
Take Back the Data

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Abstract

What data, facts, and figures tell the story of the 21st-century library? Do the statistics that we collect regularly reflect what we do now? In some ways, librarians have become slaves to our own data collection practices. When we continue to faithfully, unquestioningly collect figures that held meaning in the 20th century, we fail to paint the picture of today's transformational library. Cutting-edge technology, open-access efforts, and digital scholarship initiatives are not represented adequately in our current metrics that still include numbers of books, circulations, and reference transactions.

This study tries to advocate for data collection that tells the complex story of the 21st-century library. It uses prioritization of meaningful metrics based on the full scope of what we do in academic libraries. We hope the results engage readers in a deeper dialogue about how to prioritize library metrics, the issues involved in gathering some of these, and how to move forward with this research. Through this process, we are hoping to develop advocacy in librarianship to use data more strategically and tell a new story more reflective of the 21st-century library.

Introduction

For years, academic libraries have been asked to supply to accreditation and other agencies a variety of data to help determine their rank, status, or prestige, to justify funding, or to illustrate their accountability. The nature of these metrics is such that, over time, these facts and figures that are still collected no longer describe the academic libraries of today. The study was formulated to uncover how academic librarians would describe a 21st-century library to their stakeholders and users via appropriate metrics. Our hypothesis is that academic librarians will rank trends that demonstrate the value of the 21st-century library higher than traditional metrics that are requested by agencies today.

As we examined the metrics gathered by IPEDS, ACRL, and ARL, we saw that those instruments measure things that are generally used more by stakeholders (e.g., those who determine library funding, such as university and library administrators and trustees) than by users. Our users (e.g., faculty and students), who would see library metrics called out in marketing and promotional materials more than anywhere else, were less likely to be convinced of the value of our libraries through the kinds of metrics that mattered to our stakeholders. We therefore set out to ask librarians and administrators to identify a different kind of metrics.

For a presentation for the 2015 Southeastern Library Assessment Conference,¹ we gathered a list of “meaningful metrics” through an open solicitation to the LLAMA² MAES³ e-mail list. This list of metrics and what we studied and presented at that conference became a starting point for our advocating for new metrics. For this study, we hoped to push the questions further.

Methodology

In order to minimize item selection bias by creating a list of metrics based on researchers' own interest areas and experiences, we consulted the following outside sources to generate a broad spectrum of current trends in academic libraries:

- ACRL Research Planning and Review Committee's Top Trends in Academic Libraries: A Review of the trends and issues affecting academic libraries in higher education (June 2014 and 2016)⁴
- The 21st-century library blog⁵
- ALA's American Libraries for the 21st Century⁶
- ALA's Center for the Future of Libraries⁷
- Librarian-solicited suggestions that led to our previously mentioned presentation

We generated a list of potential metrics based on these trends, and used a survey tool to rank preferred metrics. The first three questions were grouped by category: resources (e.g., collections, expenses, memberships), services (e.g., instruction, consultations, projects, special services), and access and space-related services (e.g., 24/7 availability, makerspaces, reservable classrooms). Within each question, respondents were asked which metrics would best represent the 21st-century library when presented to stakeholders and users. Stakeholders were defined as university and library administrators, trustees, etc., while users were qualified as faculty and students. By defining metrics in these two ways, we hoped to distinguish what is meaningful when trying to show accountability for expenses or justify new resources, as opposed to when trying to market an academic library.

These first questions provided metrics that are already known to be quantifiable and measurable, generally input and output measures. Library research, however, has indicated the importance of outcomes measures for indicating value to stakeholders. With this in mind, the next question asked respondents to rank a variety of correlations between something the library does with something that shows student or faculty success. A final question asked respondents to add their own thoughts about trends in libraries in the 21st century and the metrics that illustrate them. Respondents were also asked to share any thoughts about metrics or the survey itself.

There were a number of limitations to the survey questions, as well as the survey tool. We included

some of the inputs and outputs asked by ARL and IPEDS and others because we believed these would be expected, although we did hope that librarians would not prioritize these basic counts as indicators of a 21st-century library. Most of the metrics that were used in the survey are quantitative, but these do not tell the full story of what libraries do for users and stakeholders. Qualitative metrics are noticeably missing, and would add an important aspect to any future study.

The Results

Two hundred seventeen people opened the survey link. However, more than half of these responses were blank. We believe that this is due in part to the complexity of the survey itself, but also because the tool itself was difficult to use and did not work well across all devices. The number of effective respondents (any participant that responded to at least one question on the survey) was 99. The respondent pool is obviously self-selected, and the only demographic gathered was job title, so there is no indication about the diversity of the sample in any other characteristics.

Each participant could rank multiple items for each question, with 1 being the highest rank. Our ranking algorithm used only the top 5 ranked items in analysis. Items for each question were weighted according to the rank allotted (5 points for Ranking 1, 4 points for 2, and so on, with 0 points for any rank above 5). A sum of the points for each item led to a score for each item. Those with the highest scores were considered the most important to the respondents as a whole.

Figure 1: What metrics would best represent the 21st-century library's resources?

Stakeholders	Users
Extent of collection use	Collection breadth (extent of subject coverage)
Library expenditures per student FTE	Number of electronic journals
Collection breadth (extent of subject coverage)	Collection depth (number of titles in the collection)
Consortial memberships, which offer access to additional materials	Accessibility of special, rare or archival materials
Availability of repository services to store digital materials and/or data over time	Library expenditures per student FTE

The responses to our question about resources demonstrate that librarians expect stakeholders to be interested in what our metrics have measured for years: how extensive the collection is and much it is used, and how much we spend on students. But librarians also want to flaunt some innovative practices: membership in consortia, with its access beyond the collections available on a single campus, is understood to have a meaningful value to the campus.⁸ And 21st-century library stakeholders, it is anticipated, care about sustainability over time, thus the importance of repository services. With the ephemeral nature of digital materials, we need to be able to maintain access to them across time.

For users, our respondents continue to feel that what matters is the size and breadth of the collection, including how many e-journals libraries have. In an interesting twist, many respondents indicate that special, rare, and archival materials matter in a way that has not been measured in the past. As libraries' collections are less and less different from each other, it will be the special collections that will differentiate libraries. Note that ARL has begun to collect information about special collections for this purpose.

Several other write-in responses are particularly worth noting:

- *Culturally diverse, skilled info professionals*: The importance and value of expert staff cannot be argued, and finding a metric to indicate that could be fruitful. (Ideas that have been raised include percentage of library staff with PhDs or graduate degrees, numbers of publications written by library staff.) However, the idea of highlighting a culturally diverse workforce is an excellent addition to the possible metrics that would matter to our users. In a world where people of color, those with disabilities, and those who identify themselves as transgender are looking to see themselves in the library, what better way to show them than by a metric that quantifies our staff according to our user populations?
- *Fundraising success*: This was a write-in that seems obvious, and yet had not been raised in our work previously. A metric of successful fundraising would certainly be of importance to stakeholders.

Figure 2: What metrics would best represent the 21st-century library's services?

Stakeholders	Users
Number of individual reference/research transactions or consultations	Availability of caffeine and food at all hours
Number of instruction sessions [one-shot or embedded library instruction (in-person or online)]	Access to unique or expensive hardware or software
Altmetrics used to demonstrate impact of scholarship	Number of individual reference/research transactions and/or consultations
Access to unique or expensive hardware or software	Number of instruction sessions [one-shot or embedded library instruction (in-person or online)]
Number of outreach services for unique user groups	Number for equipment checkout: laptops, cameras, chargers, etc.

In the responses regarding services, it is more obvious that librarians understand students' financial struggles. Two of the top five metrics for users are for services that alleviate financial pressures on our user communities,⁹ through offering of unique

or expensive hardware and software, as well as by loaning equipment such as laptops and cameras. The top choice of metric for users was, unsurprisingly, the availability of food and coffee in or near the library.

Librarian participants clearly still feel that the human element—library staff offering reference, research consultations, and instruction—play a primary role in the 21st-century academic library for both stakeholders and users, and metrics that quantify that value through counts of transactions were high on both lists. For stakeholders, participants also indicated that the number of outreach services for unique user groups, another human-mediated service, was one of the most important metrics. These quantitative measures, though, do not capture the actual importance of human interaction. The *qualitative* value of these stories is more likely to be in people’s relationships and interactions and results, rather than in how many transactions librarians have.

As mentioned previously, this survey included fewer outcomes measures as options than we would have liked. It is therefore perhaps unsurprising that one of the ways to measure impact that we included—altmetrics—was an appealing option for illustrating to stakeholders how libraries might demonstrate the impact of scholarship.

Two write-in options made *time* into metrics: amount of time spent with students and estimate

of time saved by users. The former could certainly indicate the value placed by participants on the human element in the library, as well as the expertise available there. One caveat often raised about time, however, is that spending more time does not necessarily mean that better service was provided, so a metric of that sort would have to be combined with others (student success factors perhaps?) to indicate that the time was well spent. The latter option was described in more depth as, “Estimate of users’ time saved (or time value) based on READ scale distribution of reference/research transactions and consultations, by user group.” The idea of finding a way to measure time saved, perhaps in conjunction with how much time library staff spent, seems like it might be particularly impactful on students.

One additional write-in was about library staff: library participation in academic activities such as course instruction or curriculum planning. This metric would mean a lot to library staff, as it would show that the universities value what the library offers its students. If there are stakeholders unaware of this participation, that metric would be a powerful indicator of the libraries’ value in the academic environment at that institution.

Figure 3: What metrics would best represent the 21st-century library’s access and space-related services?

Stakeholders	Users
Number of hours open	A mix of quiet and collaborative spaces
Availability of 24/7 space	Availability of 24/7 space
Device-neutral digital environment (access to materials and/or databases/platform vendors no matter what device)	Number of hours open
Number of study rooms available for reserving	Number of study rooms available for reserving
Availability of a free and accessible makerspace for 3D printing, audio file generation, etc.	Easy access to the library (distance from parking lots, classrooms and residence halls)

The number of possible options for the question about access and space-related services was only 8 (compared to 17 and 13 for the previous two questions), so it is more likely that the choices for stakeholders and users would be more similar to each other. Even so, 24/7 space (or as one write-in

indicated, 24/5 space) is a highly desirable element for an academic library in the 21st century, both for stakeholders and for users, according to our participants. Along the same lines, the number of open hours is highly important, as is the number of study rooms available for reservation. All of these

elements indicate that our physical spaces are available to be used in all kinds of ways.

For stakeholders, librarian respondents highlighted a device-neutral digital environment as a prioritized metric. There is no question that a library that makes it easy to use the multitude of devices that students have available to them provides a desirable service. The fifth choice to make an impression on stakeholders was the availability of a makerspace, which indicates the extent to which libraries offer what users need in innovative ways.

For users, the option that got the most support from respondents was a mix of quiet and collaborative spaces. Even in the 21st century, students still want spaces to study quietly, but in this new world, it is even more important to be able to study collaboratively without impacting those who wish to be quiet. Academic libraries that are renovating are finding ways to separate these kinds of spaces, so that it is clear where more noise is permissible. Respondents also recognize how important it is to users to be convenient, selecting easy access to the library as an important metric.

Write-in metrics for stakeholders suggest that the use of space for materials matters, with write-ins such as square feet of remote storage and updating of equipment. The extent of available public space, such as square feet per FTE of publicly-accessible space or square feet of quiet space, remains important even in the current century. One respondent also suggested that because our users are online, having some metric related to the library's web site would be valuable to stakeholders. One thing that we neglected in our set of options regarding space was any metric related to people in the library, so several write-ins mentioned gate counts, busiest times of day, and number of people in the library per hour. Respondents' write-ins for users were more related to the kinds of things that users look for in their spaces, e.g., comfortable furniture and cleanliness, but also noted the absence of a metric regarding people in the space.

As mentioned above, most of the options listed were library inputs and outputs. Because library research has stressed the importance of outcomes measures for indicating value to stakeholders, ten potential outcomes measures were offered based on a variety of studies. The following five got the most support:

Figure 4: Outcomes important to stakeholders

Information literacy and/or critical-thinking instruction with student GPA, retention, graduation rates, or higher GRE scores
Library expenditures per student FTE with retention and graduation rates
ARL statistics (e.g., number of professional library staff per student) with first-year retention rates and six-year graduation rates from IPEDS data
Library resource and space usage with student GPA, retention, or graduation rates
Library instruction with paper and course grades

These five were all related to student success: GPA, retention, and graduation rates. Items that reflected correlations between libraries and bigger picture outcomes such as national rankings (e.g., *US News & World Report* rankings) and statewide educational performance measures were ranked at the bottom of the list, although upon further consideration it should be noted that some statewide performance metrics may be broken down into metrics that measure similar outcomes such as student GPA, persistence, and graduation rates. Ranked last on the outcomes list was a general measure of the effects of library services, access and spaces, and resources on faculty productivity, which may be a measure more

important at highly selective schools, where student success cannot be measured through traditional factors such as GPA, retention, and graduation rates.

The write-in options for this outcomes question incorporated the value of library staff (e.g., number of public service librarians per student FTE with first-year retention rates and six-year graduation rates) and value of library resources (e.g., use of library resources with student research success or faculty grant success). The first of these has been expressed in other write-ins. Librarians unsurprisingly are looking for concrete ways to acknowledge their contributions to success. The

latter item reveals another way to illustrate impact on faculty.

Figure 5: Additional 21st-century trends and metrics of interest

- Open access metrics
- Self-service options
- Access to digital materials
- Physical space usage
- Correlations with job placement, well-being
- Contributions to community engagement
- Cost-savings
- Staff participation and engagement in campus-wide committees

Finally, the survey included two open-ended questions. Respondents were invited to add any additional 21st-century trends and metrics that they had not indicated previously, and then to share any other thoughts about appropriate metrics for a 21st-century academic library. A number of gaps were noted. One respondent felt strongly that open access metrics were the future of libraries, saying, “I think one of the most important measures will be whether libraries can transition from a print collection to putting more money into supporting open access publishing. This will eventually lead to print collections no longer being a measure of importance.”

Metrics about convenience and space were addressed in these additions. Access to digital materials (as evidenced through the percent of the online collection) and self-service options that offer the ability to use the library without being in it highlight the library’s value regardless of location. At the same time, gate counts and occupancy rates can emphasize the importance, even in the 21st century, of the library as space. One respondent also wrote that, “as we transition from a print collection to opening more space, repurposing space will also be an issue and how libraries manage that transition will be an important measure.”

Correlations of library usage with students’ success factors beyond GPA and retention, such as job placement and general well-being, and indicators that acknowledge library contributions to community engagement, stress the library’s value as a non-judgmental contributor to a student’s college experience. Cost-savings through collaborative ventures and collections choices speak well to stakeholders, as does staff participation and

engagement in campus-wide committees and other institutional structures.

There were a few write-in comments that pushed us beyond the survey in our thinking. One respondent critiqued our separation of metrics for stakeholders and users. Our thinking had been, as we explained above, that how we present ourselves to each of these communities is different, because of what librarians want from them. However, the participant pointed out “we still need to convince our University stakeholders that 24 hour coffee is a good investment of resources.” Given that food and caffeine as a service was considered a highly important factor of value for users but not provided as an option for stakeholders, this point is well taken.

An important issue that we touched upon earlier is that the self-selected nature of the small pool of respondents, and the lack of demographic data about them, means that we do not have a good sample. Several respondents did comment on the lack of diversity even in the way the measures were written.

- “At my relatively small private non-profit academic university, focus is on two metrics: cost reductions and student retention. Metrics that demonstrate a correlation between the instruction and technology support provided by my team and student achievement or retention will have the greatest impact with funding stakeholders who continue to envision the main role of librarians to be checking books in and out.”
- “In that we have a lot of non-traditional/working adult students, we still find valuable the measurement of gate count and reserve textbook checkouts since this tells us if our population is (1) coming in at all and (2) using the thing that

is most often requested (textbooks). Metrics for our 21st-century academic libraries should be as meaningful and yet flexible as the libraries they will represent.”

- “... we are a small liberal arts school and 24/7 or 24/5 space isn’t something we have the capacity to offer... we also need to consider how smaller institutions can use these or similar metrics to remain competitive and/or talk to stakeholders about library value.”

Coming back to the issue of the urgent need for outcomes measures and qualitative measures is summed up in these comments:

- “The value of a 21st Century Library has to be measured by the quality of those transactions, things, and interactions, as well as by the impact we have on our users. The ‘Number of...’ has never adequately demonstrated or measured our value to our communities. If we don’t soon find ways to measure quality and outcomes, we’re all in trouble.”
- “I definitely think the traditional measures of collection size and professional employment percentages is [*sic*] not reflective of how we should be evaluating academic libraries going forward. The focus should be on evaluating academic success in connection with library resources and instruction, and data management and digital humanities projects better correspond with the needs of faculty going forward.”
- “Replicable [*sic*] models that show the impact of the library on student outcomes and success are essential going forward and this study suggests the importance of these. The difficulty will be developing and testing these models and showing their efficacy to the larger higher education community.”

Impact of Job Roles

The one demographic we did gather was respondents’ job titles. By gathering this, we could observe whether there were any differences between what library administrators, whom we would consider stakeholders, and librarians in non-administrative positions deem important metrics. If those two groups prioritized these metrics very differently, then it would be critical to address this discrepancy as we determine which metrics we collect as assessment librarians.

To get at this, after various combinations, we grouped titles such as dean, library director, associate dean, or associate director as “Administration” (n=18), and all other positions were considered “Other” (n=45; 32 librarians, 7 department chairs, 6 others). The latter set included department head, department chair, librarian, and other titles such as director of planning and branch operations, library manager corporate administration, professor, quality and planning manager, process improvement specialist, and student.

Rankings were done in the same way as above. We compared the top five items, but also looked more broadly at how the order of their priorities agreed. Overall, we found that, in most categories, there were no differences between what metrics administrators and non-librarian administrators thought were important to stakeholders and users. The most agreement was in metrics to describe resources to users, metrics to describe access and space-related services to stakeholders, and outcomes metrics to present to stakeholders. There were no striking discrepancies between what metrics administrators and non-administrative librarians value; therefore, librarian administrators as stakeholders, at least in this study, seem to agree with non-administrators about what metrics we should collect.

Next Steps

This survey focused on understanding what academic librarians want our communities and our stakeholders to know about the 21st-century library. The results can help us continue to advocate for more up-to-date and relevant measures for libraries in North America that are required to collect statistics normally requested annually by the Association of College and Research Libraries (ACRL), ARL (Association for Research Libraries), and IPEDS (Integrated Postsecondary Education Data System) Academic Libraries surveys. Smart metrics identified in the results could also be shared with stakeholders and users in marketing materials or in funding requests, accountability descriptions, and other places where the value of the 21st-century library has impact.

Beyond that, more research can be done where stakeholders and users inform what they want to understand about academic libraries, to complement what we need them to understand that they might not already know. We as the academic library community need to keep researching how to express

outcomes and qualitative measures in realistic and feasible ways that are possible and meaningful for all kinds of academic libraries, of all sizes, that serve all different kinds of communities. Further research should analyze the implications of different metrics over these different types of institutions, but should not settle for measures that are easier to count. We need to take back our data, and we need to make our case that the 21st-century library is not simply a place where “the main role of librarians [is to check] books in and out.”

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Notes

1. Lisa Horowitz, Kirsten Kinsley, Zoltan Szentkirályi, Zsuzsa Koltay, “Metrics with Meaning: How Can We Effect Change to Library Assessment Metrics used by Non-Library Organizations” (paper presented at the Southeastern Library Assessment Conference, Atlanta, Georgia, November 16–17, 2015), <http://scholarworks.gsu.edu/southeasternlac/2015/track/5>.
2. Library Leadership and Management Association, a division of the American Library Association.
3. Measurement, Assessment, and Evaluation Section, now called Assessment Section.
4. ACRL Research Planning and Review Committee, “Top Trends in Academic Libraries: A Review of the Trends and Issues Affecting Academic Libraries in Higher Education,” *College & Research Libraries News* no. 75 (June 2014): 294–302; ACRL Research Planning and Review Committee, “2016 Top Trends in Academic Libraries: A Review of the Trends and Issues Affecting Academic Libraries in Higher Education,” *College & Research Libraries News* no. 77 (June 2016): 274–281.
5. Kimberly Matthews, “Issues,” *21st Century Library Blog*, <https://21stcenturylibrary.com/issues/>.
6. American Library Association. “America’s Libraries for the 21st Century,” <http://www.ala.org/advocacy/pp/prog/century>.
7. American Library Association, “Library of the Future: Center for the Future of Libraries,” <http://www.ala.org/transforminglibraries/future>.
8. A write-in comment at the survey’s end noted, “[we] need to emphasize quick availability of material, even material that we don’t own but can obtain.”
9. Malcolm Hadley’s study indicates the importance of financial factors in users’ choice of college. Malcolm Hadley, “Picking College, Major, Comes Down to Money,” *USA Today*, August 15, 2013.

APPENDIX A

21st-Century Academic Library Metrics Survey

What data, facts and figures best tell the story of the 21st-Century Academic Library? For years, academic libraries have been asked to supply a variety of data to different sources to help determine their rank, status, or prestige, to justify funding, to illustrate their accountability, etc. However, these facts and figures do not necessarily tell the story of what a 21st-Century Academic Library is. This survey asks academic librarians to share their thoughts about what best represents a 21st-Century Academic Library. The topic lists come from various sources:

- Librarian solicited suggestions in 2015 on various listservs
- ACRL Research Planning and Review Committee's Top Trends in Academic Libraries: A Review of the trends and issues affecting academic libraries in higher education (June 2016 and June 2014)
- The 21st century library blog
- ALA's American Libraries for the 21st Century

The following questions ask you the rank the importance of various metrics that might represent the 21st-Century academic library. They are grouped in these three categories: resources, services, and access and space-related services. Please rank metrics according to their importance for these two different audiences: stakeholders (e.g., university and library administrators, trustees) AND users (e.g., faculty and students). This survey will take approximately 20 minutes of your time.

1a. Regarding metrics about resources (i.e., collections, data sets, etc.) as represented to stakeholders: Please select and rank these academic library resources that could be used to represent the 21st-Century Library to our stakeholders. Drag items up or down to number of rank desired, with one being the highest ranked item. Only the top 5 will be used in analysis.

- Accessibility on-site of special, rare or archival materials
- Availability of repository services to store digital materials and/or data over time
- Collection breadth (extent of subject coverage)
- Collection depth (number of titles in the collection)
- Commitment to preservation of print or tangible materials
- Consortial memberships, which offer access to additional materials
- Extent of collection use
- Library expenditures per student FTE
- Number of data sets
- Number of e-books
- Number of electronic journals
- Number of items locally digitized by the library
- Number of Open Education Resources available (textbooks, MOOCs)
- Percent of collection that can be browsed
- Percent of library's local proprietary materials and/or data that are open access
- Write in:
- Write in:

1b. Regarding metrics about resources as represented to users: Please select and rank these academic library resources that could be used to represent the 21st-Century Library to our users. Drag items up or down to number of rank desired, with one being the highest ranked item. Only the top 5 will be used in analysis.

- Accessibility on-site of special, rare or archival materials
- Availability of repository services to store digital materials and/or data over time

- Collection breadth (extent of subject coverage)
- Collection depth (number of titles in the collection)
- Commitment to preservation of print or tangible materials
- Consortial memberships, which offer access to additional materials
- Extent of collection use
- Library expenditures per student FTE
- Number of data sets
- Number of e-books
- Number of electronic journals
- Number of items locally digitized by the library
- Number of Open Education Resources available (textbooks, MOOCs)
- Percent of collection that can be browsed
- Percent of library's local proprietary materials and/or data that are open access
- Write in:
- Write in:

2a. Regarding metrics about services as represented to Stakeholders: Please select and rank these five academic library services that could be used to represent the 21st-Century Library to our stakeholders. Drag items up or down to number of rank desired, with one being the highest ranked item. Only the top 5 will be used in analysis.

- Access to unique or expensive hardware or software
- Altmetrics used to demonstrate impact of scholarship
- Number of consultations about data management and curation (discovery and use of data sets in the open domain); includes text-mining, data refining (Open-Refine).
- Number of digital humanities projects
- Number for equipment checkout: laptops, cameras, chargers, etc.
- Number of individual reference/research transactions and/or consultations
- Number of instruction sessions [one-shot or embedded library instruction (in-person or online)]
- Number of late night library tutoring sessions
- Number of outreach services for unique user groups
- Number of MOOCs by libraries
- Number of workshops on using library resources or digital tools
- Percent of budget spent to support scholarly communication (through open access publishing options, funding of author fees, etc.)
- Write in:
- Write in:

2b. Regarding metrics about services as represented to users: Please select and rank these academic library services and amenities that could be used to represent the 21st-Century Library to our users. Drag items up or down to number of rank desired, with one being the highest ranked item. Only the top 5 will be used in analysis.

- Availability of caffeine and food at all hours
- Access to unique or expensive hardware or software
- Altmetrics used to demonstrate impact of scholarship
- Number of consultations about data management and curation (discovery and use of data sets in the open domain); includes text-mining, data refining (Open-Refine).
- Number of digital humanities projects
- Number for equipment checkout: laptops, cameras, chargers, etc.
- Number of individual reference/research transactions and/or consultations
- Number of instruction sessions [one-shot or embedded library instruction (in-person or

- online)]
- Number of late night library tutoring sessions
- Number of outreach services for unique user groups
- Number of MOOCs by libraries
- Number of workshops on using library resources or digital tools
- Percent of budget spent to support scholarly communication (through open access publishing options, funding of author fees, etc.)
- Write in:
- Write in:

3a. Regarding metrics about access and space-related services as represented to stakeholders: Please select and rank these academic library access and space-related services that could be used to represent the 21st-Century Library to our stakeholders. Drag items up or down to number of rank desired, with one being the highest ranked item. Only the top 5 will be used in analysis.

- Availability of 24/7 space
- Availability of a free and accessible makerspace for 3D Printing, audio file generation, etc.
- Device-neutral digital environment (access to materials and/or databases/platform vendors no matter what device)
- Number of classrooms available for reserving
- Number of hours open
- Number of study rooms available for reserving
- Spaces and/or services that support health and wellness (e.g., stress-busters during finals)
- Years since most recent renovation
- Write in:
- Write in:

3b. Regarding metrics about access and space-related services as represented to Users: Please select and rank these academic library access and space-related services that could be used to represent the 21st Century Library to our users. Drag items up or down to number of rank desired, with one being the highest ranked item. Only the top 5 will be used in analysis.

- A mix of quiet and collaborative spaces
- Easy access to the library (distance from parking lots, classrooms and residence halls)
- Obvious security measures in place (e.g., police presence, restricted access for community users, etc.)
- Availability of 24/7 space
- Availability of a free and accessible makerspace for 3D Printing, audiofile generation, etc.
- Device-neutral digital environment (access to materials and/or databases/platform vendors no matter what device)
- Number of classrooms available for reserving
- Number of hours open
- Number of study rooms available for reserving
- Spaces and/or services that support health and wellness (e.g., stress-busters during finals)
- Years since most recent renovation
- Write in:
- Write in:

4. The above questions list library inputs and outputs. Library research has indicated the importance of outcomes measures for indicating value to academic libraries' stakeholders (Oakleaf, 2010). For this section, please rank the correlations that could be used to measure outcomes of the 21st-Century Library to our stakeholders. Drag and Rank those options, with one being the highest ranked item.

- ARL statistics (e.g., number of professional library staff per student) with first-year retention rates and six-year graduation rates from IPEDS data
- Information literacy and/or critical thinking instruction with student GPA, retention, graduation rates, or higher GRE scores
- Library expenditures per student FTE with retention and graduation rates
- Library expenditures per student FTE with college or university rankings (e.g., *U.S. News & World Ranking*)
- Library instruction with paper and course grades
- Library resource and space usage with student GPA, retention, or graduation rates
- Library use of spaces, services or resources with faculty productivity (e.g., number of articles published)
- Library use of spaces, services or resources with statewide educational performance measures (e.g., linking library instruction with graduation rates for STEM majors)
- Research consultation visits with student scholarly output (paper grades, citations)
- Total library expenditures (professional salaries, monographs and serials, etc.) with fall-to-fall retention rates
- Write in:
- Write in:

5. I would like to add some 21st-Century trends and the metrics that I feel best go with them:

Trend & Metric:

Trend & Metric:

Trend & Metric:

Trend & Metric:

6. Please share any other thoughts that you have about appropriate metrics for a 21st century academic library or about this exercise/survey itself.

7. My current job title is:

8. I would like to be entered into a drawing to receive one of four \$25 Amazon eGift cards (I understand from the informed consent form that my identification will be kept confidential). My e-mail address is:

Yes, my e-mail is: _____

No, thanks