Implementation of a new research discovery tool by the university libraries at Cornell University and the University of Florida

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Abstract

The increasingly interdisciplinary nature of academic research and scholarship means that researchers seek potential collaborators, campus resources, events, and publications of interest. Given the sheer size and decentralized models found at many research-driven institutions, this is often difficult, even on their own campuses. Additionally, libraries often struggle with finding ways to serve the cross- disciplinary information needs of academic departments, students, and the public. VIVO (http://vivo.cornell.edu), created by the Cornell University Library, is a fully-searchable research discovery tool available for use by interested academic institutions. The University of Florida Libraries are a recent developer of their own version, GatorScholar (http://gatorscholar.uflib.ufl.edu), which displays faculty and department information, including grants, employee and course information, as well as publications harvested from a variety of sources. Based on an ontology editor and semantic web application that establishes relationships between information entities, the VIVO system is valuable because it is open source, very flexible, allows for greater inter-linking of entities to create communities, and does not require ground- up programming to begin implementation.

Development of a university-wide research discovery resource such as this involves work on multiple fronts—including the information harvesting as well as dissemination process, web design and branding, and integrating the system into existing faculty reporting or website updating processes. Successful implementation of this type of resource therefore requires support from university and library administration, departments, and academic colleges and their deans. Additionally, coordination is extremely important as the project requires significant collaboration among team members. This paper will address the rationale for this type of tool, the varying approaches each institution took to develop VIVO and Gator Scholar, to obtain campus support and implement this resource.

Background

VIVO was developed at Cornell University in response to two interdisciplinary initiatives: the New Life Sciences and Social Sciences Initiatives, which represented a rapidly changing academic environment emphasizing increasingly collaborative and inter-disciplinary research and scholarship. The New Life Sciences Initiative (NLSI) launched in Fall 2002 implemented a "department open" faculty hiring policy. The Institute for Social Sciences was established in 2004 to reflect the inter-disciplinary mandate of the Social Sciences Initiative. A key organizing principle of these initiatives was *interaction*, and the shared goal of *catalyzing a network* of campus-wide research and educational activities to draw together scholars from a variety of disciplines "...in an atmosphere where traditional departmental and college boundaries become secondary to the intellectual work itself." *(NLSI website:*

). Other academic fields (engineering, physical sciences, mathematics, and the humanities) were beginning to reflect these principles as well.

Librarians at the Cornell University Library realized that in order to work successfully within this new model, academicians needed an easily accessible, flexible, integrated view of disciplines from across the intellectual spectrum, which they could then transform into a research program calling on multiple disciplines. There are 14 colleges on 4 geographically distant campuses at Cornell, with faculty, staff, and students working on issues of interest to life and social scientists, engineers and physical scientists, doctors, veterinarians, and humanists in almost every college. These scholars—as well as staff and administrators attempting to showcase or publicize research (e.g., the News Service) or attract donors (e.g., the Office of Alumni Affairs and Development)—found themselves in poorly charted terrain, facing problems in multiple arenas, including:

- Presenting an integrated representation of their broad subject area (e.g., life sciences) to the Cornell community and beyond (the public, prospective donors etc.)
- Navigating from one relevant "data point" – e.g., a page on a department website – to similar activities elsewhere at Cornell
- Identifying appropriate collaborators/area experts, courses, events, and research technologies and facilities within and beyond their domain
- Following recent Cornell research activities and publications
- Staying competitive in recruiting faculty and students

In response to concerns expressed by faculty involved in the New Life Sciences Initiative, the Cornell University Library recognized in early 2003 that as a neutral entity with a clear mandate and strengths in the curation, management, and dissemination of information—both print and digital—it could alleviate many of these problems. To that end, the Life Sciences Working Group, a multi-disciplinary group of science librarians with expertise in fields ranging from chemistry to veterinary and human medicine, was created. The group envisioned a life sciences portal for students, faculty, staff, and administrators at Cornell, as well as donors and the public to find people of interest, and learn of educational and research activities, events, and resources at Cornell. VIVO came into being to electronically represent the full potential of Cornell's life sciences presence, but was extended in 2006 to allow seamless, searchable views of research and scholarship across all disciplines at Cornell, no matter what subject area a particular topic belonged to. It has never been intended to replace the myriad research and public information websites at Cornell (the total Cornell search space exceeds 10 million pages), but instead provides a discovery and navigation layer above these, allowing users to follow connections across Cornell based on common subject areas, affiliations of individual faculty and researchers, organizational units, or resources independently of administrative boundaries.

Cornell University: Acquiring support

From its inception to 2006, the development of VIVO-life sciences was supported by the Cornell University Library. Medha Devare was hired as the bioinformatics specialist and "scientist embedded in the library" in 2004 with the intention of providing VIVO-life sciences with a coordinator who could

perhaps formalize the grass-roots VIVO effort by eliciting support from faculty and administration. Much of Medha's time through 2005-2006 was devoted to outreach for VIVO, through demonstrations and question-answer sessions during department and other unit meetings, NLSI gatherings, and meetings with individuals. The two Vice Provosts for Life Sciences and Social Sciences were very supportive of VIVO after such a demo, and saw its potential as a tool to connect people not only in the life sciences, but across the entire university. They invited the VIVO project team to submit a grant proposal, and the team received funding in 2006 to extend the VIVO-life sciences model to the university as a whole. The Office of the Provost recently approved funding for another three years to continue improving and refining VIVO for all of Cornell.

Cornell University: Implementation

VIVO was initially developed as a custom relational database application programming interface (API) and storage model, but the code was migrated in 2006 to a more powerful and flexible open-source semantic web application framework known as Jena (http://jena.sourceforge.net/). Jena was originally developed by the HP Labs Semantic Web Program, and has emerged as a leading development platform leveraging standard data formats: the Resource Description Framework (RDF) and the Web Ontology Language (OWL). In summary, VIVO uses an entity-relationship ontology model to organize and present information on people, research, and education activities. The basic premise of VIVO is to not only consolidate data from a variety of sources and present it in an organized fashion, but to also serve as a disseminator of information to potential consumers (web pages, databases) across Cornell.

Content was initially gathered into VIVO manually by student editors, but now includes automated retrieval from existing Cornell databases and college faculty reporting mechanisms where possible. Technical goals for VIVO reflect the overriding mandate to create a sophisticated and sustainable new information resource of value—particularly in terms of currency and accuracy—for the Cornell community, which requires reducing manual data entry and editing while providing more power and flexibility for managing, retrieving, and displaying content through direct and indirect associations among data elements collected from diverse sources. In addition to the data gathered from faculty reporting systems in several colleges, the automated feeds implemented to gather content from authoritative sources across the university include:

- o Name, title, and primary departmental affiliation of all Cornell faculty and academic staff from the PeopleSoft human resources database,
- o grants from the Office of Sponsored Programs data warehouse,
- o courses from the Registrar's database, and
- o publications from the Cornell University Library literature databases Biosis and PubMed.

Content types added to faculty profiles manually by typically include:

- o News items and event information,
- o pictures of faculty or photos in news items,
- o data from faculty and Cornell web pages not yet available via faculty reporting or automated feeds (such as educational background, awards and distinctions, etc.)

VIVO has its own native search functionality powered by the Lucene open-source search engines. While Lucene supports ranking, VIVO's default search display categorizes results first by type rather than relevance ranking. For example, a search for "water" shows results organized into categories such as people, activities, organizations, online resources, and publications, providing rapid access to exactly the sort of information sought. Each of these entries then links directly to the original resource, whether that is the full text of a recent article, the web page describing a faculty member's research, or a new genomics service. The important point to note is that the people appearing here are from several of Cornell's departments and almost every college, clearly illustrating the cross-disciplinary functionality of the database. Cornell's primary search page will undoubtedly return results as well, but because the context and the typing of results are missing, the user has to spend time scrolling through multiple pages to find the information of interest to him/her.

VIVO's campus-wide, cross-referencing search capability and large index of life sciences researchers, resources, and facilities make it a core service whose timeliness and need at Cornell and beyond are becoming clear to faculty and administrators alike, as evidenced by some of the comments we have received:

"*...VIVO helps build a "virtual" research community...[which can] have several advantages – it is fluid, can change relatively rapidly and can present itself in more interesting ways to the rest of the world than more traditional structures.*"

"*As an administrator, it is often difficult to access information in a manner that is quick and in a form that is useful. VIVO and the CALS portal could be a major step forward in reducing the amount of time we spend collecting information and in better utilizing [it].*"

"*Vivo provides unparalleled access to information about the life sciences at Cornell in a user-friendly way. This will be of particular benefit not only to those researchers and students already at Cornell, but potential faculty and students as well, by offering a much-needed, integrated view of the life sciences community at Cornell.*"

"*VIVO saved my life as a new faculty member at Cornell; I used it all the time to find facilities and people I might work with.*"

Rapid, well-organized access to information across disciplinary, structural, and geographic boundaries had not been possible at Cornell until the development of this database. VIVO seeks to reach the widest possible audience by leveraging – not supplanting – existing online descriptive information to allow the materials prepared by information providers within the life sciences to be discovered via as many paths as possible.

VIVO is helping to change the culture of information technology at Cornell by harnessing data from centrally managed data warehouses and providing integrated but appropriately filterable views to distributed units. From the perspective of the central IT administration, VIVO affirms the value of their new service-oriented architecture (SOA) model. For the distributed units, VIVO delivers a rich, consistent feed of data never before available from a single source while also providing additional visibility on websites across the university. From the perspective of the library, VIVO fosters closer relationships with academic units and individual faculty while showcasing the library as an active, engaged partner that

uses its information management capabilities in innovative ways to support the intellectual life of the university.

Providing cross-disciplinary views across universities is invaluable in this era of the need for increased collaboration among scholars and scientists. We anticipate that VIVO, and services like it, will only gain value by providing educational and research information in the life sciences, and catalyzing the formation of synergies and linkages to the mutual benefit of researchers, students, administrators, and donors. In short, VIVO embodies a virtual community, the creation of which provides a hitherto missing but necessary service that enables stakeholders to participate in and partake more richly of the life sciences at Cornell.

University of Florida

The development of VIVO for the University of Florida (UF) grew from a variety of campus discussions and changes in departmental expectations and needs. To begin, the Institute of Food and Agricultural Sciences (IFAS) discussed the abandonment of a home-grown internal employee management database. UNIFAS, as the database was called, functioned as a reporting system for all teaching, research and Extension tracking and contained employee, publication, and departmental information for all employees. UNIFAS also acted as a journal tracking system for Extension documents and as a reporting resource for tenure and promotion. At that time, each IFAS employee manually inputted citation information, a process fraught with title authentication issues and moments of frustration for faculty with little time on their hands. Additionally, UNIFAS was primarily an internal system; of all the information contained within the system, publication listings were the only data available for the public to view. One of the criticisms of this system was that the manual inputting of information restricted ways to create output. In the summer of 2007, an IFAS committee was created and charged with examining the most frustrating aspect of UNIFAS: publication tracking. This committee explored the feasibility of downloading article citations from external databases into UNIFAS and possible ways to initiate and manage that process. Librarians were invited to this meeting due to their expertise with databases and online searches. Sara Gonzalez, the UF Physical Sciences Librarian, had been manually creating publication listings for three of her departments and was able to speak about her difficulties in managing publication lists for these departments. Challenges included compiling an accurate departmental list, selecting appropriate databases to retrieve publications, removing duplicate articles, and dealing with name disambiguation.   Valrie Davis, the Agricultural Sciences Librarian, was familiar with many of the issues IFAS faced and had recently learned about VIVO at an agricultural sciences conference. Sara and Valrie believed VIVO fit the needs of the IFAS community and presented it to the IFAS committee. The VIVO model was well received and the committee recommended the development of procedures in collaboration with the science librarians to download citations from external databases, and for continued exploration of the VIVO model.

Soon after the IFAS recommendation was delivered, IFAS announced its decision to decommission UNIFAS, and require faculty to instead manage their personal publications using EndNote Web. Sara and Valrie took this opportunity to explore VIVO as a tool to link researchers and publications and to increase the library's involvement with campus research. One of the first questions encountered was why the

library should be involved in this type of initiative. There are many skills unique to the library, such as knowing how to organize data and produce accurate, harvested publication lists that make VIVO a valuable library initiative. As the library is central to all research activities of the university, with every department assigned a subject liaison, the library is both unique to all other organizations on campus and in a position to implement such a resource. Additionally, harvesting publications from databases and displaying them would support the overall mission of the Libraries to meet the information needs of the University of Florida community by providing access to all relevant forms of recorded knowledge while simultaneously creating an excellent marketing tool and avenue for outreach for the library.

Acquiring Support

Obtaining development support has been a slow process, with small increments of support leading to further development which, in turn, has led to a greater level of support. Cornell offered initial server space for the UF librarians to begin manually populating a UF version to present to library administration. Sara and Valrie populated the hosted resource with information from several departments and used that prototype to apply for an internal UF Libraries' mini-grant. The mini-grant program provided up to $5,000 in funding for library projects. The mini-grant proposal included: a link to the beginning database, project description and objectives, a project plan (including the types of data we planned to collect and input), a list of 28 science departments to be included in the first year of development, a timeline, and a method of assessment. In addition, two IFAS faculty members supplied letters of support. We received the full funding and were able to begin "phase I" of implementation. Phase I steps would eventually lead to the purchase of a library server, and the implementation of phase II. The UF Libraries are currently finalizing phase II and entering phase III, outlined in the Future Directions section of the paper. The following section of this paper will outline the steps taken during the different phases of implementation.

Implementation

Phase I of implementation began in December 2007 and included: the development of training documentation; the hiring of a student (Kaylene); the manual inputting of information; a two-day training session at Cornell; and, finally, the assignation of a new name, GatorScholar. To begin, Sara and Valrie created documentation on how to manually add employee information to the database and how to link those employees to an existing department. UF decided to include only faculty in phase I and Kaylene was briefed on the various types of employees who fall under faculty, including: Professors, Courtesy Professors, Extension Agents, Emeritus, Lecturers, Scientists, and Associate-Ins. Kaylene contacted office assistants for the chosen science departments, using a letter template, and began populating the database with names, titles, and department affiliations. She then supplemented the names with faculty research information obtained from individual profiles and curriculum vitae found on departmental web pages. To the surprise of several, Kaylene finished all 28 departments within several weeks and UF decided to include six additional science departments, for a total of 34 departments. Eventually, Kaylene would input information for three colleges (IFAS, College of Engineering, and College of Liberal Arts and Sciences), including 1,482 people, 128 centers and institutes, 133 facilities, and 2,474 publications. While inputting faculty information, one of the difficulties Kaylene faced was assigning

affiliation. Much of the research at UF is interdisciplinary, and faculty were oftentimes listed within multiple departments and on center or institute pages. Kaylene had to take care to not add faculty twice, but instead to assign multiple affiliations to an individual's profile. Center and Institute information would also be found on the departmental pages, but would not present any significant challenges. On the other hand, publication harvesting would prove to be a difficult task, as already recognized by the IFAS publication sub-committee.

At UF there were many sources where faculty publications could be harvested, including UNIFAS, vitas, departmental websites, and subscription databases such as Web of Science and PubMed. Eventually other types of data, such as employee information, grants, and courses, would be dynamically harvested. Faculty publications could never be completely dynamic because, up until this time, no UF resource has listed all faculty publications, and many publications are not indexed by any subscription database. Publication management requires harvesting from subscription databases and places such as UNIFAS, as well as manual inputting of citations found on departmental pages and in vitas. Locating publications in databases requires the careful development of searches by subject librarians familiar with the research within their assigned departments. Using Web of Science as an example, the majority of publications can be harvested using author affiliations such as "Univ Florida." Unfortunately, many publications do not have the institution listed and require a combination of name ("Smith J*") and alternate affiliation ("Univ Florida" or "Soil and Water Science"). Using these search methods, a substantial list of current publications was created. Publication lists were then sent by the subject librarian to the academic department for approval. Faculty then notified the librarian of any incorrect or missing citations. Based on that feedback, future database searches were then refined to produce more accurate results. This process was successful in retrieving the majority of current institutional publications. Past publications can be located using vitas and websites, or can be manually inputted by faculty or librarians.

The mini-grant also provided funds to send two librarians and one library programmer to Cornell, Ithaca, for a two-day training session. This training provided a chance to learn more about how VIVO is used at Cornell, about recent technology developments, and about working with simple ontologies and statements. The teams also discussed the challenges of using VIVO for academic reporting and of customizing portals to meet the needs of smaller segments of campus. UF's programmer, Winston Harris, met one-on-one with Cornell programmers and learned how to download Vitro and the software that would be required installation on the local server. Winston also attended a hands-on data ingest workshop, to learn about dynamic harvesting from local data sources. While programmers were meeting, Sara and Valrie met with web developers and data curators to learn more about the challenges of maintaining VIVO and to consider the various strategies for publication harvesting. To conclude, the teams also discussed possible future collaborations, such as a multi-institutional model. The UF team returned home with a greater understanding of the software and system required for implementation of a locally hosted system and excitement over the future possibilities for development.

Upon returning from Cornell, with student funds running low and facing the need to enter phase II of development, UF's last step was to hold a contest to identify potential names for the new database. The team hoped to find a name that was short (similar to VIVO), would encapsulate its overall purpose and function, and would provide a memorable URL. Solicitations from faculty, staff and students garnered

more than 20 submissions. After the team narrowed the submissions to four possible names, they sent a survey to the library community to choose the winner. GatorScholar was selected, and the winning submitter was awarded a $25 Amazon gift certificate.

By August 2008 UF had a manually populated database, a new name, and the basic knowledge of how to implement a local resource. The next steps were to present GatorScholar at library meetings, to library development officers, and to departmental meetings with the hope of securing funds to purchase a server. By November the necessary funds were secured, and the local server was in place by the beginning of December.

Phase II began with the transferring of Cornell hosted data to the new UF server. Implementation went smoothly, although there were questions as to whether a library second level domain would be a good way to give the library proper credit. Conversely, using a third level domain name could potentially assist with faster campus adoption, as faculty might use URLs on business cards (gatorscholar.ufl.edu/name) and the resource would be seen as having larger campus support. In the end UF placed GatorScholar within the third level domain, leaving a future possibility of applying for a second level domain.

As our library programmers were busy with projects other than GatorScholar, Sara and Valrie tackled interface and branding changes. Cornell had created several different interface themes, including the primary current VIVO theme, the previous version, and one designed for their life sciences portal. Initially UF used the previous version but after Cornell applied new functionality to their primary theme, UF thought the new clean design would be best for eventually 'selling' the resource to the campus community, as well as for eventually integrating the new login functionality. The themes are composed of a large number of CSS and .jsp files. In addition, the primary home tab includes an added interface for changing the main body of the home page. With the new theme in place, the team needed to add the UF logo, change all links, properly program the search boxes to retrieve UF data, and add links to UF's institutional repository. In the end some branding was easily accomplished by librarians with some knowledge of CSS, such as the addition of logos, changes to the tabs, and some superficial textual changes. Technical assistance was requested from UF programmers to change the search parameters and from Cornell web developers for some complicated CSS changes.

With dynamic harvesting as the next, and potentially most important, goal, it was time to begin the preparatory work for harvesting. GatorScholar listed 1,482 people with no identifying number and, thus, no way to match existing employees with people listed in the Human Resources' PeopleSoft database. As the UF identification number is generally not listed on public resources, and yet was the only ID number available to match employee information, the team needed to add that number to all existing profiles. After our programmer suppressed the UF ID field from searching or public view, the student assistant began adding numbers found within the library circulation system. Overall this process went smoothly. A few exceptions occurred when emeritus faculty were not listed within the library database, when names had been changed due to marriage, or when faculty used alternate first names on their departmental profiles. Librarians worked with changed or alternate first names and the student deleted GatorScholar profiles for emeritus. The team maintained a file of those names, to double-check accuracy after the

data load. The next step in dynamic harvesting was to identify the fields needed from PeopleSoft: employee name, department, position title, email, and unique identifier (UF ID #).

Marketing was the last step of phase II. Sara and Valrie presented GatorScholar at a library cross-divisional meeting, to the library development office, to the Health Science Center Library (HSCL), to the library dean, and at academic department meetings. The development office created a GatorScholar brochure for use with potential donors. One of the more fruitful partnerships that GatorScholar has developed on the UF campus is the one between the libraries and the university's Clinical and Translational Science Award (CTSA) endeavors. Only a few days after Valrie and Sara demonstrated GatorScholar for the Health Science Center Libraries' senior management group, HSCL librarian Michele Tennant was visited by Mike Conlon, the university's CIO and interim director of biomedical informatics for UF's CTSA application and the fledging academic program in biomedical informatics. Mike indicated that the HSCL was an obvious potential partner in the resubmission of the CTSA proposal, because of the library's expertise in the management of information, bioinformatics support, and close relationships with its clients at the Health Science Center. During the conversation, Mike noted that a major component of the biomedical informatics section of the proposal would be the development of a directory of researchers, to help foster collaboration on the UF campus. It was immediately clear that the work that Valrie and Sara were doing with GatorScholar was a match for the information need expressed by Mike, and Michele brought the four of them together for two brainstorming meetings. These meetings covered everything from institutional and researcher "carrots and sticks" to potential future enhancements to the system based on researcher and institutional need. It was clear from Mike's interest that the "how to find people" issue is a major one for research institutions, and his willingness to partner with the library on finding a solution demonstrates a clear understanding of the expertise that exists in university libraries. These discussions also set the stage for the future partnership between UF and Cornell and a number of other institutions to propose the extension of VIVO to a national audience via a grant proposal to NIH.

 Additional future marketing includes presenting GatorScholar at a library faculty assembly and to campus deans. UF is postponing campus-wide adoption until dynamic harvesting is accomplished, profiles are editable by faculty members, and the possibilities of publication harvesting are better understood; all steps to be explored in the near future.

Future Directions

Cornell continues to enhance VIVO, and to share those enhancements with implementing partners. Both institutions have identified possible interface and functionality changes, with the next step of prioritization. Publication harvesting has been some of the most important and most difficult work, and both institutions would like to identify a more comprehensive method for harvesting publications. The primary challenge of publication harvesting is the identification of authors, due to authors sharing the same name, author name variations, or spelling changes for non-Roman names. Many databases, such as Scopus, ArXiv, Mathematical Reviews Database, or Thomson ISI (with ResearcherID) have created author identifiers. While VIVO is not in a position to solve author disambiguation issues, the inclusion of

database author identification numbers as profile attributes may be a solution to harvesting a greater number of publications.

One publication change to GatorScholar included the integration of departmental publications (not often associated with a particular faculty member) to departmental profiles. These publications are held in the UF Institutional Repository (IR) and were previously linked from digital collections pages, or buried within departmental pages. By incorporating these publications into departmental profiles, those profiles are strengthened and the publications are more easily located. As the UF IR increases in importance and in the size of its collections, the integration of those materials into GatorScholar becomes even more valuable to both resources. To assist with the various ways of integrating IR resources, a digital services librarian, Stephanie Haas, has been added to the UF development team. Her goal will be to identify ways to integrate IR resources with GatorScholar.

In addition to publication work, content should eventually be replicated to other institutional applications, such as Sakai, Moodle or Drupal, and to external platforms, such as FaceBook, LinkedIn, or other social networking sites. Updating only one profile, and feeding that information to other profiles, will save time. Additionally, developing social networking capability within the VIVO system is a possibility. Creating groups of users for pushing information, or setting up citation alerts for automatic notification of new research, can assist in linking local researchers. This function will be all the more important when the VIVO system links multiple institutions. Currently VIVO and GatorScholar are two standalone systems that provide information on two separate local environments. It is Cornell and UF's goal to eventually acquire a grant that would create a national interface that could search local institutional versions of VIVO, and provide national results in one interface. A resource such as this would link a nation of researchers together for collaborations.

Faculty from the UF Health Science Center (HSC) will be the next group to be integrated into GatorScholar, a group that has at least one unique challenge due to the "clinical" nature of many of its faculty members.   The basic science researchers have shown an interest in being included in the directory, which comes as no surprise. They have many of the same information and collaboration needs as those within the Institute of Food and Agricultural Science had demonstrated. However, most faculty with primarily clinical roles have been far less enthusiastic. Some have indicated that they believe having contact information placed in such a public forum could bring them more emails from the general public seeking medical advice than from collaborators. Demonstrating this concern, some UF clinical departments still do not list individual faculty email addresses or phone numbers on their department websites. It will be important for the HSCL's clinical liaisons to use the strong ties they have developed with their faculty and identify a few who will be willing to be test cases. Once those faculty have been integrated into GatorScholar, it can be determined if there is such an increase in contact from the general public, and if so, how much of a detriment that might pose.

Other issues that surround implementation at the HSCL deal with user and institutional needs. The biomedical literature has a very rich controlled vocabulary (Medical Subject Headings; MeSH) and its integration into the system should be explored. Harvard's Medvane system (http://harvard.medvane.org/) uses MeSH as its controlled vocabulary for subject indexing. Users can

search on MeSH terms to retrieve the citations in those subject areas written by faculty at Harvard Medical School. Various displays (table, word cloud) provide visual evidence of most frequently published topics and illustrate how particular topic publication rates have changed over time at Harvard. It is easy to imagine how such information could be useful to individual researchers as well as the institution as a whole. Liaison librarians will be working with faculty from the HSC to determine any additional information needs or issues associated with the biomedical research and clinical communities at UF, with an eye to what those needs/issues predict for the development and implementation of GatorScholar.