals, patents and intellectual property accomplishments, and successful grant biddings. We conclude that supporting multi-disciplinary research will facilitate harnessing inherent potentials in diversities of research strengths and allow us to fully explore opportunities for cutting-edge research capable of proffering solutions to national and global challenges and fostering development.

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REFERENCES


A METHOD FOR CREATING NIH DATA TRAINING TABLES WITH REDCAP AND NIH XTRACT

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ABSTRACT
A major pre-award administrative challenge research universities face is turnaround time for generation of high-quality NIH Data Training Tables for NIH training grants (e.g., T32, K12, TL1, KL2, R25s) which are required for training grant submission proposals to the National Institutes of Health (NIH). Universities with dedicated training grant submission offices generally require data preparation following a structured timeline of several months in advance of the grant submission due date, while other universities with less or no dedicated support for training grant submissions use an ad hoc approach. In these cases, department or program administrators may collect the data manually, in Excel or REDCap, or similar manually maintained methods for those tables requested by the specific NIH grant announcement for the relevant participating graduate predoctoral and/or postdoctoral (including clinical) training programs across the university, depending on the training focus and the “participating faculty” provided by the proposed program director (PD/PI) for the grant. We describe an efficient “federated” method of data collection and construction for NIH Tables (2, 4, 5A/B, 6A/B & -8A part III/8C part III) for new and renewal applications by combining the use of REDCap and NIH xTRACT, leveraging the strengths of each.

Keywords:
REDCap; NIH xTRACT; NIH Data Training Tables; NIH Training Grants

INTRODUCTION
The NIH funds an extensive portfolio of training grants, both individual and institutional. These include formal training at various levels spanning high school to senior career faculty. While individual fellowships (e.g., F30, F31, and F32) fund a specific individual, institutional training grants provide structured funding for multi-year training programs funding multiple fellowships per annum dependent on cohort year. Training program foci can range from broad topics to smaller areas of focus or specialization, depending upon the NIH institute or program mission (e.g., compare General Medicine (NIGMS) which is broader in scope to the National Cancer Institute (NCI) with its focus on all areas in cancer research), a specific program announcement(s), and the resources needed for the overall success of the proposed training program.

A standard requirement for NIH institutional training grant proposals is a set of data training tables. Though not all tables may be required for all proposals, they provide key institutional data such as the departments and programs included in the proposed training; the funding and training records of participating faculty; and the size
and robustness of the departments and programs in providing enough of an applicant pool for the proposed period of performance. There are currently eight sets of tables, each requiring different time scales for data ranges: some require current data; others require retrospective data up to ten years. Upon completion, even a reasonably-sized training grant proposal can include hundreds of pages of data training tables, uploaded as a separate attachment for the grant submission. Each set of data training tables for each submission is custom built, (i.e., the composition of the participating faculty and related departments/programs is unique to each training grant submission dependent upon the many varied combinations of participating faculty relevant to the training focus of the grant). Characteristics inherent in each customized set of data training tables for each submission include complexity and time needed for preparation, review, and finalization.

In general, the higher the number of participating faculty and departments/programs to be covered in the tables, the heavier the data load to be collected and the longer the preparation time for the tables. Cornell University published on the challenges associated with detailed compilation of the data training tables in particular relative to Table 5 (Trainee Publications), which have been described and addressed with a computer program developed to ‘dynamically’ produce Table 5 (Albert & Joshi, 2019). The University of Michigan Office of Graduate and Postdoctoral Studies over the years has developed a home-grown database that stores the data associated with most of the data training tables except Table 5 pulling institutional data associated with the participating faculty from various internal sources (research grants office; research administrators; trainees; departments/programs to name a few) (University of Michigan, 2021). However, as with our approach, the Michigan database is not maintained in real time, Table 5 is not covered, and some data need to be rechecked and/or refreshed at time of grant preparation.

For pre- and post-award administration of NIH training grants, it is advantageous for pre-doctoral and post-doctoral (including clinical) training departments/programs of research universities to optimize and maintain their tracking of faculty mentor and trainee institutional data using a common approach to ensure accuracy and consistent reporting. A shared, curated source of faculty and trainee data is far more efficient and accurate than storing data in numerous separate ‘data pools’ across the organization.

In a decentralized approach, some organizations create/collect separate pools of data among relevant graduate and postgraduate programs across the university; others employ a centralized approach to their data management, requiring sustained and dedicated resources to maintain. We have developed and utilize a federated data collection approach that includes individual faculty, trainee, department, program, and other institutional sources, collecting the data ‘just in time’ for each submission, only seeking what has not already been collected or which needs refreshing. Periodically mining primary institutional data sources (e.g. graduate program applicant/entrant data, institution awards) eliminates the need to have the database house more than can be feasibly managed, improves data quality, and eliminates the need to repeatedly request this redundant information from faculty/departments for each submission. Over time, as this database organically grows, our goal is to continuously improve data quality and accessibility for training grant submissions while reducing overall administrative burden. In this paper, we report on our development of a database developed in REDCap (Harris et al., 2019; Harris et al., 2009), coupled with the use of NIH xTRACT for data training tables preparation and submission. The REDCap database hierarchy begins with the faculty member information; their research support (primarily other than NIH grants data for NIH xTract Institutional Support); and their trainees. In addition, we have developed two separate REDCap databases to track predoctoral Applicants & Entrants (Table 6A) by graduate program and postdoctoral Applicants and Entrants (Table 6B) by department/program.

A secondary advantage to this federated approach is strategic. Contemplation of the composition of the participating faculty (NIH Data Training Table 2) is generally a key strategic step in designing the training program and can benefit from an early-stage draft of the NIH data tables, adding a data-driven and evidence-based approach
to the program’s content and design while providing support for strategic planning of the training program. Used in this way from the outset, the optimal composition, size, balance of academic rank, and other relevant strengths of participating faculty can be shaped by the proposed program’s leadership and used to strategically showcase unique strengths and capabilities throughout the proposal while pre-emptively addressing any perceived shortfalls for which reviewers might have questions during their review.

**MATERIALS AND METHODS**

What is REDCap?

REDCap was created in 2004 at Vanderbilt University (Harris et al., 2019; Harris et al., 2009). It originally supported a small group of clinical researchers who needed a secure data collection tool that met HIPAA compliance standards. REDCap quickly became a go-to method for supporting both single and multi-site research studies. REDCap’s developers firmly believed that nobody could know the research as well as the researcher. Therefore, a user-friendly web-based interface was introduced in REDCap to provide the researchers direct access to their data. Minimal background knowledge or technical experience is needed to use REDCap; researchers and administrators can directly manage their own projects whenever and however they wish, through any browser on any device. Additionally, users can create surveys on desired data collection points. REDCap offers intuitive design tools via a fluid user interface that eases the development of data collection instruments, including variable naming, variable types, variable categories, and linkage of variables. For the data training tables, REDCap is primarily used to store data as a database. We do not use the “survey” function; however, this function is available if needed. The “reports” function is a powerful tool in REDCap and can be used to report on all data or combinations thereof in the database. REDCap has a variety of file export options for reports as well.

What is NIH xTRACT?

Extramural Trainee Reporting and Career Tracking (xTRACT) is a module within NIH eRA Commons used by applicants, grantees, and other designated personnel to create research data training tables for inclusion in progress reports (RPPR) and new institutional training grants (see [https://www.era.nih.gov/erahelp/xtract](https://www.era.nih.gov/erahelp/xtract)) (eRA Commons, 2017). xTRACT utilizes a related module within eRA Commons (xTrain) to include appointment and related data to pre-populate some training data for training grant renewal applications. This includes data related to trainee names, selected characteristics, institutions, grant numbers, and subsequent NIH and other HHS awards. xTRACT also allows manual entry of data not found in eRA Commons or xTrain. Manually entered information is stored in xTRACT (stored in the research training dataset [RTD]) and can be re-used when preparing subsequent training table submissions.

Compiling the NIH data training tables requires tracking of a substantial amount of faculty member and individual predoctoral student and postdoc data, including but not limited to:

**Faculty**: Number of pre- and post-doctoral students, number of predoctoral graduated, number of postdocs in training, number of predocs continued, number of postdocs completed, number of postdocs continued in research, NIH Grants, research interest, eRA Commons ID (or Person ID), and rank.

**Pre- and post-doc students**: Mentor name, eRA Commons ID, pre- or post-doc status, “in-training” status, start date, end date, trainee research topic, faculty eRA Commons ID, publication status and outcomes.

**Program data**: Applicant and entrant data for graduate programs; program and/or department entrant and applicant data for postdoctoral training proposals, encompassing the recent 5 years of records.
To keep our database up to date, we collect trainee data on a quarterly basis from the following data sources:
(1) Directly from the participating faculty only when working on a training grant submission; (2) Faculty research group laboratory websites; and (3) Faculty CVs. We obtain detailed trainee data and outcomes from the following sources: (1) LinkedIn; (2) ORCID; (3) eRA Commons ID; (4) ResearchGate; and (5) Trainee CVs, when available. When working on a training grant submission, we provide a summary to the participating faculty of the data we have for their trainees to minimize the effort on their end for update, requiring a review and an additive refresh of subsequent trainee information in the database.

**FACULTY/TRAINEE DATABASE IN REDCAP - UPLOAD TO XTRACT**

**NIH Table 2 Data and Data Load into xTRACT**

NIH Table 2 consists of Faculty Members data, including Name, Degree, Rank, Primary Department or Program, Research Interest, and Training Role. In addition to the faculty information, the Mentoring Record (Items 7-12) also must be recorded over the preceding 10-year period for trainees who have been or are currently engaged in research training under the faculty member’s primary supervision. This includes current and former predoctorates and postdoctorates and those who have continued in research or research-related careers.

To obtain faculty data not yet in the database (e.g., new faculty hires), we obtain this data from the faculty member or the faculty member’s department. Once the faculty data is received and stored within REDCap, a data export that includes the participating faculty data for a particular submission is exported as a CSV file, formatted in Excel, and saved as a tab delimited text file for import into NIH xTRACT. We maintain the faculty data in REDCap with semi-annual updates manually.

**NIH Table 4 Data and Data Load into xTRACT**

NIH Table 4 contains current research funding of participating faculty members. This data collection includes the faculty member, funding source, grant number, role on project, grant title, and average grant support per participating faculty member. This data is already available in xTRACT (for NIH grants only) via their eRA Commons ID. xTRACT automatically filters exclusions noted in the instructions, e.g., awards on no-cost extension are excluded and only includes those grants where the faculty member has the PD/PI or Project Lead role on the grant. Grants that are not available within xTRACT include foundation and other federal agency awards (e.g., NSF, HRSA). Relevant funding from these sources can be manually entered based on institutional award data within xTRACT that is maintained by the individual building the RTD (see below for additional information). REDCap data upload follows the previous steps as outlined above in the Table 2 data load. xTRACT automatically calculates the resulting average grant funding per faculty member and recalculates as needed until the table (Table 4, illustrated in Figure 1) is finalized.
Figure 1. Fields Used for Faculty Grants and Other Support (xTRACT Table 4)

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Funding Source</th>
<th>Grant Number</th>
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<th>Grant Title</th>
<th>Project Period</th>
<th>Current Year Direct Costs</th>
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Average Grant Support per Participating Faculty Member

Trainee Data (Data needed for Table 5 A/B and Table 8A/C)

Table 5A/B describes publications of those predoctoral/postdoctoral in training. For each trainee, it lists the following:

1. Faculty member (mentor)
2. Trainee name
3. Whether the trainee is past or current
4. Training period (date range in mm/yyyy format)
5. Publications

We obtain publication data from PubMed, Faculty CVs or Google Scholar. Tables 5A/B are covered by the “Participating Students” section. It is important to note that only general student data items 1–4 above (not publications) can be uploaded for those with an eRA Commons ID. For students that do not have an eRA Commons ID, one needs to create Person IDs for those students separately within xTRACT.

After the initial trainee data has been loaded into xTRACT, we use the xTRACT interface with PubMed to add the trainee publications manually into each trainee record (Note: If the publication does not appear in PubMed, the publication can be entered manually into the trainee record—see NIH xTRACT use guide for instructions). Separately in the PubMed web interface we have found that simply searching “Trainee First Name Last Name AND Faculty First Name Last Name” in PubMed is sufficient to identify most of the trainee publications with their faculty mentor; however, this approach does not always work with common surnames. We input the PubMed PMIDs into the trainee xTRACT record for their publications. Each publication is curated manually further in selecting the faculty mentor and trainee name per publication entered into the trainee record in xTRACT. While these operations require manual data entry, xTRACT sorts and formats Table 5, saving time overall.

Limitations of Data Loads into xTRACT.

Not all data fields are populated in xTRACT by the tab-delimited text file for the faculty or the trainees; some manual data entry is needed. While the faculty’s “Other Grants” data upload populates this data in Institutional Data in xTRACT, these grants need to be manually assigned to the faculty member in “Other Support” in their xTRACT record, and current year “Direct Costs” are recorded separately here as well. Note that grant direct costs change annually per the annual grant budgeting process; however, xTRACT accounts for these changes for NIH grants only.
LIMITATIONS OF THE DECENTRALIZED APPROACH

In the decentralized approach, we created separate pools of data among relevant graduate and/or postgraduate programs across the university de novo for each submission. The administrative burden to copy and paste data into the NIH table (Word or PDF) template, often from an Excel spreadsheet, may result in potential copy/paste errors. In addition, errors are common when uploading the table’s PDF to NIH due to unique characters and active hyperlinks that might cause formatting or compliance issues. Relying on a manual process might also cause data to be sorted incorrectly beforehand (e.g., “Commons ID” is needed first before the “Faculty Rank”), resulting in errors in table compilation and additional administrative burden to correct. Additionally, data pulled from a multitude of sources rather than a single curated source raises potential for incorrect and/or incomplete data. Late-stage modification or revision of the tables when created using Excel or Word require painstaking deletions or additions. Re-sorting can increase the likelihood of unintentional errors or formatting snafus. In addition, the worksheets are sometimes discarded post grant submission and the data cannot be reused or further curated for future use.

RESULTS

We utilize a REDCap database coupled with NIH xTRACT for tables preparation, using tab delimited text file transfers into NIH xTRACT to prepopulate collected survey data and working within xTRACT to leverage its interfaces with other components within eRA Commons and PubMed.

We tested this approach with our REDCap database and NIH xTRACT, resulting in finalized NIH Tables 2, 3, 4, 5A/B that took under 12 hours to develop for 15 participating faculty and 98 trainees. However, note this outcome is entirely qualitative and anecdotal. The stated instructions for the NIH data training tables (National Institutes of Health, 2020) approximate that the average administrative burden for data training tables preparation is four hours. However, the broad experience among grants administrators as noted in the Cornell paper (Albert & Joshi, 2019) quoting the NIH Data Tables instructions (National Institutes of Health, 2020) being the preparation time noted by the government is highly underestimated and preparation of these tables can take as long as three months in their experience. On its training grant support office site, the University of Michigan recommends an overall preparation time for a T32 grant to be one year at a minimum with tables preparation at six months in advance of submission (University of Michigan, 2023). In addition, each set of data training tables is very unique, depending on the number of participating faculty, which can range anywhere from 10 to over 100 faculty (e.g. in a CTSA or a dual predoc/postdoc training program) making it challenging to quantitate the tables’ preparation time accounting for the different types of data in the training tables and the uniqueness of the training program—which can also be and often is multidisciplinary. We regret that we do not have capacity to conduct a statistically relevant comparison of approaches but encourage the research administration community to do so, using its approach as a benchmark.
Faculty Data: The faculty data is composed of the following: (a) “NIH Table 2 Participating Faculty” data including their rank; Dept/Program; their role on the grant; research area focus; trainee census; and (b) “NIH Table 4 Research Support”– Faculty NIH research grant support and “Other” support (NSF, Foundation, Other Fed, University). Faculty Data sources include faculty CVs and Office of Research and Sponsored Programs office for the “Other” grants institutional data.

Trainee Data: The trainee data is composed of the following: (a) trainee eRA Commons ID (or Person ID); (b) Trainee type (i.e., Predoc or Postdoc); In training indicator (Yes or No), Training dates (MM/YYYY–MM/YYYY), Publications? (Yes or No) If “No” Why? (New Entrant? Left Program? Change Research Supervisor? Other?); (c) Research Topic; (d) Faculty mentor eRA Commons ID; and (e) co-Mentor eRA Commons ID (optional).

Trainee Outcomes (NIH Table 8 (A or C) part III): The trainee outcomes data is recorded and stored in the REDCap Faculty/Trainee Database manually. The trainee outcomes data for New applications (Tables 8 A&C part III) can be output in CSV format from the REDCap database for entry into the Table template for Table 8 (xTRACT prepares Table 8C part III for new postdoctoral applications; however, xTRACT does not prepare Table 8A part III for new predoctoral applications).

Trainee data & outcomes data sources may include research lab group websites; faculty CVs; LinkedIn (https://www.linkedin.com); eRA Commons ID data if available; ORCID (https://orcid.org); and Doximity (https://www.doximity.com) for medical residents/fellows. For postdoc trainees, data sources additionally may include the human resources records for applicants and payroll system for postdoc entrants in addition to the faculty CV.

Outputs from the REDCap Database: (a) Participating Faculty data upload file for NIH xTRACT; (b) Faculty “Other Grants” data upload file for NIH xTRACT; (c) Trainee data upload file for NIH xTRACT. Trainee Outcomes is output in the form of a CSV file for entry into the Table 8 A/C Word Template.

Note the trainee publications are not stored in the REDCap database. In NIH xTRACT, the publications are obtained manually via PubMed search of the trainee’s name and faculty mentor name (using the “AND” logic) as noted earlier. The publications found in the search of the trainee with their faculty mentor from the PubMed search are directly transmitted into NIH xTRACT using the unique publication PubMed PMID (PubMed ID number) of each publication. Note that more complex search of PubMed might be required for “common” trainee names. For example, we have found it useful to add the “Affiliation” or the “Date – Publication” (Date range search available) using the “Advanced” search available in PubMed. Note that publications not found in PubMed can be entered manually into NIH xTract.

Data import into REDCap includes two methods: Method 1 - manual data entry into REDCap by creating a new faculty record; trainee instance or other grant instance; Method 2 - .csv data upload file for multiple records.
APPLICANTS AND ENTRANTS DATABASES (TABLES 6A AND 6B)

Rationale for development of databases for Tables 6A and 6B.

Predoctoral Applicants and Entrants Database for Table 6A

Predoctoral training units can be represented by individual departments OR can be interdepartmental programs (including multi-disciplinary). The Table 6A database in our REDCap database is structured to represent these individual departments and/or programs and store data by academic year going back at least 5 years initially (as required for the data training tables) and maintained per annum. Part I of Table 6A is counts per department of numbers of applicants and entrants (All versus ‘Eligible’ (i.e., US Citizen or Permanent resident or non-citizen national) per year). Part II is Characteristics (degree school (Prior Institution); GPA; URM %) and the data in Part II is aggregated per year for the case where we have multiple participating departments. The Table 6A database gives the administrator the ability to account for a multitude of “unique” combinations of departments/programs for Part II of Table 6A.

Postdoctoral Applicants and Entrants Database for Table 6B

Postdocs typically reside in academic departments, programs or entities such as institutes or centers within the organization. As with the REDCap Table 6A database, our Table 6B database is structured by department/program and year (academic) going back at least five years. For Part I of Table 6B, the counts requested are counts of applicants/entrants holding the PhD, MD, Dual degree (e.g., MD/PhD; MD/PharmD, etc.) and Other Degree (e.g., DO) per annum in each participating department/program. However, in contrast to Table 6A Part I, in Table 6B Part I this data is aggregated. Table 6B Part II is Characteristics (aggregated) which for postdocs is average number of publications and first-author publications, in addition to “Prior Institution” and URM percentage. Like the Table 6A database, the Table 6B database provides the ability to account for multiple unique combinations of departments/programs.

The REDCap record ID for the Tables 6A and 6B databases represent the participating department/program. The data is stored by department or program in these databases and therefore can be output from REDCap in CSV file format using the REDCap reports tool and selecting the record IDs for the participating department/programs requested. The data retrieved can be aggregated manually as needed for entry either into NIH xTRACT or the NIH table template (Word or Excel).

CONCLUSIONS AND FUTURE DIRECTIONS

Establishing and maintaining an efficient, federated, and shared data compilation method requires strategic and operational planning as well as appropriate resource and knowledge allocation. While NIH xTRACT compiles faculty current NIH grant funding automatically, NSF, foundation, and other grants are best obtained from central university’s research administration offices. Development of network data transmission interfaces that feed grants data from institutional data sources (Sponsored programs office) into REDCap for faculty ‘other’ grants data and human resources data for postdoc data represents another approach to keep these data current and accurate, further reducing administrative burden. Data maintained by Payroll or Human Resources might be useful for postdoctoral applicant and entrant data collection for future grant submissions; navigating a pathway to obtain this data will take time, working with those units which will likely need a better understanding of the context and use of this institutional data. Over time, though, by establishing these pathways and protocols, research institutions should be able to improve accuracy and timeliness for NIH Table 1-8 generation, creating value for those faculty working to increase the number of training opportunities in their institutions. Additionally, an emphasis needs to be placed
on establishing eRA Commons IDs for trainees as early as possible in their training. The method described could be utilized even more effectively if graduate students and postdocs were encouraged to obtain eRA Commons IDs as a matter of common practice, rather than as an afterthought or not at all.

In this paper we have described a more efficient method for managing institutional, faculty, and trainee data, including department/program data for NIH data training data tables preparation using the REDCap database system. Using a singular REDCap database(s) paired with NIH xTRACT has improved data table preparation time, while improving the overall quality of the NIH data tables presentation (xTRACT) and significantly reducing formatting errors, copy/paste errors and administrative burden. We share this in the hope that it will benefit and inspire our colleagues and the research administration community at large.

**AUTHORS’ NOTE**

The work presented does not involve human subjects or animal research. There is no relevant conflict of interest on the part of all authors contributing to this manuscript.

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ACCESSIBILITY IN RESEARCH ADMINISTRATION

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ABSTRACT

This collaborative and reflective inquiry-based paper critically examines accessibility within the research realm. We focus this inquiry on the principles of equity, diversity and inclusion and specifically address the challenges of establishing accessibility as part of the research enterprise. We acknowledge and reflect on the pivotal role accessibility for persons with disabilities play in an equitable research enterprise and reflect on how nuances in language, behavior, and power dynamics all play a role in creating inclusive environments. This reflective inquiry is a result of a facilitated workshop that took place at a conference attended by professionals working within research administration. Using an inquiry-based workshop approach, facilitators worked with workshop colleagues to discuss, regardless of job title, an ability to influence and shape a more inclusive and accessible system at all levels. Our desired outcomes of this workshop were to collate the collective experiences of our colleagues to uncover barriers and facilitators related to accessibility and to support and learn from our colleagues around ways to create an accessible environment that is a norm. What we find is that accessibility impacts everyone in some way, but it is not a one-size-fits-all solution. Collaboration and communication strategies present possible support pathways to more accessible environments.

Keywords: accessibility, inclusion, emotional intelligence

INTRODUCTION

The Canadian Conference on Research Administration (hosted by the Canadian Association of Research Administration, or CARA for short) offers an opportunity to exchange knowledge and develop professionally in relevant areas of research administration and provides a unique platform to exchange and learn from our peers. In this reflective inquiry piece, we discuss the workshop “EDI, eh? How does accessibility factor in?” and the learnings generated from our peer group. These insights will resonate with the broader narrative of fostering a culture of accessibility and inclusivity within academia, where understanding and addressing academic ableism require a language and mindset shift that goes beyond the ‘duty to accommodation’.
The research administration profession endeavors for equity, diversity, and inclusion (EDI), with the aim of fostering diverse representation encompassing individuals from various backgrounds and abilities within both academic and social settings. We commit to a more profound notion of inclusivity—one that transcends representation. One way to advance efforts is to embrace the power of accessibility, recognizing that through thoughtful design and meaningful conversations, we improve representation by dismantling barriers and fostering an environment where individuals with disabilities can fully engage and participate. We also believe that a more diverse profession is better for all professionals, not just those with disabilities. This emphasizes the need for a proactive approach, namely “accessibility solutions”, which embodies the idea of proactively ensuring access (Sukhai & MacDonald, 2021).

Academia has long viewed itself as an exclusive sphere, yet more recently, new perspectives encourage a more inclusive academy. Of note are the contributions of feminist and racialized scholars who have drawn upon their experiences within academia to expose and denounce the conventional role of knowledge production in society (Brown, 2020). These scholars have described modern academia as a neoliberal academy which marginalizes underrepresented groups, including people with disabilities (Dolan, 2023). In the neoliberal academy, universities compete for funding and prioritize the need for efficient administrators and scholars who can attract a large number of students, who ultimately are the main financiers of the university model (Brown, 2020).

It is in this context that multiple studies have shown the barriers faced by scholars living with a disability (Brown & Ramlackhan, 2022; Dolan, 2023; Inckle, 2018; Lindsay & Fuentes, 2022; Waterfield et al., 2018) in a space that usually sees accommodations or any special need as an unnecessary allocation of funds unless proven the contrary (Brown & Ramlackhan, 2022). In this situation, people will face the need to prove themselves, and in many cases mask their disability to fit expectations (Waterfield et al., 2018). Collectively, these actions are markers of ableism in the academy.

Ableism marginalizes or diminishes the participation of disabled people and takes away their agency (Wieseler, 2020). In essence, ableism denies the dignity of individuals with disabilities by impacting how they process the human experience and the level to which they can self-govern or assert independence (Frie, 2008; Wrenn, 2015). Academic ableism discriminates or prejudices against disabled individuals in academic settings (Brown & Ramlackhan, 2022). This type of ableism manifests in various ways, such as institutional and individual attitudes, policies and processes, inaccessible physical spaces, and a lack of accommodations (Canadian Institutes of Health Research, 2022; Peterson, 2021), impacting everyone from research administrators, students, professors, to community partners. Yet within the research enterprise, equity, diversity, and inclusion actions tend not to explicitly include accessibility as a key element. It is an important aspect of inclusion that requires intentional approaches and action. To combat ableism, it is essential to understand the impact of language, behavior, and power dynamics on creating inclusive environments. As research administration professionals, there is an opportunity to close the gap in academic ableism by considering our influence with colleagues and on institutional practices, policies, and procedures within the research enterprise.

In the context of this reflection, influence is “the effect that somebody/something has on the way a person thinks or behaves or on the way that something works or develops” (Oxford Advanced Learner’s Dictionary, n.d.). In short, how we show up influences how others will respond. This is an essential component that needs to be understood when talking about creating change, especially regarding accessibility. Influence and emotional intelligence are important building blocks when discussing a culture of inclusion. Influence allows individuals to use their power, skills, and expertise to motivate others and create spaces that support dignity. Using influence to promote inclusivity involves modeling behavior, active listening, and communication. By actively listening to others and leveraging their thoughts and ideas, individuals can promote an inclusive culture where all individuals feel valued, respected, and included (Chrobot-Mason & Aramovich, 2013).
Moreover, emotional intelligence facilitates the ability to identify, understand, and manage one’s emotions, while recognizing and responding to the emotions of others (Coleman & Ali, 2022). Developing emotional intelligence can enable individuals’ emotional abilities in order to build more inclusive relationships, and regulate emotions associated with distress helping to recognize and respond to biases and microaggressions (Salovey & Mayer, 1990). People who are emotionally intelligent can recognize their own implicit biases and work to remove them, fostering a culture of inclusion that promotes acceptance and belonging communicating effectively with colleagues. By actively listening, modeling inclusive behavior, practicing empathy, and recognizing implicit biases, we can create a culture that is more accessible and where people feel valued and respected (Lee & Wong, 2019).

**PROBLEM STATEMENT**

The exclusionary environment within academia requires individuals with disabilities to constantly prove themselves and, at times, hide their disabilities. The lack of intentional approaches and action to address inclusivity and accessibility in research support and administration contributes to the ableist system. It is crucial to understand the influence of language, behavior, and power dynamics in creating inclusive, accessible environments. Research administrators have an opportunity to influence change and create a supportive environment that ensures equitable access and opportunities for all individuals, including those within their departments as well as other parties invested in the research enterprise. By doing so, academia can become a safer and more welcoming space, fostering acceptance and belonging for everyone.

**OBSERVATIONS**

The objective of the workshop was to examine the implementation of equitable, diverse, inclusive, and accessible (EDIA) practices in research administration, with a focus on influence and emotional intelligence (EI). During the workshop, three facilitators with experience in research administration and one facilitator who was an EI specialist guided the participants through an inquiry-based process to explore the topic. All four facilitators represented equity deserving groups including people with disabilities, racialized individuals, and the 2SLGBTQ+ community. The workshop was part of the Canadian Conference on Research Administration (CARA) held in May 2023. We asked attendees to reflect on what EDIA meant to them in their research administration practice. The goals of the workshop were to:

- Understand the skills that foster an EDIA mindset
- Identify barriers and enablers to EDIA in various roles
- Understand the actions that we take can affect change

**WORKSHOP MATERIAL AND DESIGN**

We approached the workshop facilitation through the lens of accessibility (see Table 1 below for considerations). Considerations included ensuring session material was screen reader friendly, available for download in advance of the session, as well as incorporating multiple ways to engage with the material (e.g., think-pair-share, working with scenarios, small group work, and lecture-style with discussion). We incorporated technology, including posting PowerPoint slides, using microphones, and turning on closed captioning. Attendees could also engage via polling software accessed using a personal mobile device or tablet and other physical materials (e.g., sticky notes and pens). We also stayed as flexible as possible to meet the needs of our audience and committed to summarizing the collective experiences in the room by collecting any activity-related written material left after the session.
<table>
<thead>
<tr>
<th>Accessible practice</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic materials were screen reader friendly</td>
<td>Facilitates access to print material for individuals who use screen readers (i.e., assistive devices), enabling independent information access.</td>
</tr>
<tr>
<td>Materials were available in advance of session</td>
<td>Addresses diverse learning barriers and enables personalized interaction with the material (e.g., reducing the impact of cognitive processing speed, physical speed, or auditory processing during the session).</td>
</tr>
<tr>
<td>Multiple ways to engage in the session</td>
<td>Accommodates different learning styles.</td>
</tr>
<tr>
<td>Use of microphones</td>
<td>Helps improve understanding and recall of the information, as it utilizes different cognitive processes.</td>
</tr>
<tr>
<td></td>
<td>Addresses sound or noise-related barriers by ensuring the projection of voices.</td>
</tr>
<tr>
<td></td>
<td>Helpful for many, particularly participants with hearing impairments and more generally, overcoming background noise or echoing sounds.</td>
</tr>
<tr>
<td>Closed captioning</td>
<td>Inclusive means of making auditory content accessible to everyone by translating audio into visual text through captioning. Captioning benefits many including those with hearing loss, ADHD, and those who benefit from visual cues or pacing of information (e.g., cognitive load).</td>
</tr>
<tr>
<td></td>
<td>*Even though this session was not conducted virtually, we did this using Zoom with captions enabled, which was projected on the screen with our PowerPoint slides.</td>
</tr>
<tr>
<td>Flexible mindset (e.g., Openness to adapt to the audience)</td>
<td>Allows facilitators to be adaptive to the needs of those in the workshop, ensuring that participants feel included and have an equitable opportunity to participate.</td>
</tr>
<tr>
<td>Providing a post-event summary</td>
<td>Assists in information processing and facilitates recall and comprehension for people whose disability impacts memory or attention.</td>
</tr>
</tbody>
</table>
We facilitated two main activities with our colleagues in the workshop. We designed the first activity to focus on the individual practices and mindsets related to EDIA. The second activity focused on a specific scenario a research administrator may encounter as part of supporting a research team.

**ACTIVITY 1**

We explored barriers in our EDIA practice. For this activity, attendees worked individually or in pairs and provided answers to three questions by documenting their experiences on sticky notes. The facilitators then opened the floor up for sharing and discussion. Workshop attendees could relate to any part of their research administration practice, including engagement with researchers or even experiences in their own teams/departments. Responses were analyzed using inductive thematic coding to group the responses into categories.

**Question 1: Is there a time when you had access to something you needed to succeed at a task/activity? How did that make you feel?**

Twenty-five people responded to the question. To analyse the responses, we generated a word cloud, weighting words based on frequency of use. Examining the emotional aspect, the prevailing sentiments expressed were empowerment, support, and relief (Figure 1). This could indicate that access leads to an improved sense of agency and inclusion. A list of words in the word cloud can be found in the Appendix. This question allowed us to anchor our colleagues in their own experiences of inclusion and how that connects to emotional experiences that we have as humans. There was good discussion about how we each benefit from access in a broader sense.

*Figure 1. How Participants Felt When Having Access to What They Need (Presented in list format in Appendix)*
Question 2: Do you see barriers in your role that could impact others? Where or when do they occur?

Sixteen workshop attendees highlighted barriers that occur in systemic elements of the enterprise, as well as within functions of the role and within the built environment. A thematic clustering approach was employed to identify trends and emerging themes. While some participants addressed both the existence and location of barriers, the compiled responses were categorized based on recurring themes to capture the essence of the experiences shared. While this approach may have overlooked certain nuanced details conveyed in individual responses, it allowed for the identification of prevalent barriers (Figure 2). For instance, policies and hierarchies within institutions emerged as the most commonly mentioned barriers (n=11). Participants expressed challenges related to the absence of a safe space for raising issues and the need to enforce policies that could be perceived as discriminatory. There was a sentiment that the design of policies to be a one size fits all can be incongruent with the individualized approach often needed. Attitudinal or systemic barriers (n=8) were represented by a perceived lack of interest or flexibility from organizations particularly when there was a lack of trust in the work environment or the institution as a whole. Time constraints (n=7) were primarily attributed to the inability to adequately assist all individuals requiring support. This could disproportionally affect the staff ability to deliver services to researchers with a disability who might require more service for the same grant application. Funding (n=6) and resource and capacity limitations (n=5) were also identified as barriers to accessibility. Discrimination (n=5) included examples ranging from instances of tokenism in the workplace to encountering barriers when attempting to provide assistance to equity deserving groups.

*Figure 2. Barriers Within the Research Enterprise*
Question 3: In your role, who might be impacted by the lack of access?

In short, a lack of access impacts everyone, but some are more impacted than others. The discussion reveals that the lack of access can impact individuals across various domains. Many participating research administrators emphasized the potential ripple effect, where the absence of access not only affects them directly but also impacts others in their lives. Specifically, participants highlighted the impact on clients/partners, staff, researchers, support staff, and underrepresented groups. Additionally, participants focused on individuals who might require accommodations but chose not to disclose their needs, such as people living with disabilities and those from underrepresented groups.

ACTIVITY 2

We designed the second activity to specifically explore EDIA practice in support of research teams. To do this, we used a short scenario to elicit group discussion:

A research team is applying for a grant related to urban transportation. The team is concerned about accessibility and wants to ensure that the study is inclusive and accessible to as many participants as possible throughout the process. This includes ensuring representation of a diversity of disabilities and intersectional identities (e.g., disabled students from underrepresented communities).

Using the scenario method allowed us to anchor the attendees in a common future. The short scenario worked as an exploratory story that could highlight potential challenges and gaps in accessibility and inclusive practices. We then asked workshop attendees to work in groups to respond to three reflective questions. We analyzed responses using inductive thematic coding to group the responses into categories.

Question 1: What can be done to address EDI concerns during the design proposal?

A crucial step in incorporating diverse perspectives in project planning included diverse team members, partner organizations, or community engagement partners. Collaborative planning may help address the need to ensure diversity within the group. Many respondents emphasized the importance of soliciting input from team members to understand their specific needs and considerations. Examples of considerations included ensuring accessible transportation for everyone, utilizing multiple modes of communication, providing meeting transcriptions, and considering childcare requirements for participants. Also essential was continuous discussion around the team’s needs throughout all stages of the project.

Question 2: How can the team address accessibility during the development of the project?

The research findings revealed a unanimous agreement on the importance of engaging in multiple forms of communication to ensure effective communication among diverse parties. Respondents consistently stressed the need to involve diverse voices and seek their input to determine the most appropriate communication methods. Adapting communication strategies at different stages of the project to meet the needs of interested parties, by offering extended deadlines to participate for example, was also consistently mentioned as a crucial consideration (Figure 3).
Question 3: How can the team engage with diverse communities and voices and include their perspectives?

Throughout the responses, a recurring theme was the inclusion of diverse members at all stages of the research grant from design to execution to evaluation, ensuring their perspectives and needs are considered. Empowering diverse voices needs to be authentic and involve living/lived experience in decision-making power and leadership positions. The research findings also emphasized the significance of considering intersectional identities (e.g., someone who is racialized and disabled), by offering translation options and reaching out through community engagement or partner organizations to ensure inclusivity. The onus needs to be on us as research support staff to proactively offer these, not on equity-deserving groups to ask for them.

These research results provide valuable insights into the strategies and considerations for incorporating diverse perspectives in research grant planning and execution, fostering effective communication, and addressing intersectionality in project implementation. The findings underscore the importance of active engagement, continuous dialogue, and tailored approaches to meet the needs of diverse individuals and communities throughout all stages of the research.
EMERGING CONCEPTS

Accessibility is not a straightforward solution, as individuals may respond differently to gaining access. By acknowledging and addressing the diverse range of experiences, we can take steps to foster an environment that is more inclusive and supportive. Research administration involves managing various aspects of research projects from ideas to implementation and ensuring that research activities adhere to ethical standards and guidelines. This includes implementing inclusive and accessible practices to create an environment where all individuals, regardless of their needs or abilities, can fully participate in the research enterprise and in doing so, challenge ableism in academic environments. Individuals that benefit from accessible practices include colleagues in one’s department, researchers, students, community members, and other people invested in the research enterprise.

It is important to note that when people disclose their limitations or disability, not all individuals may initially feel positive when disclosing their need for accommodations. They may experience emotions such as neutrality, embarrassment, or vulnerability. Research administrators need to be aware of these emotional responses and create an environment that promotes comfort and support, leaning into competencies like emotional intelligence. This means prioritizing the development of a safe and inclusive space where all people in the research enterprise feel at ease disclosing their needs and seeking accommodations.

Furthermore, to move beyond accommodations to accessibility, it is important to involve individuals requiring access in planning and implementing any accessibility measures. Collaborating with people with living experience allows for perspectives to be heard and considered. By incorporating their insights, research administrators can better understand the specific needs of individuals and ensure that the accommodations provided are meaningful and effective. Research administrators can collaborate with individuals and organizations to explore best practices and innovative approaches for promoting accessible practices and creating more inclusive research environments. This includes working with disability organizations to gain insights into the needs of researchers with disabilities, conducting community outreach initiatives, and working with experts in the field of accessibility. For example, research administrators can ensure that accessibility practices are integrated throughout the various stages of research projects. This includes designing research protocols and guidelines that are accessible to all members of the research community, irrespective of their physical, cognitive, or sensory abilities. This can also involve providing accessible modes of communication including alternative formats of materials, which meet the needs of all involved within their respective offices as well as with those invested in the research.

In Activity 1, several higher-level themes emerge from the results. These themes highlight the complexity and interconnectedness of access issues, the need for accommodations, and the importance of inclusive practices to ensure equitable opportunities for all individuals, especially those from underrepresented groups.

1. Accessibility impacts us all: The mentioned groups encompass clients/partners, staff, family members, researchers, HQP, support staff, team members in research support roles, people in a hospital or institutional setting, faculty members, students, employees, and colleagues.

2. Inclusion and accommodations: The need for accommodations and the importance of inclusion emerge as recurring themes. Individuals who require accommodations, including those with disabilities, neurodivergent individuals, and non-native English speakers, face barriers in accessing resources, grant criteria, or other documents. The emphasis is on creating inclusive environments and providing necessary support.

3. Barriers and constraints: Several themes highlight barriers and constraints that hinder access and opportunities. This includes financial constraints, recurring barriers due to policies or hierarchies, limited support for specific areas of expertise, physical barriers on campuses due to budget limitations, and inaccessible IT platforms or websites.
4. Underrepresented and equity-seeking groups: The mention of underrepresented groups, equity-seeking groups in job positions, researchers from equity deserving groups, marginalized groups, and individuals in rural communities signifies a focus on addressing the specific needs and challenges faced by these populations.

5. Ripple effect and interconnectedness: The interconnected nature of the impact is evident through the references to the potential ripple effect on staff, students, visitors, and faculty. It is important to recognize the impact on family members and the wider community, emphasizing the broader implications of access barriers.

In Activity 2, the higher-level themes may guide a team on how to address EDIA concerns during the design proposal and throughout all stages of the project. The themes include:

1. Importance of diversity and inclusion: Diverse team members and other parties are critical at all project stages. This includes diverse perspectives, needs, and considerations, which can contribute to more comprehensive and effective project planning and implementation.

2. Collaborative planning: It is important to use collaborative planning, where the team directly addresses diversity. By actively engaging team members and soliciting their input, the project can benefit from a wider range of ideas, expertise, and insights.

3. Communication strategies: Effective communication is identified as a key factor to address EDIA concerns. Engaging in multiple forms of communication and adapting communication strategies to meet the needs are crucial considerations. This ensures that information and engagement opportunities are accessible to everyone involved.

4. Empowerment and intersectionality: The research findings highlight the significance of empowering equity-deserving groups by involving them in decision-making processes and leadership positions. Additionally, it emphasizes the importance of considering intersections, such as language barriers or community-specific needs, to ensure inclusivity and meaningful engagement with diverse communities.

**RECOMMENDATIONS**

It is evident that accessibility is not a one-size-fits-all solution, as individuals may respond differently to gaining access. This mindset helps combat ableism by challenging discriminatory beliefs, respecting individual needs, and promoting inclusive practices. Reflected in this is the recognition that individuals with disabilities encompass a diverse and varied population, where even within those who share a common disability identity, other aspects of identity give rise to distinct and unique lived experiences (Whittaker et al., 2019). By using emotional intelligence and influence, we can acknowledge and address the diverse range of experiences. Taking this step helps foster an environment that is more inclusive and supportive. It is important to recognize that not all experiences related to inclusion and accessibility elicit positive emotions, as some individuals may initially feel neutral, embarrassed, or vulnerable when disclosing their needs. Therefore, creating an environment where individuals feel at ease and supported is essential. To ensure the effectiveness of any accessible practices, it is crucial to involve the individuals requiring access in the planning and implementation process. By collaborating, actions may be more meaningful and efficacious, ultimately leading to a more inclusive and equitable environment. Through the lens of emotional intelligence, our audience collectively reflects on the influence we may have as research administrators to support and reshape academic settings into spaces where diverse voices are heard, barriers are removed, and a genuine culture of acceptance and belonging is cultivated, thus paving the way for a more welcoming and accessible academic community.
AUTHOR’S NOTE

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Sukhai, M., & MacDonald, L. (2021, October 26). CCDI’s conversation with Dr. Mahadeo Sukhai (he/him) from CNIB & Lorin MacDonald (she/her), Human Rights Lawyer [Blog post]. https://ccdi.ca/blog/disability-employment-awareness-month/


APPENDIX

Question 1: Is there a time when you had access to something you needed to succeed at a task/activity? How did that make you feel?

List of words and frequency count and weighting noted in word cloud:

Empowered, 7 (28%)
Relieved, 5 (20%)
Supported, 5 (20%)
Happy, 3 (12%)
Effective, 3 (12%)
Grateful, 3 (12%)
Heard, 3 (12%)
Set Up For Success, 3 (12%)
Confident, 2 (8%)
Seen, 2 (8%)
Embarrassed, (4%)
Capable, (4%)
Safe, (4%)
Relieved, (4%)
More Productive, (4%)
Competent, (4%)
Appreciated, (4%)
Neutral, (4%)
Positive, (4%)
Real (Vulnerable), (4%)
Courageous, (4%)
Supported, (4%)
Encouraged, (4%)
Less Anxious, (4%)
Less Stressed, (4%)
Regarded, (4%)
Inspired, (4%)
Bolder, (4%)
Supported, (4%)
Understood, (4%)
More Energy, (4%)
Healthier, (4%)
Able To Keep Up, (4%)
Confident (4%)
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