

Purdue University  
**Purdue e-Pubs**

---

Charleston Library Conference

---

## The Punishment for Dreamers: Big Data, Retention, and Academic Libraries

Adam Murray  
*Murray State University Libraries*

Follow this and additional works at: <https://docs.lib.purdue.edu/charleston>



Part of the [Library and Information Science Commons](#)

An indexed, print copy of the Proceedings is also available for purchase at:

<http://www.thepress.purdue.edu/series/charleston>.

You may also be interested in the new series, Charleston Insights in Library, Archival, and Information Sciences. Find out more at: <http://www.thepress.purdue.edu/series/charleston-insights-library-archival-and-information-sciences>.

---

Adam Murray, "The Punishment for Dreamers: Big Data, Retention, and Academic Libraries" (2014).  
*Proceedings of the Charleston Library Conference*.  
<http://dx.doi.org/10.5703/1288284315628>

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries. Please contact [epubs@purdue.edu](mailto:epubs@purdue.edu) for additional information.

## The Punishment for Dreamers: Big Data, Retention, and Academic Libraries

*Adam L. Murray, Dean of University Libraries Murray State University*

*The following is a lightly edited transcript of a live presentation at the 2014 Charleston Conference. Slides and videos are available at <http://2014charlestonconference.sched.org/>*

**Adam Murray:** Thank you, everybody for being here. I know it's the Saturday morning of the Charleston Conference, so you guys are definitely the very dedicated group here to hear about some exciting things, assessment. I know everyone loves to talk about assessment. But hopefully we're going to be able to make this a pretty exciting session for you. My name is Adam Murray. I'm the Dean of Libraries at Murray State University in Kentucky. And just to set aside any rumors because this is something the vendors love to ask, no, the university is not named for me. We're going to have a Q&A session after the presentation. But if you don't get a chance to ask your questions or if you think of something later that you'd like to follow up with me, my email address is up here along with my Twitter. I'll have this information again at the end of the slide or the end of the presentation if you didn't grab it at the time. So I look forward to hearing from anyone who has follow up questions after the fact.

Of course the theme for this year's Charleston Conference is based on an Oscar Wilde quote, and so is the theme for this presentation. "A dreamer is one who can only find his way by moonlight, and his punishment is that he sees the dawn before the rest of the world." So I thought this quote was very pertinent for talking about retention and things like student success, because in the context of higher education there is definitely a new dawn coming, a new day coming for higher education. Higher education is under an incredible amount of pressure from a wide array of stakeholders. And assessment is changing. The data is making different methods of assessment possible and libraries have to figure out, they have to find their way by moonlight with little guidance on how to use these assessment methods in order to demonstrate value and communicate impact.

As librarians, we spend a lot of our time focused internally. We think a lot about our services and our resources. We take a look at uses. We spend a lot of time refining our services and resources. So I think it's good every once in a while for us to take a step back and really look at the very broad and complex picture of higher education. Of course everyone knows about decreased state funding. That's the first thing that a lot of people think about when they talk about the pressures that higher ed faces. So we'll talk a little bit about just how much state funding has decreased. But along with that, there are a lot of other pressures coming from the states and from the federal government, including an increased expectation for universal access. Everyone thinks of college and a degree now as the means of access into a career. This is a credential. So we want everyone to be able to do this. This is something that all students coming out of high school should go into college, get an undergraduate degree in order to be able to place themselves in a career. So there's an increased expectation for that universal access. Linked in with that, in order to make universal access a little bit more possible are increasing pressures to keep costs contained and to keep tuition low. Also linked in with universal access is the fact that a lot of our institutions have had drives for enrollment. We're admitting students that probably are not college ready, so we have a lot more remediation that we have to provide. So there's an increased need for students to take classes in order to bring themselves up to the necessary skills that they need to complete college. So those are some of the pressures coming from the state and from the federal government.

Other stakeholders have a very different and sometimes competing expectations for higher education. So for students they expect an idealized social experience. How many of you have been in some of the newer dorm rooms or dorm buildings on your campuses? They're nice, aren't they? They look a lot like a hotel. They're a lot nicer than what I lived in when I was an undergraduate. Students want that idealized

social experience. They want what they've seen kind of perpetuated as a stereotype of the college experience: the tailgating, and the nice wellness centers, and fantastic residency experiences. That all costs money, of course. Parents and nontraditional students see higher ed as a credentialing agent for career advancement. They want, parents want their students to go to college to get a degree and to be able to move out and pay their own bills. And nontraditional students come back to maybe complete a degree or to obtain an additional credential or certificate to continue moving up the job ladder. So let's talk about employers. Once those traditional or non-traditional students graduate how are employers of our graduates thinking about the skills that we produce in higher ed? Overall, nationally there's dissatisfaction with student learning outcomes. Employers tend to want students that are able to write effectively, communicate effectively, and demonstrate critical and creative thinking, problem-solving skills. And overall nationally, there's a trend that they are not seeing this in our graduates. And then accreditation is always a fun thing to do, and it's always a constantly moving target. How many of you have had to rewrite some of your own self-studies because you found out some new standards are coming down from your accrediting agency or from some of the discipline level accrediting agencies? So these are a sampling of the pressures and the different constituency groups that have competing expectations for higher education.

Let's talk a little bit about the financial crunch for higher ed. And this really boils down the formula for an institution's funding model to a very simple set of three factors, state funding, tuition as a factor of how many enrolled students there are, and external funding, grants, fundraising, other sources of revenue. So a very simplified model. Nationally, state funding for higher education has decreased by ten billion dollars since 2007. And that money is not going to come back, even as the economy improves that money is not going to come back. And if it does come back it's going to come back in a different way and I'll talk about that here in a second. So tuition as another factor that institutions can use to control their financial well-being. The percentage of educational

revenue that is derived from tuition has climbed to nearly 50% in the last few years. And, of course, this is catching a lot of attention by the federal government and by state legislators. So they are increasing pressures to keep tuition down. So that really leaves . . . of this formula, setting aside the grants and the external funding, of this formula the only item that institutions of higher education have that they can do something about is enrolled students. So, keep getting students enrolled and keeping them enrolled has become a very high stakes endeavor. On the topic of enrollment, there are declining populations of traditional college age students. How many of you . . . I'm curious by show of hands . . . how many of you have heard this kind of rhetoric in your area, that high schools-? Yup, most. High school are not graduating enough students. There are not enough students of a traditional college age coming out of high school if we enrolled 100% of them to keep out institutions afloat. So this creates tremendous competition between our institutions in order to enroll those traditional college students. We try to lure them with these very nice residency halls and these fantastic wellness centers, all of which puts increasing pressure on universities' debt service, both for the university and for the state through bonds, which serves to drive up tuition as well because institutions have to have a revenue stream to serve that debt service.

There's also an increased focus on nontraditional students. And that has a very strong impact on the curriculum. Nontraditional students are again wanting to come back and finish up a certificate, finish up a degree. They're looking for something that is relevant to them and their immediate workforce needs. And so workforce development becomes a very driving factor of the curriculum rather than the traditional liberal arts focus. And there are the increased numbers of students that are not college ready. I know at some of our institutions there have been big pushes for enrollment, simply getting students in the door. And again, that has a pretty significant implication for the amount of remediation that we have to provide just to bring them up to be where they can perform in college. There's another factor in this and that is that the cost of recruiting students

is higher than the cost of retaining students. So, think again about your own institutions. How many recruitment officers do you have working in your enrollment management office? How much travel do they have to put in? Institutions put a lot of money into recruitment and not as much into, necessarily, retention. I mentioned earlier as the economy improves, that funding still is not going to come back. And if it does come back, it's going to come back in a different way. And this is that different way, performance-based funding. Again by show of hands, how many of you hear performance-based funding talked about in the rhetoric at your institutions? A good number. I'm sure most of your institutions are talking about this because as of a year ago, 39 of the states were involved in performance-based funding mechanisms coming from the state agency that governs higher education. And I'm sure that there's going to be, with the federal scorecard coming out some time this month, there's going to be continued conversations at the different state level agencies about implementing performance-based funding formulas for determining state allocations and state appropriations. Some of the typical metrics included in performance-based funding formulas are the number of degrees awarded, sometimes for certain populations and sometimes in certain disciplines, the graduation rates, which again comes back to retention, transfer rates, so making sure that our four year institutions are working well with our two year community and technical colleges so that students have a way of getting a two year degree at a lower cost than transferring in and not having to retake courses and incur further debt.

And along the same lines of that theme of debt, the time and the credits to degree, keeping those low, making sure that students don't incur more debt than they need in order to complete a degree. Retention then becomes a critical funding issue really at two levels. You have the direct level, the lost tuition and the auxiliary revenue that come from students that may drop out. But then you also have the cumulative effect, the indirect effect of the impact of lost students on institutional state appropriations coming through performance-based funding formulas.

Why does all of this matter to academic libraries? Why this bigger context? How does it impact us? Well, how can you justify keeping vacant lines when provosts and presidents are under pressure to move vacant lines into better revenue generating areas? I know at my institution, and this is just one example and I know that there are other institutions that do this, our VP for Accounting just finished a study where they looked at revenue generation, not at the degree level, not at the program level, but at the course level and correlated that into individual faculty performance. Big data is being looked at and used by accounting offices in order to really move around an institution's resources in order to maximize potential revenue. How can you make a better argument for improved collections funding? I know we've all had great luck at getting inflationary increases, right? So . . . and how can you argue for favorable positioning and campus master plans for renovations or new construction projects?

In this talk, why am I focusing on retention? I'm sure all of you are aware of Megan Oakleaf's report from 2010 that she did for ACRL for the Value of Academic Libraries committee. She outlined a number of different areas, provided a framework for libraries to begin doing better studies, collecting better data in order to communicate value to university administrators in order to speak their language. So, those items included student enrollment, student retention and graduation rates, student success, achievement, learning, the student experience, faculty research productivity. I've heard several sessions about faculty research productivity here at this conference that were great, faculty grant proposals and funding, faculty teaching and institutional reputation and prestige. Why focus in on retention in this particular session? It doesn't . . . you can construct a study on retention in a way that it doesn't rely on self-reported or anecdotal data. I know a lot of us do a lot of studies on what are impact is on different things of institutional importance. But a lot of times we tend to rely on self-reported data and that does not give us the full picture of what we're doing. And through this we can provide evidence of powerful correlations that can be directly tied into

institutional performance and well-being. You can put a dollar amount on retention because we all know our tuition rates. In other words, retention is a low-hanging fruit in terms of talking about value and communicating impact.

Now there is a lower hanging fruit and that's GPA. And there are a lot of studies that look into the impact of use of the library on GPA. I chose not to focus on that because GPA at a lot of institutions is inflated. You have grade inflation taking place. And it's not really an indicator or much of anything. We have students that are graduating that haven't learned anything. This is being demonstrated through things like the NSSE, the National Survey of Student Engagement. They've gone through their degree program with minimal work and they're coming out with 4.0s. So a GPA really is not as much of an indicator of true impact. To ground our conversation of retention in some solid theories or models there are two very defining models of retention that have been proposed, starting with Tinto back in the 1970s. And his model is a very sociologically oriented theory. At the opposite end of the spectrum is Bean's model which was put forward in the 1980s and it very much focuses on psychology. There are a huge number of models and theories and studies in between these two kind of primary ones that have tested each of them, tried to disprove or prove elements of each of them, have modified, adopted, blended. There's a huge range of theories in the student retention. But these two are really the foundational theories of student retention.

Tinto's model is the first one, is the very groundbreaking, paradigm setting theory. His model is the model of student integration and again it's sociologically grounded. It's grounded in cost-benefit analysis, economics and in Durkheim's theory of suicide. Tinto reasoned that students that dropped out probably had insufficient integration with the prevailing value patterns of their institutions, and went through a longitudinal series of cost-benefit analyses to determine a point at which it was no longer worth their while to be in higher education and they dropped out or stopped out. This really . . . he has two domains within this theory, academic integration and social integration. The idea being that students that want to finish a degree will

have a goal commitment and that they will be integrated into their curriculum. They'll feel connections with the faculty that teach their courses. They'll be engaged with the content of what's being discussed in their courses. That they are very highly academically integrated. In fact, academic integration can overcome a lack of social integration. If a student is at an institution where they don't really have a peer group, they don't feel connected and this is increasingly the case with non-traditional students who don't spend a lot of time on campus, academic integration and goal commitment can overcome a lack of social integration. Social integration is of course the feeling, the sense that the students are integrated in with their peer groups, that they have a connection with the institution. And this also maps into a concept of institutional commitment. So a student may have always dreamed of graduating from a particular college. That dream of graduating from a particular college may override a lack of academic integration if they don't necessarily feel connected with the faculty or with their degree program. Those are the basic tenets of Tinto's model.

There are a few obvious weaknesses. It does not account for nontraditional students. It assumes that students are going to be traditional, first year, first time, full time freshmen. It doesn't account for minority students and it doesn't account for the impact of external influences, which Bean's Model of Student Motivation does. So moving into the psychological side of the theories, Bean's model argues that dropping out of higher education is a behavior and behavior is psychologically motivated. He mapped out four domains: academic performance, background variables, intent to leave and environmental variables. And the environmental variables are really the key for Bean's model that really sets it aside. This accounts for such things as finances, employment, external encouragement or support from family or friends, whether a student may have family responsibilities for a child or for an aging parent, and whether or not there are opportunities to transfer. Of course, with more and more online degree programs, the opportunities to transfer really begin to overcome some of the geographic limitations, especially for

nontraditional students that they encountered in the past. The weakness for Bean's model of course is that it portrays drop out behavior as a pathology because it's grounded in psychology. But between these two models, both of which have a lot of elements that make a lot of sense, there have been a lot of studies into both of them trying to prove or disprove elements of them. Ultimately they have found that really both of them apply, that there are elements of both of them that take place in a student's decision to drop out. Retention is a very complex set of decisions that a student goes through in order to make a decision to stay enrolled or to drop out.

Out of both of these theories and all the myriad of studies and other examinations into retention since then, the concept of engagement has really come out. Engagement is defined by George Kuh as the level of investment in higher education in which students spend significant time and energy on educationally purposeful activities. George Kuh is actually the man who is primarily responsible for the development of the National Survey of Student Engagement, the NSSE. I'm sure many of you have heard of this at your institution because a lot of our state agencies require us now to implement the NSSE on a multiyear cycle. Coming out of the NSSE is also the FSSE and several other related surveys. But building off of the NSSE, which has been around for a while at this point and has accumulated a very large national data set on student engagement, the American Association of Colleges and Universities have adopted ten educationally purposeful activities as high impact practices. They're saying that these are practices that our institutions can put into place that have a very positive impact on engagement, and through engagement on retention.

With retention being such a complex set of interactions between the external environment, resources, family, integration with the institution, there are a lot of factors that institutions of higher education don't have any control over. But the things that we do have control over can be narrowed down into concepts that further engagement. These ten high impact practices include first year seminars,

common intellectual experiences, learning communities, writing intensive courses, collaborative assignments and projects, undergraduate research, diversity and global learning, service learning, internships and capstone courses and projects. How do high impact practices relate to academic libraries? Kuh, along with several others that he has worked with on defining these practices, have discussed the fact that a lot of these high impact practices require time spent outside of the classroom in informal academic environments. And they have even indicated the library as such, as an informal academic environment that provides a great place for students to fulfill the practices that further engagement. High impact practices require integration of ideas or information from various sources including diverse perspectives in class discussions or writing, discussing ideas with faculty and students and others outside of class and making judgments about the value of information. All of these should sound very familiar and very relevant to what we do in libraries.

There have been a number of studies already done on the connection between academic libraries and retention. These tend to focus on studies of space or collection use, correlations with expenditures, and the impact of instruction. There are a couple of notable studies, Haddow and Joseph in 2010 and Haddow again in 2013, this was in Australia. Then Soria, Fransen and Nackerud, both in 2013 and 2014. These studies tracked individual use of different library services in order to correlate them with retention. So, Haddow and Joseph in 2010 and Soria, Fransen and Nackerud in 2013 found, by tracking individual use and correlating it with retention, that students that use the library tended to be retained from the fall semester to the spring semester. And then again, Haddow (2013) and Soria, Fransen & Nackerud (2014) found that students that use the library tended to be retained from their freshman year to their sophomore year, or first year to second year. So library use, and within that particular types of library use, tended to correlate with a higher rate of retention than nonuse.

Murray State did a variation of this type of study. We didn't seek originally to narrow it down to retention. We began our data collection in 2012. Our point at the time was to seek to calculate correlations between library use and different types of student success metrics. And ultimately we will continue to look at a variety of different metrics. But when ACRL announced their Assessment in Action program a couple of years ago we put in an application to use our data set and focus in on retention specifically for that project. Our study differed from the previous studies a little bit in that we also looked at the time of the semester that students used different services in our correlations between library use and retention. This particular project was led by Ashley Ireland, our Director of User and Instruction Services, with the data analysis being completed by Dr. Jana Hackathorn at Murray State University. Let me be clear on this. Our data elements track individuals. We track their use. And I know that that is something that sometimes gives librarians a funny feeling in their stomach. We track whether individuals check out an item. We track whether they log into a computer in our computer labs. We track whether they log into an electronic resource or if they log in to Illiad, if they are participating in an instruction session or if they are enrolled in one of our credit bearing information literacy courses. We have a few other elements that we're looping in to what we track, but this is what we started with. This was tracked using individual student ID numbers, was cross-walked through the registrar's database to an anonymous ID number and then lumped in with their retention data which the registrar's office could provide at the individual level. All of this data was then put through a binary logistic regression which allowed us to calculate the odds and odds ratio. What impact did certain library uses have on the odds of a student being retained?

We found some fantastic results. And these results . . . we actually have another set of data still in the hopper, and once we have that completely finalized, we're going to be publishing our findings. So this is still a preliminary set of findings. Overall library users are twice as likely to be retained as nonusers. So to put it another way, use of library

resources or services in any way increased the likelihood of retention by 96%. Now that is something that a president and a provost can understand. Delving down into particular services, checking out items from the library increased the likelihood of retention by 36%, so getting back into the root of this conference, looking at collections and the impact that they can have on value. Logging into electronic resources, and this is where our study about the time of the semester factors in, particularly a little bit later in the semester, increased the odds of retention by 24%. And for those of you who love stats out there, these are very highly significant numbers. The statistical significance . . . that's always a mouthful to say . . . is less than .01. So there's less than a one in 100 chance that these findings happened by accident or by corruption of data. And the variance accounted for eight percent, so of all possible reasons a student might be retained, the library use accounts for eight percent of those.

There are actually two studies, the findings of two studies being presented in this presentation. And the second one looked at the perspectives of library deans on the role academic libraries can play in student retention by using those ten high impact practices as a conceptual framework. This was an exploratory study using 271 library deans at the public Master's Institutions in the US, which is all of them. We got a sample of 68. There were a lot of different types of data that we gathered through this survey and we put those through descriptive statistics, calculated Pearson correlation coefficients and also frequency distributions. The primary question was a matrix in which library deans were asked to indicate the degree to which library collections, library instruction, and library facilities were aligned with high impact practices. We know these high impact practices. Many of our libraries have services already in place to support them. To what degree are we purposefully doing that? Are we looking at what our institutions are putting into place to support retention and engagement and specifically trying to address those and support those? This was a Likert scale. Each interaction had a Likert scale drop down option. And just for the sake of displaying the data, there it is. I won't go into all of it but you'll notice that every single

interaction between each library scale and each high impact practice, there's a double asterisk beside it, which also means that this is highly statistically significant at the .01 level. So again, less than one in 100 chance that this happened by accident or corruption of data. Pulling out of that some key findings: at a minimum, there was a moderately strong positive correlation between each of the library scales, library collections, facilities and instruction, with each of the ten high impact practices. This confirms what we already know. Libraries are supporting these high impact practices. We are putting our services and our resources into place in order to support these things that help keep students retained.

Of those, library instruction displayed a particularly strong correlation with learning communities and collaborative assignments, again, a finding that makes sense. Likewise, collaborative assignments and projects had an overall higher correlation with each of the library scales, collection facilities and instruction. And library facilities displayed a strong positive correlation with diversity and global learning. So again, our libraries are a place where students from different backgrounds and cultures have a place where they can work together. These findings shouldn't be surprising, but we finally have some justification in saying that this is how we are supporting these particular practices.

There were some troubling findings. That matrix was of course not the only question that was asked in the survey. We asked how library deans are documenting and communicating this impact. And as a big surprise, they're not. So we're doing these things. We are supporting high impact practices. We know from numerous different studies that there is a high correlation between library services and retention. But we're still not documenting it. A lot of them indicated that they didn't know how to go about documenting it. For those that were documenting it, they had very few methods of communicating those results beyond the annual report. Now I know we all put a lot of effort into our annual report and we like to think that it's read, but it's not. It's maybe flipped through by the president and the board. There was a continued overreliance on student learning outcomes as an

indirect measure of impact. And there was also a continued overreliance on self-reported anecdotal and satisfaction data.

To begin wrapping this up, between these two different studies, there are a few key takeaways that I'd like to throw out there for all of you guys. The first of those being enough with relying on indirect measures. With the rise of big data and how we can capture big data, there are changes in how we can assess what we do and how it impacts on things that university boards and presidents and provosts care about, things that are at the very top of their mind. So direct measures are becoming much more feasible. Indirect measures are still very important. We need to gather use data, door counts, download numbers, things like that. That's fantastic. Those help us refine our services internally, but they don't communicate anything to a president or a provost. You can tell door counts all you want, but so what? What does it mean? What does it do? So in order to do this, in order to have a better conversation in your libraries about how to do better direct measure, conduct an assessment audit to align the data that you have, that you already have. We all have tons of data from the services that we provide. Align your data with outcomes and institutional priorities. This can be very complex because we have, again, a lot of data and we have a lot of outcomes that we can impact. To help keep it clear inside the library, develop visualizations of your different services and resources, the assessment strategies that you can use to look at those and how they connect with items of institutional priority and focus. And finally, stop confusing student learning outcomes with measures of retention and graduation. Student learning outcomes are measures of student learning, right? It's an indirect measure at best. There are a lot of responses coming back from the survey that indicated, well we provide instruction and we have an impact on student learning outcomes so we assume that we're positively impacting retention. It is an indirect measure. Student learning outcomes are a direct measure of student learning, which again are very important. We don't need to stop assessing that. Higher education is, after all, about education. We need to have strong methods of assessing student learning outcomes. But we need to not confuse them.



Some other take-aways, use what you find. Close the loop within the library. I talk to a lot of places where they're trying to get a better assessment program started. And one of the things that I consistently hear is confusion about it and some resentment about the complexity of putting together such an assessment program. And a lot of times faculty and staff within the library don't necessarily understand all of the different interactions and all the different types of findings and why we're doing assessment. Communicate your findings within the library. And use your findings to refine your services and resources. Then find new ways to communicate your findings externally. Don't continue to rely on the annual report. Put together a communication or a marketing plan that accounts for all of your different stakeholders. These are just some of them: students, faculty, staff, deans, provosts, president, board. Of course there are others: alumni, community members, I mean whatever is the population in your area and at your institution that has a vested interest in the success of your university. Develop a communication plan for your findings that relates to them and to their needs and their interests.

Of course, there are some concerns with this kind of study. The first that I hear from librarians is on privacy because again, we tracked individual users. We tracked using the student ID number. We worked with our registrar to cross-walk that end with an anonymous student ID number. And we analyzed the data in aggregate. But taking a further step towards maintaining privacy, our data was categorical. It was yes or no. Did a student check out an item? One equals yes, zero equals no. We have no idea what they checked out. We didn't track that. If they logged into an electronic resource, we don't know which one. We simply know that they logged in. So you can structure your data in such a way that you're still protecting content while still looking at individual use. Security is another issue. Obviously this is some sensitive data so we had our data stored on an encrypted drive that was not on a network and the file itself was also encrypted. You'll need to make sure that if you choose to do something like this that you work on appropriate security measures for the data. And then finally, working

with your IRB and your registrar. Our registrar was very supportive of this. And one concern that I often hear, also associated with this kind of study, is FERPA. And our registrar helped us understand that as school officials, that FERPA has allowances for school officials to do this kind of study and look at this kind of data in order to improve the services and resources that we provide. FERPA is not really an issue and our registrar was very supportive. If you're planning to publish as you do this kind of study, of course you need to run through IRB. And our IRB office was very concerned. In fact they freaked out quite a bit. The thought being, yes libraries may have this data but we shouldn't look at it. You know, we may have it but we shouldn't look. Our registrar helped us navigate that process and ultimately the board itself was fine. It was just our IRB coordinator that ended up having the biggest problem with it. But we got approval from them and we have moved forward with it. Have these conversations with your folks on campus, registrar's office, and IRB office and any other entities that relate to the research process to address some of these concerns.

To get back to the original quote, there is a new dawn coming. In an age of big data, increasing accountability, tightened budgets, we have to figure out ways of doing this kind of study. And again, retention is simply a low hanging fruit. All of those other items that Megan Oakleaf outlined in her report for ACRL, we need to figure out ways to address each of those. And maybe for your institutions, depending on the focus of your president or of your institutional culture, retention isn't the one that you would start with. Maybe you need to start with faculty research productivity or grants. But take a look at that and figure out how you can start getting at it using some direct measures. It's very important that we learn to do that because this new day is going to get tougher and tougher in higher education as we have continued accountability standards that we're going to have to meet. And librarians need to be able to speak the language that provosts and presidents are increasingly going to have to use to determine resources. Thank you.