ONBOARDING FACULTY MEMBERS TO BE SUCCESSFUL WITHIN THE RESEARCH ENTERPRISE: MAKING A CASE FOR CHANGING BEST PRACTICES

by

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Dedication:

It is the hope that this research paper will be a help to the many wonderful professionals within Research Administration as yet another example of how to make a complex, nuanced system work more efficiently. It has been an honor learning about this profession and joining this dedicated group.

Abstract:

The overall purpose of this study is finding ways to improve the faculty onboarding process. There are specific issues that new research faculty must overcome in order to be contributing members to their university, students, research lab, and field of study. Issues such as managing workflow, complying with internal university/institution policy and external sponsor policy (federal or non-federal) are a few examples of the problems facing research faculty. Failure to properly onboard faculty members has the potential for serious non-compliance consequences. The overall study design consisted of previously surveyed faculty and research administrators to understand the issues with current systems and w changes were needed to improve the process. Additionally, industry professionals and literature were examined in an effort to find the best solution. Analysis and feedback from examining these groups illustrated the need for a robust onboarding option given the complex nature of the Faculty Researcher job type. This updated system consisting of a hybrid method utilizing online and in-person training would onboard faculty during the initial phase and used throughout their professional development within the university/institution.

Keywords: onboarding, orientation, faculty, research, university, Research Administration, Research Enterprise

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Chapter 1

Introduction: The term onboarding is "the process of integrating a new employee with a company and its culture, as well as getting a new hire the tools and information needed to become a productive member of the team" (Mauer. N.D.). Onboarding can be an effective way to acclimate new hires. Not only does onboarding inform novice employees of the employer culture but provides them with the tools to be successful and grow within the company. While each industry has its specifications and idiosyncrasies regarding the expectation of new hires and employees, the power of robust onboarding cannot be denied. The same truths are valid within the Research Enterprise with respect to its employees. While onboarding for Research Administrative professionals is typically consistent for universities and/or institutions, there is another group often neglected. This group is the Faculty Researcher. Since Faculty Researchers play such a pivotal role within the Research Enterprise, it is vital their onboarding is as consistent and dynamic as possible.

Purpose of this Study:

The purpose of this study was to examine current methods of faculty onboarding both in a general capacity as well as specific to an individual university, to see if these options worked or if a transitioning to a new system was needed. This study would be of great interest to universities/institutions looking to transition their onboarding practices.

Research Questions:

This study will attempt to answer the following questions:

1. What does the standard faculty onboarding system look like?
2. Does the current system provide benefit for the Faculty Researcher?

3. How have other institutions of higher learning approached onboarding?
4. What changes or updates are needed to improve the system?
5. What might this new system look like?

Importance of this Research:

This research study can address the reasons why a university/institution should consider a transition of the current onboarding system to meet employee needs. Given the complex job type of the Faculty Researcher it is vital that onboarding prepares them appropriately. The reasons for robust onboarding allows for increased productivity and compliance with internal and external policies. Having an onboarding system that can address these issues also contributes to employee retention/job satisfaction as new hires are made to feel welcome and a part of the organization. It is also important that those considering a transition understand that the new system may consist of variety of methods such as only in-person, only on-line or a hybrid option.

Organization of this Study:

Chapter 1 has provided background information pertaining to this study. Chapter 2 is a review of the literature regarding current and potential onboarding practices. Chapter 3 outlines the methodology regarding this research study as well as limitations. Chapter 4 contains the results of the study and themes. Chapter 5 discusses the interpretations of the study and potential solutions.

Chapter 2

Review of the Literature: Several sources have been reviewed for this study ranging from blog posts by those within the Research Enterprise, Human Resources websites and services, onboarding white papers, various university onboarding policies and procedures (general and those specific to Johns Hopkins University), computer onboarding systems, recent events, Faculty Researchers (within the field at large and also those that work at The Johns Hopkins University), and published literature. All sources agree that dynamic onboarding is essential for establishing new employee understanding which promotes job satisfaction thus increasing both employee productivity and longevity. However, these sources are divided on the best approach as some are proponents of "in-person" onboarding while other authors favor an "on-line" approach. Ultimately the choice resides with the end user and there are several key factors regarding that decision.

Recent Events Within the Research Enterprise: The recent Thousand Talents Program is evidence of what can occur when proper onboarding is not implemented. On the surface China's Thousand Talent Program (TTP), which began in 2008, was a global research collaborative effort recruiting many United States researchers and students to participate in various initiatives. However, TTP actually "encourages economic espionage and theft of intellectual property" (Leonard. 2019) not only usurping credit from the original researcher and/or author but creating a national security issue. Additionally, The Federal Bureau of Investigations (FBI) estimates that the "annual cost to the U.S. economy of counterfeit goods, pirated software, and theft of trade secrets is between $225 billion and $600 billion" (FBI. N.D). An FBI probe initially uncovered a single incident which would eventually lead to massive faculty firings, fines, debarment, jail time as well as highlighting weaknesses in several systems at the university/institution and federal levels.

In mid-2016 Michael Lauer, head of NIH's extramural research program, received a FBI report informing him that a researcher at MD Anderson was sharing proposals he received in connection with his role as a NIH Peer Reviewer with other people and other nations (Mervis.

2019). This is a direct violation of the NIH Peer Review Policy, the sections 552b(c)(4) and 552b(c)(6) of the Government in the Sunshine Act, as amended (5 U.S.C. 552b(c)(4) and 552b(c)(6)) and section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. appendix 2) as "documents made available to, or prepared for or by peer review groups that contain trade secrets or commercial or financial information obtained from a person that is privileged or confidential" (NIH. 2020). However, this investigation would reveal a much larger issue which Lauer explains that,

> "NIH grant managers would find numerous examples of NIH-funded scientists at U.S. universities who were publishing papers that listed a foreign institution—often in China—as their primary affiliation and cited foreign funding sources in the fine print. But the scientists hadn't reported those affiliations and grants to their institutions or to NIH, as required" (Mervis. 2019).

Examining individual researcher's involvement with the TTP, exemplifies the issues at play in greater detail.

On January 28, 2019, approximately six months after "NIH has sent roughly 180 letters to more than 60 U.S. institutions about individual scientists it believes have broken NIH rules requiring full disclosure of all sources of research funding" (Mervis. 2019), Charles Lieber, nanoscale materials chemist and chair of Harvard's chemistry department was arrested by Federal agents. The affidavit alleges,

> "Prof. Lieber … had been working with WUT since 2011 and had received substantial funding: the equivalent of $1.5 million to set up a lab in Wuhan, $150,000 per year in 'living expenses', and up to $50,000 a month (!) in salary, prorated according to his 'actual work time' in or for Wuhan … The affidavit contains detailed direct quotes from emails between Lieber and various officials at WUT, copies of his contracts, a timeline of his travels to Wuhan, discussions about modes of payment" (Lowe. 2020).

Additionally, there are several incidents where Prof. Lieber denied being a part of the Wuhan (WUT) TTP, failed to disclose this professional relationship to multiple governmental agencies, his home institution (Harvard) and actively/intentionally tried to alter and conceal his relationship with WUT TTP. The incident involving Prof. Lieber is one of many examples demonstrating a need for fundamental change. This scandal not only sent shockwaves within the Research Enterprise but the loss of United States owned intellectual property and national security risk is a great casualty of this avoidable misstep. While Prof. Lieber was a senior researcher, his actions may have yielded a different outcome if he was provided with foundational learning and/or tools/resources necessary to function within the Research Enterprise during his formative years and throughout his professional development.

Standard Onboarding Process: As the Thousand Talents Program shed light on deficits within the system, it also highlighted the need for robust faculty onboarding. The standard onboarding process for new employees starts with the Human Resources Department. Usually the new employee meets with a member of the Human Resources team and completes the necessary paperwork ranging from contact information to tax forms. The new hire may receive handbooks with additional employee information, policy and/or a code of conduct before continuing their orientation and onboarding with their main department. It is important to note that **orientation** "means 'I rise up,' … and the orient is the land of the rising sun … on a journey … you want to get your bearings, or your orientation" (Buller. 2017) while **onboarding** "is a nautical image … the onboarding process involves learning what the emergency procedures are, what time meals are served, and where the various ports of call will be ... with everyone knowing what they're supposed to be doing (Buller. 2017). Either office, Human Resources or the new hire's home department, may enroll the employee in various orientation classes that cover such topics as *How* *to Enroll in Benefits* or *The History of the Company* in an effort to acclimate the new hire to the general aspects of this unknown environment. Specialty onboarding classes may also be required during this time if the new employee has specialized responsibilities such as processing reimbursements or conducting research in a lab setting. The standard is to complete the new hire training within a certain amount of time during the Onboarding Phase. The four onboarding phases are as follows:

> "**Phase one: Onboarding**- lasting 0 to 3 months - the welcome someone receives on their first day, through to their development plan for the first few months, onboarding is the foundation of employee experience.
>
> **Phase two: Initial Development** – lasting 3 to 24 months - mastering their role by developing specific skills, building relationships across the business, and coming to terms with internal processes that affect how they do their job.
>
> **Phase three: Ongoing Development and Retention** – 24+ months - employees that have been in your organization for a few years have already started to advance in their career … keen to know what progression opportunities are available, whether that's a move into management or another role.
>
> **Phase four: Separation** – 0 to 3 months before leaving- Some employees will leave even though they've had a very positive experience with your organization, but there will also be people that leave because of underlying engagement issues (Peakon. 2021)."

Therefore, it is imperative that onboarding not only sets the correct tone for the new employee but is optimized for that individual which fosters success. This objective becomes increasingly difficult with nuanced professions.

Onboarding and the Faculty Researcher: While it is important that all employees receive basic onboarding requirements, that does not mean the process is completed. Standard onboarding practices may not apply with respect to multi-layered positions like the Faculty Researcher. For example, a Faculty Researcher has many responsibilities that may be in conflict with each other or inhibit success within the Research Enterprise. While all Faculty Researchers must deal with these challenges, the below issues are compounded for the newly hired. In order to make a positive impact for the faculty member, an onboarding system should address:

1. Grant/proposal writing to obtain funding
2. Performing research/writing and publishing papers
3. Teaching classes and class/content preparation
4. Student/lab mentoring (faculty is responsible for their content/work/research)
5. Professional development
6. Service
7. Meetings – faculty, student, proposals/grant, various other types
8. Other
    a. Faculty vs Research Administration relationship
    b. Faculty vs University relationship
    c. Conflicting goals
        i. Faculty has one goal
        ii. Research Administration has another
        iii. University/funding sponsor or donor has yet another goal

The above referenced list highlights the dilemma of the Faculty Researcher. New researchers must transition theoretical and/or class room learning into practical or real world application. While a new employee holds the appropriate degree, many of the skills needed to perform the job requirements of a Faculty Researcher do not automatically accompany the title. It is important to note that there are additional considerations for new faculty desiring tenure. This dilemma is given context as follows:

> "Tenure-track faculty members must not only think well, but they must also write well, speak well, and interact with people well. They should have a keen business sense and be adept in managing budgets, projects, and people. In addition, faculty members must have a driving passion toward their research and be willing to devote a Herculean effort over many years" (Hitt, E. 2008).

Therefore, the job requirements of the Faculty Researcher must be considered so they can be onboarded accordingly. Options are providing classes and/or training on topics such as *How to Disclose Conflict of Interest* or *What are the Different Types of Allowable Cost Sharing* as opposed to classes on reimbursements or purchasing supplies. Those latter subjects affect the Faculty Researcher on an ancillary level rather than a direct level and most likely fall under the prevue of an administrative staff member. However, tailoring onboarding to suit the individual Faculty Researcher may prove to be a daunting, unattainable task given the many different faculty job types.

Possible Methods to Incorporate into Faculty Onboarding: Using the faculty search criteria as a way to transition into faculty onboarding, which in turn transitions into ongoing professional development, is a simple yet dynamic way for successful Faculty Researcher onboarding. For instance, much can be learned and utilized from the faculty recruitment process for a plethora of reasons. The first reason is *why* the faculty member was recruited and/or subsequently hired in the first place. If that individual was incorporated to the team to create and/or finalize a specific curriculum because the university desires to adjust course offerings to meet current trends, then the goals of that staff member (and corresponding onboarding) would be different as opposed to other hired groups satisfying a diversity or donor criterion. Regardless if the hire is to fill a single faculty position or cluster hiring, which is usually done to build up a department and/or offering such as urban development or computational biology, the following faculty search questions should be considered:

> "What courses will we need in our curriculum?
> What credentials will be necessary to teach those courses?
> How often will each course in that curriculum need to be taught?
> Which research areas best complement or build on those that currently exist in the program?
> What service assignments will the program probably be responsible for?
> What levels of diversity will provide the richest environment for teaching and research?
> In which areas of diversity have we consistently lagged behind what our targets should be?
> What would an appropriately diverse faculty look like?

> What skills and areas of experience are most needed to accomplish the work of the department, college or division, and institution?
> What would we need in order to say that we have transformed ourselves in a positive way?" (Buller. 2017).

While these questions may change due to department hiring needs, using the above list or something similar, to develop an onboarding checklist for the new Faculty Researcher ensures that nothing gets lost or overlooked. A consistent process not only informs new hires that their training is important but they, and their job satisfaction, matter to the company. Gaps or inconsistencies in the process creates a frustrating environment. The book *Hire the Right Faculty Member Every Time* surveyed 638 faculty members and administrators from various universities. While the book focuses on recruiting and hiring practices, it offers excellent insight as to the challenges facing faculty onboarding. When asked how satisfied faculty were regarding "selecting the successful candidate, offering the position, and having the offer accepted" (Buller. 2017) the feedback is listed as:

> "0.6% claimed to be completely satisfied.
> 18.3% reported that they were rather satisfied.
> 8.8% described themselves as neither satisfied nor dissatisfied.
> 52.4% said they were rather dissatisfied.
> 19.9% called themselves completely dissatisfied" (Buller. 2017).

This troublesome information points to a declining trend. As Buller points out "1.2% were completely satisfied" with the recruitment process which means "advertising a position and soliciting applications" (2017). As the process advances from recruiting to hiring and transitioning to onboarding this downward trend continues;

> "Worryingly, research has shown that 30 percent of organizations take a passive approach to onboarding. Informal approaches to explaining culture and establishing connection may have developed over time, but there is no one in the business coordinating these activities" (Peakon. 2021).

While the evidence points to a need for a consistent trajectory from recruitment to hiring and through to the onboarding phase, there are other contributing factors that must be examined.

Onboarding Issues: The Human Resources Department is one such contributing factor to the Faculty Researcher onboarding dilemma for a number of reasons. The first reason is a workflow issue. If a department has hired several new faculty members, then each of those faculty members will require assistance with payroll, hiring (staff, students, postdocs), setting up a lab, grant submission and management, as well as required training. Each of those action items takes a minimum of 15 to 30 minutes to answer. Additional time is added for follow up questions as well as coordinating with other people and/or departments such as Information Technology (IT) or Pre-Award staff. This redundancy of workflow is further augmented by the second factor which is the business day. It is easy to see how bottlenecks and inefficiencies occur if a department hired 10 new faculty members as workflow is negatively impacted by the number of working hours in a day. For this scenario only 9 tasks are being used (payroll, hiring staff, hiring students, hiring postdocs, setting up a lab, grant submission, grant management, and training) but it is important to note that faculty onboarding consists of many more tasks. Additionally, time regarding following up on questions and/or looping in other team members/departments is not factored into the equation. The breakdown would be as follows:

> 9 task times 30 minutes to answer/complete = 270 minutes
>
> 270 / 60 minutes = 4.5 hours
>
> 4.5 hours times 10 faculty members = 45 hours
>
> 45-hour week less than the standard 37.50-hour week = 7.5 hours or one work day.

This example illustrates problems with the standard system. Given the nature of the Faculty Researcher position/job requirements coupled with the traditional onboarding process and

Human Resources workflow, the evidence highlights that this method is not robust enough to keep pace with current needs.

It is important to consider that onboarding is not just the responsibility of the Human Resources Department. Many research universities rely on the mentor/mentee method for faculty onboarding. This form of onboarding and its dynamic possibilities is highlighted below;

- “quicker acclimation to the work;
- improved teaching;
- improved research skills and productivity;
- better informed choices regarding service activities; and
- increased social contact with colleagues” (UM-Dearborn. 2021)

While the power of mentoring cannot be denied as mentors “give you good advice … but they do much more … mentors have helped … forge invaluable contacts with people both inside and outside of” my university (Das. 2017). There is a danger in fully relying on this process to onboard the Faculty Researcher.

> “Part of the reason may simply be perspective: Someone who got tenure 30 years ago may not appreciate what it takes to get tenure today. The young tenure tracker may not know, or catch on quickly enough, that the same mentor who is a wizard of statistical methodology is offering awful advice about handling disruptions ... worse is when actual malice is the motivation for bad advice … because he (new faculty) was a threat to their teaching and research turf” (Perlmutter. 2008).

The potential for a new Faculty Researcher to receive poor mentoring because of political or perspective reasons, is why mentoring should be a companion to onboarding as opposed to the main conduit. The outcome of Prof. Lieber and his involvement in the TTP and subsequent scandal may have been a result of faulty or outdated advice from a mentor. His repeated missteps within the Research Enterprise indicate a lack of foundational training as a result of tepid onboarding. In order to combat some of the negative aspects of one-to-one mentor/mentee training, many academic institutions rely on a team of mentors. While that does increase the chances of success for the new Faculty Researcher, it may not provide the necessary structure.

How Other Institutions of Higher Learning Solve Onboarding: Understanding how other universities have solved their onboarding issues, provides insight regarding best practices. For example, community colleges are institutions that fill a unique need. Often times students will complete difficult course work, like Organic Chemistry, at a community college while at home during summer break. Not only do they have more time to devote to one class but they can do so at a fraction of the cost. Other students use community college as a stepping stone completing basic courses before transitioning to a 4-year college. In order to fill that niche need of students, community colleges must have excellent instructors. Community colleges must also have a proven track record of both education and education standards in order for those credits to transfer to a 4-year college. If a community college fails in any of those areas, then a decline in enrollment is an assured byproduct. Therefore, community colleges ensure success for both their students as well as the institution by making sure new staff are successfully onboarded and existing staff complete refresher training. The American Association of Community Colleges highlights the following institutions, Front Range Community College in Colorado, Jackson College in Michigan, and San Jacinto College (SJC) in Texas, and the various ways they have tackled faculty onboarding.

> **“Active learning** – newly hired faculty are required to take part in a two-year professional development experience called Teaching with Purpose (Front Range Community College);
>
> **Implementing Pathways** – ‘intentional time’ with deans and department chairs to familiarize them with how guided career pathways are being implemented at the college (Front Range Community College);
>
> **A focus on student success** - extensive hiring process to ensure new full- and part-time faculty ‘are really dedicated to teaching and student success’ (Jackson College);

> **Building a network -** including people in administration and facilities, as well as faculty – attend a week-long orientation program known as NEO (new employee onboarding) Week (Jackson College);
>
> **Blitz week** – it covers everything they might need to know to survive the first couple of weeks without being lost … that includes briefings by human resources, safety and other staff; instructions on using Blackboard and classroom technology; information about dual-credit students; and advice on teaching strategies, classroom management and assessments (San Jacinto College);
>
> **Classroom management -** New Faculty Academy (NFA) throughout the first semester, with group meetings every other Monday afternoon for cohorts of about 50 to 60 people … sessions during the first semester include a 'classroom management 101 feature' … efforts to train new faculty … contributes to faculty retention (San Jacinto College)" (Ashford. 2017).

The above practices can easily transition to accommodate various methods of onboarding such as remote/virtual onboarding or incorporated to an in person onboarding format or a hybrid option.

Specific Research University Onboarding Practices: While the goal of community colleges and research universities have a similar mission of educating students, practices vary slightly, as does their onboarding. The current JHU/WSE Faculty Researcher onboarding process relies a little bit on orientation and onboarding from both JHU/WSE Human Resources and the department where they are appointed. As previously noted, many institutions of higher learning have developed various methods for their faculty onboarding. JHU/WSE is no different. This is an example of the resources made available to new faculty hires;

> "All faculty are encouraged to attend the annual day-long faculty orientation, typically offered in early October … A wide variety of topics is covered, from how to succeed at Hopkins, to how to progress in your research and clinical careers, to getting promoted, educating students, and so much more. Leadership guides new faculty through typical problem-based case studies so they would be familiar with Hopkins policies on professionalism, compliance, and integrity.
>
> Table talks over lunch feature topics such as technology, writing grants, working in research, diversity and inclusion, establishing good writing habits through writing accountability groups (WAGs), professional development, women in science, and exploring Baltimore" (Johns Hopkins Medicine. 2021).

There are, unfortunately, several reasons why this is not the best approach. The first reason is that this is only a one-day seminar. The amount of information and topics covered is too broad to be properly covered and understood in one day. Each topic could very easily take an entire day to cover thus extending this informative session to 8 days as opposed to 1. While JHU does categorize this as an orientation session as opposed to an onboarding session, the participants may miss pertinent facts, contacts and resources due to information overload. As JHU is a decentralized academic institution, information can be difficult to find. The likelihood that a new faculty member will become both confused and frustrated while trying to find information after the orientation session is a strong possibility.

The time of the year, as well as the frequency of this session is the second reason why this is not ideal. By October the academic semester is already in session therefore new faculty who are teaching may find it difficult to attend. Also, faculty are hired and arrive at JHU multiple times throughout the year. Having this orientation session only once a year, in person and when the academic semester has started, is not the best fit for new employees. While JHU/WSE utilized other onboarding practices, such as the mentor/mentee relationship, examining onboarding procedures is required.

Adopting Other Onboarding Processes: Therefore, one of the ways to improve the Faculty Researcher onboarding process is by examining onboarding for other affiliates within the university. Several onboarding processes used for Research Administration employees can be transferred to the Faculty Researcher onboarding model. Adapting the consistent way Research Administrators are onboarded is a key factor in solving this problem. For example, the section from the Johns Hopkins *Onboarding Toolkit* illustrates the who, what, where, why and when of employee onboarding.

DURING THE FIRST 31 TO 120 DAYS

- Ensure that you have arranged for proper training for your new employee. Much of the training that is needed will more than likely be conducted by you or an employee in your department.

- Talent Management and Organization Development (TMOD) provides a comprehensive course listing to help individuals become effective managers, supervisors and team members. You can also find a course catalog at *my*Learning. Some departmental training topics include:
    - **SAP** training
    - Compliance, Policies and Procedures
    - Information Technology
    - Integrated Student Information System (ISIS)
    - Laboratory Excellence
    - Professional Coding for Medical Specialties
    - Management and Supervisory Training
    - Leadership Development

- Explore SkillSoft online learning options (through *my*Learning)

Figure 1 (Johns Hopkins University. 2016.)

This same learning structure could be applied for the Faculty Researcher; topics such as Conflict of Interest Training, Grant Writing/Proposal Submissions, Lab Management, and many other courses dependent on needs and goals. This class learning could take place a number of ways and styles such as in person, online or boot camp sessions for intense knowledge increase within a specific time frame. Not only would this targeted learning benefit the Faculty Researcher with onboarding and/or professional development but increase compliance and success within the Research Enterprise.

A major finding from the TTP incident was a lack of compliance related to disclosing Conflicts of Interest (COI). Faculty Researchers, as in the case of Prof. Lieber, knowingly and/or unknowingly, failed to disclose COI which goes against internal (university/institution) and external (federal and non-federal) policies. Furthermore, those departments, internal and external, charged with managing those disclosures were unable to complete due diligence.

Reasons for the lack of oversight were attributed to limited staff members and/or workflow issues. In short many offices/departments were unable to manage the data generated as a result of required compliance procedures and/or identify when required action had not been initiated. These examples from the TTP scandal, faculty recruiting/hiring feedback, staff workflow issues, as well as complexity of the Faculty Researcher job type, highlight a deficit and a need for better systems. Being able to manage employees by managing their data is one way to ensure activities, like onboarding, are completed in a timely and correct manner. There are several indications that online options fill a need within the Research Enterprise.

Online Portals: The first example of the benefit of online portals is the National Center for Biotechnology Information (NCBI). NCBI is a part of National Institutes of Health (NIH) whose main function is to:

> **"**a leading source for public biomedical databases, software tools for analyzing molecular and genomic data, and research in computational biology. Today **NCBI** creates and maintains over 40 integrated databases for the medical and scientific communities as well as the general public" (Smith. 201).

As the specialty of NCBI is database creation and maintenance, it is able to house SciENcv "a researcher profile system for all individuals who apply for, receive or are associated with research investments from federal agencies (SciENcv. N.D). Therefore, Research Faculty are able to maintain and update required proposal documents such as their Biosketch, Current & Pending and/or Other Support. Using this portal to create said documents, reduces errors as hard stops are built into the templates preventing the end user from adding too much information and/or exceeding page limits. As NCBI has created other databases, it has the ability to link information internally so users can pull data when needed. When a Faculty Researcher creates a Biosketch they list their contributions to science and related publications. Often times that information resides in PubMed which "contains more than 32 million citations and abstracts of biomedical literature" (PubMed. N.D) and was created by NCBI. The end user is able to search for those relevant publications within the SciENcv portal as opposed to opening up another browser, logging in, searching for information, capturing the data and then circling back to the first portal. Not only does the portal prevent errors but allows for easier completion. Streamlined and unified proposal documents via the portal reduces administrative burden on reviewers and increases the likelihood of funding. This advancement is on a larger scale but there are examples of how the online portal trend benefits singular entities as well.

Recently JHU/WSE trends regarding particular processes, such as employee reimbursements and purchasing, have transitioned from "in-person" to "on line". These transitions occurred pre COVID-19, for a number of reasons. The first reason was the faculty/student to staff ratio. Departments house many faculty members and students yet there are a limited number of staff assisting them. For example per JHU/WSE web site (https://engineering.jhu.edu/partner-with-us/) they estimate there are 200+ faculty members. This total does not include students in undergraduate, graduate and post-doc categories. The typical set-up are a few staff members in the financial track, provide purchasing and reimbursements services for the departments and centers within JHU/WSE. While reimbursement requests, forms and receipts were submitted via email, the process took too long from start to finish. Inefficiencies were attributed to several factors such as the number of requests and the need for multiple follow-up correspondence regarding missing receipts and/or explanations for expenses. Failure to submit reimbursements within the Internal Revenue Service (IRS) timeframe (26 CFR § 1.62-2) (CFR. 2021) meant that affiliates were not being reimbursed for expenses on approved or allotted budgets, such as internal Faculty Start-Up budgets or federally awarded budgets. Failure to spend and reimburse correctly impacts future funding and points to a lack of financial stewardship due to organizational issues. The disjointed workflow caused so many delays and frustration on the part of faculty, staff and students that an alternative method was enabled.

The new system requires that the JHU/WSE affiliate seeking reimbursement initiate the process, including completion of forms and transmittal of receipts, to a portal. The responsible financial manager has several options. The first option is to approve the reimbursement which is routed to Accounts Payable for final processing and payment. While the second option is to reject the reimbursement request which routes back to the requester with instructions detailing how to correct the request and re-submit. The use of online portals has increased both speed and efficiency of employee reimbursements as many people as opposed to a few are responsible for initiating the process. General examples such as NCBI and specific examples such the JHU/WSE reimbursement online portal show how day-to-day processes can not only be simplified but contribute to compliance and overall success for those within the Research Enterprise. Examining how online portals or other online systems can benefit onboarding for the Faculty Researcher is imperative.

Software Solutions: Inter office communication and coordination of action items is always a challenge and becomes increasingly difficult the larger an organization is. Therefore, many organizations are looking towards advanced technologies within the Human Resources profession. Learning Management Systems (LMS) is one of those technologies. LMS is a "software application that provides the framework that handles all aspects of the learning process – it's where you house, deliver, and track your training content" (Shareknowledge, Inc. 2020). The below list highlights the many ways LMS expedites the onboarding process:

1. **"Provide prior knowledge**. When new employees have successfully passed the interview and have been hired, but haven't started working yet, they can be assigned onboarding courses so they'll be well prepared to start working.
2. **Build a corporate culture**. You can minimize the number of orientation meetings. All necessary information about the company, such as policies, rules, goals, and details about its departments, can be informed online.
3. **Track each learner's progress**. An LMS provides advanced reports and analytics on how well each employee is doing during onboarding, sales training, etc. With these results, you can formulate an individual training plan for a recruit or optimize your training programs.
4. **Targeted learning**. You can assign different courses to your employees depending on their roles and level of seniority.
5. **Save time and money**. You can reduce instructor and transportation costs and free yourself from having to find a time that's suitable for everyone. Learning can occur online – anytime and anywhere.
6. **Fast assessment of new hires**. With an LMS, you can easily evaluate the competences of new employees via tests and assignments" (Brandt. 2020).

Not only is it an effective way to store sensitive data but is an efficient way to track employee progress from the initial orientation/onboarding phases to the later stages of professional development. There are also options to generate reports highlighting employee training in many areas which is a must for compliance purposes within the Research Enterprise.

While LMS software was first established in 1990, its use has been becoming more popular over the years, especially with the outbreak of COVID-19. As the global pandemic persists, those in the workforce are preparing for the "new normal". Working remotely or virtually quickly became the standard not only as a way to deter the spread of the virus but as a way to keep businesses working. However, recent trends indicate that virtual or remote working will remain once the pandemic resides. When queried "IBM found that nearly 85% of respondents surveyed in the middle of 2020 wanted to work at home in some capacity after lockdowns lifted, with 58% saying they wanted their main way of working to be remote" (Totah, Zachary. 2021).

LSM software systems, listed below, are ways to both fill in the gaps of Faculty Researcher onboarding process as well as accommodating for issues with Human Resources workflow as well as the ever changing needs of employees working remotely.

Employee Onboarding LMSs: A Quick Comparison Chart

LMS	Type of solution	Distinctive features
1. iSpring Learn	A full-featured LMS that is easy to use for beginners but also offers advanced features and extensive options to create and deliver onboarding training programs.	• Intuitive UI and navigation • Powerful iSpring Suite authoring tool • Native mobile app • Well regarded 24/7 technical support • ‘Per active user’ pricing model
2. LearnUpon	An LMS made to help you to train your employees, partners, and customers. The platform is built to deliver high-quality corporate learning experiences in a scalable way.	• Multiple learning portals • Built-in course creation tool • Testing and survey tools • Social learning features • SalesForce App integration
3. Talent LMS	A streamlined and cost-effective LMS with an intuitive interface and easy workflow that uses blocks to build out content.	• Easy to combine content for building courses • Automated assessments and surveys • Easy HR integration if you use Bamboo HR • Social learning features
4. Docebo	An LMS that offers easy setup and a high degree of configurability. It allows the combination of informal and formal training programs in a virtual and collaborative environment.	• Modular add-on system • Informal and formal learning mixes that are easy to create • Knowledge sharing with AI technology • A varied 3rd party course library
5. Abara	A modern LMS built with a mobile-first approach designed to train an organization’s dynamic workforce.	• Multi-portal setup (based on use cases) • Inbuilt onboarding content • Tools for building courses and assessments

Figure 2: Remote Work Trend (Brandt, David. 2/14/2020).

LSM software is an excellent Faculty Researcher onboarding option. Given the recent successful trends of online portals/databases like NCBI and additional factors such as working remotely as a result of the COVID-19 pandemic, an online onboarding system should be considered.

However, the cost of utilizing this software may be a prohibitive factor and must be understood before transitioning to this option.

While LSM "delivers and tracks educational and training content" (Better Buys Staff. 2021) there are costs associated with this dynamic software. The services and costs are typical, industry standards:

> **"Per learner, per month -** This figure is either calculated based on the total number of users in the system or the number of active users enrolled in courses.
>
> **Per learner, per use -** LMS solutions can include more features, lessons, modules and tools than a company needs. A per learner, per use pricing model allows clients to opt out of certain parts of the software and pay only for what they use
>
> **Per course -** Some LMS vendors have a pay per course option for employees that need special certification for their industry or job function. Vendors might have content available in an internal library or partner with third-parties to deliver lessons through their LMS platform" (Better Buys Staff. 2021).

Other costs such as implementation, training, support and maintenance are additional expenses the end user must also consider when purchasing LSM software. While most vendors keep pricing details private, information is available. This is an example of the fee structure options using Abara LMS:

> "Offers two pricing models: active user (anyone who logs into the system within a 30-day period in a given month) and registered user (anyone who has been registered in the system in a given year).
>
> The tiers are 50 active users ($420 per month or $4,200 per year), 100 active users for $600 per month or $6,000 per year, 250 active users for $900 per month or $9,000 per year, 500 active users for $1,500 per month or $15,000 per year, 1,000 active users for $2,000 per month or $20,000 per year and over 1,000 active users that's based on custom pricing (Better Buys Staff. 2021).

Purchasing LSM software to assist with onboarding and ongoing program development would come at a considerable cost for a larger organization. For example, the table below outlines the numbers for Johns Hopkins University according to College Factual. It is important to note the table “include(s) both those employees designated as either ‘primarily instructional’ or as ‘instructional combined with research/public service … does not include employees that have been identified … as primarily performing research or public service (College Factual. N.D).

	Total	Full Time	Part Time	Percent Full Time
Total of Instructional Employees	1,518	1,479	39	97.4%
Total of Those With Faculty Status	1,518	1,479	39	97.4%
Tenured Faculty	517	517	0	100.0%
On Tenure Track	375	375	0	100.0%
Not on Tenure Track	626	587	39	93.8%
Without Faculty Status	-	-	-	-
Graduate Assistants	486	-	486	-

Table 1 1 Number of JHU faculty

For a large institution, like JHU, the costs could be $15,000 per year or higher if an upgrade to this type of software was to occur. That is why it is necessary to consider general as well as specific onboarding practices previously mentioned. As these concepts, practices and trends (like LSM software) must be thoroughly contemplated to address the needs of the end user (Faculty Researcher) as well as potentially solve the onboarding problem.

Problem Statement: Given the complex nature of the Faculty Researcher job type, does the current system successfully onboard Faculty Researchers or is there evidence in favor of updating the system. This question is important for a research university and their respective departments, like The Johns Hopkins Whiting School of Engineering (JHU/WSE), to understand prior to system dismantling and new system rebuild or install. What would the ideal onboarding system would be composed of and how it would operate.

Failure to address these issues leads to job dissatisfaction with increased chances for non-compliance. This thesis entitled "*Onboarding Faculty Members to be Successful within the Research Enterprise: Making a Case for Changing Best Practices*" explored current faculty onboarding systems to determine if transitioning to a new system would be beneficial for The Johns Hopkins Whiting School of Engineering (JHU/WSE).

Chapter 3

Methodology, Topics and Limitations:

Explanation of Methodical Approach: In order to ascertain if transitioning to a new onboarding system would be an appropriate action for a university like JHU/WSE, an investigation regarding the current methods was conducted. Both quantitative data (expressed in numbers) and qualitative data (expressed in words) was obtained to understand what systems worked best; the standard system already in use at the university or an improved system. This information also provided insight from the end user on what was/was not required in an onboarding system. Since the input of the end user (Faculty Researcher) was needed, it was determined that 3 examples from research papers containing surveyed data was used with respect to changing the current system. Note that each example will contain the methods of data collection, results and discussion. How these cases impacted this current study will be examined in a separate section listed as **Discussion/Findings**.

Example number 1: The Case for Revamping New Faculty Orientation: Integrating Case-Based Learning Into Faculty Onboarding (Siddiqui, et. al. 2018).

Methods of Data Collection: An inventory of topics presented at NFO was generated by reviewing previous orientation sessions. Cases and discussion questions were developed to link to specific content areas from previously delivered lectures. Participants were assigned cases with discussion questions, followed by a large-group debriefing. In 2014, 105 faculty members participated in NFO. An additional 232 faculty members participated from 2014 to 2017 with the revised format.

Results: Participants completed evaluations following each session. A specific item gauged the effectiveness of the format on a 9-point Likert scale. Scores were compared to 2014 evaluations using the unpaired Student *t* test. In 2014, participants rated the program format as 7.17 (mean) out of 9. Faculty orientation sessions in 2015, 2016, and 2017 scored 7.90 ($p < .05$), 8.00 ($p < .05$), and 8.40 ($p < .01$), respectively.

Discussion: We proposed a new format for NFO using a CBL-based format. Feedback highlighted faculty satisfaction with the new format. Qualitative feedback suggested that this new design in NFO sessions promotes learner engagement, networking, and collegiality. The format also models a pedagogy that faculty can implement directly in their respective teaching environments.

Example number 2: Evaluation of a Structured Onboarding Process and Tool for Faculty Members in a School of Pharmacy (Baker, et. al. 2019).

Methods: An assessment of a previously existing, informal onboarding process was conducted from January 1 to February 28, 2017. A structured onboarding tool was developed based on interviews with nine recently hired faculty members regarding their experiences with this legacy, unstructured onboarding process. Nine faculty members who onboarded while the legacy onboarding process was in place and six faculty members who onboarded after the new, onboarding tool was in place were included in the study. The experience of the pre-tool cohort was compared to that of the post-tool cohort.

Results: More positive responses in the post-tool cohort were obtained compared to the pre-tool cohort in regard to timeline, expectations, and mentorship. More negative responses for the post-tool group were observed for communication. Overall utility of the onboarding tool changed from 56% (pre-tool group) to 80% (post-tool group). Free text feedback included recommendations to rearrange tasks throughout the onboarding process; clarifying mentor responsibilities and expectations; and providing an overview of the checklist to new faculty members on day 1.

Conclusion: Overall, a structured onboarding process tool improved the onboarding experience for new faculty members. Given the lack of literature regarding a structured onboarding process in the academic setting, further refinement and analysis of the onboarding tool is needed.

Example number 3: Supporting researchers through full-service hotline and consultation services: Success in simplicity, customization, and staffing (Brouwer, et. al. 2020).

> **Methods:** Duke University's 12 schools and multiple institutes and centers house talented research faculty responsible for conducting a broad range of scientific research – from bench to bedside to population. Researchers hold appointments in various departments, and each department has its own method for onboarding, orienting, and supporting its faculty. Brief group orientation sessions are offered annually to new faculty by the university and School of Medicine (SOM), covering only general topics of broad interest (promotion and tenure, the history of Duke, etc.) and focusing largely on clinical science. Ultimately, to determine the best means for accomplishing their individual research goals, researchers needed to rely on advice from busy mentors and staff, scour newsletters, or learn through trial and error. The myRESEARCHnavigators (MRN) team, funded by Duke's Clinical and Translational Science Award, sought to improve onboarding and ongoing guidance for researchers by providing high-quality support via two new services.
>
> **Results:** Both services are accessed by a variety of researchers from across the institution … The range of topics is incredibly broad and covers finding resources, interpreting policies and regulations, and assisting researchers in understanding the processes … The navigation hotline is simple in concept and delivery, and appears to meet the needs of most of its customers, as evidenced by its 90% four- or five-star ratings. In addition, 27% of the 479 users have returned to ask additional questions … Researcher onboarding launched more recently has already been viewed very favorably by faculty, likely due to how the service is deeply tailored to the needs of each individual. As of June 2019, a total of 472 researchers have been offered the service and 84% accepted, and 382 have completed. Of those who completed the satisfaction survey ($N = 152$), 99% have given the service 4 (15%) or 5 (84%) stars. The uptake of the service fluctuates with the timing of new faculty hires, with high-volume months exceeding 25 researchers per month, and low-volume months hovering between 4 and 10. The service is required for SOM new faculty as of July 1, 2019.
>
> **Conclusion:** The simplicity of the navigation hotline service appears to be a strength; people inherently understand the concept of a hotline, and the intake process is as simple as submitting a question. Those who use the service provide high ratings, and more than a quarter have come back to ask additional questions. A challenge that remains for the hotline service is the lack of awareness that the service exists. This is somewhat ameliorated by the opportunity to talk about it in person, one-to-one, during onboarding.

Methods of Analysis: See each study example for describing the methods of analysis (see appendices for charts of research findings).

Evaluation of Methodological Choices: Reviewing the examples from other research publications was the best option for a number of reasons. The first reason was most campuses were either closed or operating on a limited basis due to COVID-19, making it difficult to obtain in-person or paper surveys from JHU/WSE affiliates. The next reason was the research previously conducted within the three examples consisted of a larger survey group and in some cases for a longer period of time. This allowed for greater understanding as to what processes worked or opportunities for improvement. The final reason was the anonymity provided by utilizing previously collected data as well as figures from other studies. The JHU/WSE Faculty Researchers were prevented from being placed in a potentially uncomfortable position by sharing potentially negative feedback about their institution. These reasons presented a viable option to use previously collected data from published papers with a new interpretation of the results.

There are limitations with this method. As this data is being used from other studies there is an unknown factor regarding how the data was obtained and analyzed. However, as all of these articles are published they have been subjected to the peer review process. Therefore, the data as well as the overall research findings should be considered appropriately vetted. Another limitation with this method is understanding if there is an actual need to update the onboarding system for JHU/WSE faculty. A new study would need to be obtained to assess current faculty needs. Therefore, given the potential cost of implementing a new onboarding system, this study should serve as evidence for the reasons why an update should be considered.

Chapter 4

Results of the study - themes

Project Results: The theme of reviewing these three examples was to understand if the evidence supports a transition to other methods of faculty onboarding. The feedback provides perspectives regarding what must be included a new system for greatest benefit for the end user as well as insight as to how it should look and function.

Relevant Research Results: See each study example describing relevant research results.

Unexpected Research Results: The method of in-person or personal connection/communication is a powerful method of onboarding as well as continued professional development for faculty.

Chapter 5

Discussion on Findings:

Interpretations: The three study examples show there is a need to update to the faculty onboarding process. The studies show the increase of faculty satisfaction with the process as well as increased learning/understanding of what is required of them is a direct result of updated onboarding processes. Also, given the recent successful trends of online portals/databases like NCBI and additional factors such as working remotely as a result of the COVID-19 pandemic factors into this need as well. This new process should be structured that takes place in-person and on-line. An ideal onboarding system would be composed of the following sections.

How would it work: The online portion of this hybrid system should act as repository for forms, templates, points of contact, FAQs and other information to reduce overall administrative burden for faculty and staff. It must be flexible to accommodate the many researcher types as well as robust enough to manage users via data. The ability to transition faculty search and hiring criterion into the portal and map out appropriate new hire training would eliminate gaps found in the current system. This portal should reduce errors and increase efficiency and success for the Faculty Researcher. For example, the newly hired Faculty Researcher could log into and view their personalized dashboard. Ideally this access would take place before their start date in order to complete paperwork and any orientation training prior to campus arrival. Once this process was completed, forms would automatically workflow to the appropriate departments. This would allow those departments, like Human Resources, to initiate workflow processes ensuring that the new employee is active in the appropriate systems like payroll. Not only would this dashboard be a tool for onboarding but continuing professional development throughout their tenure as well. The portal would be the central hub for the Faculty Researcher as it would contain a plethora of resources.

What it would contain: The dashboard would be organized by various widgets. Each widget would be divided by category such as Onboarding, Professional Development, Administrative Contacts, Forms, Training both required and optional (Teaching and/or Research), Mentor Information/Contact, Tenure Track Timeline/Progress, Pre-Award, Current Award Information, Conflict of Interest, Publication Development/Management, and Curriculum Vitae Development/Management, Helpdesk Hotline number/email, (list not exhaustive). There would also be a function to search and add widgets to the Faculty Researcher's dashboard. For example, if a faculty member was working with a corporate sponsor, they (the faculty member) would need information (and subsequently widgets) on Intellectual Property, Material or Tech Transfer. Theses widgets, like the others, would include forms, policy, instructions and contact information. Similar to how NCBI is able to pull information across databases, these widgets would function in the same manner. Also, site administrators could add forms and information whenever federal sponsors updated information such as when the National Institutes of Health updates salary information with respect to proposal submissions.

In terms of training, regardless if the Faculty Researcher chooses online or in person training, there will always be a knowledge check portion of the class via Case Based Learning (CBL) to gauge trainee understanding. Naturally if the class is taken online, the knowledge check will take place internally via the dashboard training widget. While in person classes will take place with shared computer workstations; users log on with their university credentials so the system can capture their participation. Regardless of the option, the software will be able to assess their training and progress to see if any additional training or information is needed for the Faculty Researcher. In person training should have boot camps throughout the year for Faculty Researchers on topics such as The Basics of Grant Writing/Proposal Development to understand the process, avoid pitfalls and have a greater chance of securing funding. These in person classes would also promote new connections not only with other Faculty Researchers but administrative staff as well. Data has shown that activities like these increase employee satisfaction and retention.

Overall the hybrid system would provide Faculty Researchers with a greater understanding of processes within the Research Enterprise. This understanding translates to increased compliance which mitigates risk for the faculty member and the university.

What to avoid: Avoid relying on one process to complete onboarding. For example, an onboarding system should not totally rely on mentoring. While mentoring is effective, either in a one on one setting or a cohort, the onboarding process is simply too broad a task to be completed via this method. Additionally, the onboarding process should not be exclusively on-line as new faculty receive immense benefit from in-person guidance and communication. However, it is vital that content which is available on line is also available in person and vice versa. This fluidity will ensure that all learning styles are accommodated and learning can continue in the event of another COVID outbreak/pandemic. Avoiding certain processes while maintaining others is key in creating a successful onboarding system.

How to assess: It is necessary that this hybrid system meets the needs of the Faculty Researcher. Therefore, feedback regarding this system should be collected on a biannual basis. This feedback would need to be analyzed to understand the rates of satisfaction or dissatisfaction via statistical data. This will provide the university guidance on what is working and any improvements needed to the system and its content. Any and all training content should include feedback that will be included towards the biannual data assessment. Additionally, there should always be an option to email the helpdesk with questions, comments, concerns. It is important to note that these emails will also be included in the biannual report.

Implications: The results of this study matter as recent trends indicate there will be a shift towards more compliance and regulations by federal sponsors. Therefore, research universities must be proactive in their training approach. Failure to find robust solutions to activities such as faculty onboarding could be detrimental. Non-compliance and other negative consequences associated with not understanding the Research Enterprise landscape are a most likely scenario.

Limitations: The results do not detail how JHU/WSE Faculty Researchers feel about their specific onboarding program. Also, there is a lack of data supporting if faculty (at JHU/WSE or elsewhere) would use the portal. Therefore, another interpretation of the data indicates that more studies are needed.

Conclusion: Regardless if the system is in-person, online or hybrid, dynamic onboarding is a must as Faculty Researchers play such a pivotal role within the Research Enterprise. When the Faculty Researcher has been afforded the proper foundation through onboarding, only then are they prepared for a successful academic research career.

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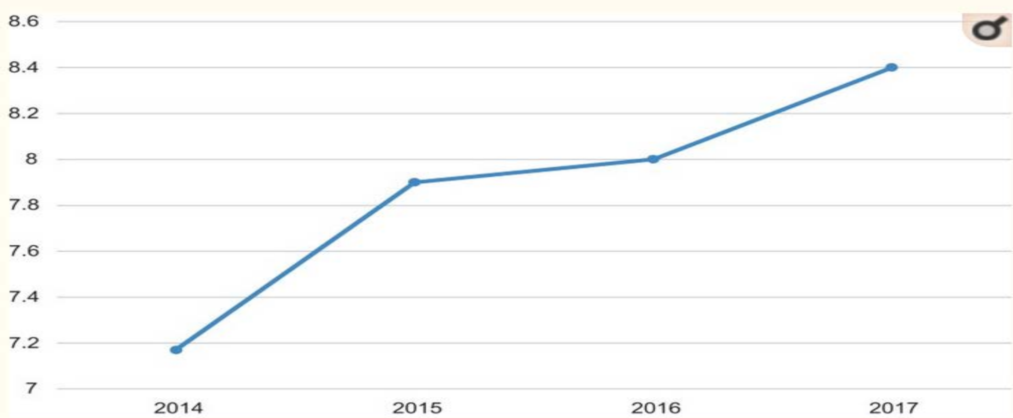
Appendix A: Results from Example 1

Example1: Results of faculty onboarding using the Cased Based Learning (CBL) methods highlight the increasing success/satisfaction with respect to faculty onboarding:

Figure.



Open in a separate window

Effectiveness of new faculty orientation (NFO) format. NFO participants were asked to rate the effectiveness of the NFO format on a 9-point Likert scale. Scores of 1–3 indicated that "case discussions were limited, and not much was learned." Scores of 4–6 indicated that "cases sparked interest but were valuable educationally." Scores of 7–9 indicated that "cases were engaging and elicited multiple viewpoints." The case-based learning format for NFO was first implemented in 2015. The effectiveness score in 2014 was 7.17. Average effectiveness scores for years 2015–2017 with accompanying *p* values in comparison to 2014 were 7.90 ($p < .05$), 8.00 ($p < .05$), and 8.40 ($p < .01$), respectively.

Appendix B: Results from Example 2

Example 2: Shows the difference between unstructured onboarding vs. structured onboarding

Table 3.

Survey Responses of New Faculty Members Hired Before and After Implementation of a Structured Onboarding Process and Tool

	Pre-Tool Group (n=9)			Post-Tool Group (n=5)		
Survey Question	**Strongly Disagree/ Disagree, %**	**Neutral, %**	**Agree/ Strongly Agree, %**	**Strongly Disagree/ Disagree %**	**Neutral, %**	**Agree/ Strongly Agree, %**
Prior to my first day, I understood the necessary paperwork and training I should complete	34	22	44	40	20	40
I received an itinerary outlining my first day, which included parking and the name of my departmental point-person	34	11	55	0	20	80
I felt welcomed by faculty members and staff on my first day	11	0	89	0	0	100
I felt I had the tools I needed to begin my job within the first week (computer, badge, online access, etc.)	11	0	89	20	40	40
Within the first month of employment, I understood the expectations of my position	0	11	89	0	0	100
Within the first month, I had a clear understanding of the organization's mission, vision, and values	0	34	66	0	0	100
I was provided onboarding orientation and training in a timely manner	11	11	78	0	0	100
I was provided a mentor who was available to assist me when needed	34	44	22	40	0	60
Within the first month, I knew which resources and people could answer my questions	11	22	66	0	20	80
I felt the onboarding process was an effective way to orient me to the school of pharmacy	11	34	55	0	20	80

Appendix C: Results from Example 3

Example 3: Types of services accessed (fig 1) and types of questions asked (fig. 2)

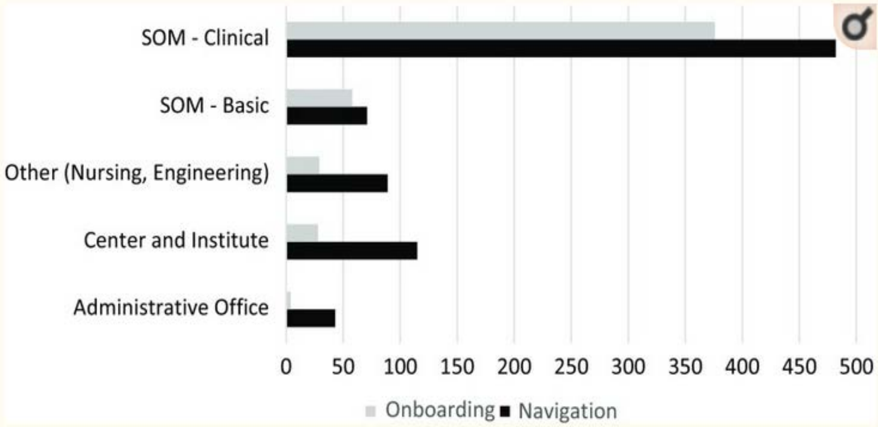


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Fig. 1.

Services accessed by the School of Medicine (SOM).

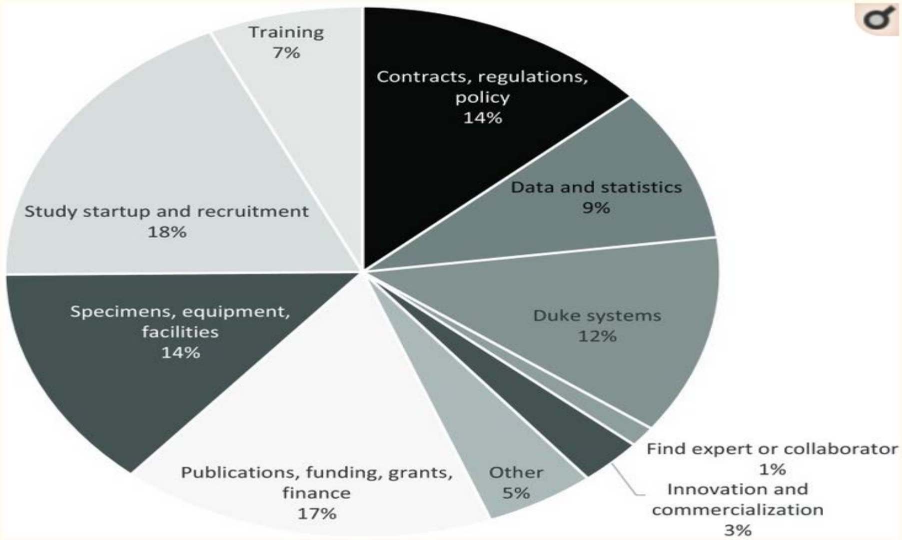

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Fig. 2.

Number and types of questions handled by the navigation service ($N = 800$).