

Analytical Collaboration for Student Graduation Success: Relevance of Analytics to Student Success in Higher Education

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Institutional research (IR) experts can offer a wealth of knowledge to many campus departments, such as assessment. Utilization of dashboard techniques is a good way to improve the quality of university information that is available to support assessment research and do so in an efficient way. Institutional research at Wayne State University implemented a Graduation and Retention Tracking dashboard to assist in improving graduation rates of its students facing challenges from academic and financial holds and saw a significant increase in its graduation rate from a low of 26% to 47%. Strong communication and collaboration is needed to develop a dashboard that meets university requirements while also helping to answer important questions related to assessment projects. These collaborations resulted in cooperation across campus lines essential to important progress toward cross-cutting issues of retention and graduation.

The use of dashboards as a method to support assessment efforts in higher education is rapidly increasing. An institutional research (IR) professional can play an important role in helping a university track and adjust student progress toward graduation and meet important institutional learning outcomes. Student success is often measured in a six year graduation rate. Learning outcomes are typically measured in relationship to specific course objectives.

At Wayne State University, the Office of Institutional Research and Analysis (OIRA) was established to help university personnel with analytics and assessment. Six years ago, in 2012, the university was facing a problem with student graduation rates which were abysmal. The fall 2006 cohort six-year graduation rate was 26%. The university was in crisis, given that this number threatened its commitment to the students and the state of Michigan. 2016's six-year strategic plan included a goal to increase this graduation rate to 50% by 2021.

The key to the ability to change and move forward was the development of a dashboard that included metrics which are an early indicator of student success and are available in a time sensitive way. Rather than getting results at the end of six years, we wanted to get analytics in time to intervene long before graduation. The dashboard would present analytics in two ways: on an aggregate level (data about the student population at large) and an individual level (data on

individual students). A dashboard is a progress report that typically is displayed on a website where it can be continually updated easily. Like the dashboard of a car, it provides many key metrics that help conceptualize important concepts, such as graduation and retention rates or student progress toward degree attainment, and does so at a glance.

Faculty and staff who may possess different levels of statistical expertise often lead assessment projects. Assessment in this context does not refer to standardized testing. Instead, it is a process in higher education where faculty, administrators, and staff are empowered to look at their classes or programs, determine the outcomes they would like to see, and measure whether those outcomes are met. This is a cyclical process, called the continuous improvement model (Banta, 1991).

Sometimes, a lack of understanding of simple statistics stand in the way of an advisor or staff person making an important decision. They might not know that a mean is just an average, or what to do when there is skew. Even though administrators typically should have taken a class in statistics, they may need some help with the actual calculations. However, it can also be difficult for a university or college to allocate the needed analytic personnel to individual assessment projects. As a result, a dashboard can be a welcoming positive resource for accessing accurate statistics that are tailored to the needs of each specific project.

This paper describes the process that led to the development and implementation of such a dashboard at Wayne State University, discussing the elements that were essential to the creation of the dashboard and that allowed us to provide real time analytics and early-targeted interventions to a range of stakeholders. The project reflects the collaboration between three groups at Wayne State: OIRA, the Office for Student Success, and the Strategic Graduation Action Committee (the latter co-chaired by the Associate Vice President for Enrollment Management and the Senior Associate Provost for Student Success). Committee members represented personnel such as advisors, administrators, and enrollment specialists, in addition to associate deans from each of the colleges. Staff members of OIRA did not initially serve on the Strategic Graduation Action Committee; however, when the committee and the Office for Student Success needed analytics they contacted OIRA with their requests. Members would often then offer feedback to OIRA about ways to improve the information and make it more actionable and useful.

The ultimate goal was to create a data-driven retention and graduation dashboard to replace spreadsheets and other types of reports, and to provide real time data for early interventions. The dashboard provided a series of analytics that identifies factors that most affect students' success. SAS Visual Analytics is a visual tool used to solve the problems often created by static reports and thus deliver targeted, actionable, convenient, and on-time analytics to the entire university community (see https://www.sas.com/en_us/software/visual-analytics.html for further information). Collaboration between university assessment committees and institutional researchers will benefit from an approach like the one Wayne State took. It is important to listen to both the needs of the client and the suggestions of statistical experts. The approach taken here to develop the dashboard can also be replicated by other colleges and universities.

Literature Review

The theoretical framework for this project comes from the Gestalt Principles of Visual Perceptions. The crux of this approach is “identifying which elements in our visuals are signal (the information we want to communicate) and which might be noise (clutter).” (Knafllic, 2015, p. 75). Using this approach of separating out the important information from the noise makes the information more usable, filtering out noise to create precise and clear meaning from information. This enables users to act promptly. IR is a rapidly changing field, and usability, or the quality of an interface related to how easy it is for a user to access it, is increasingly becoming a key goal (Swing and Ross, 2016).

A good dashboard allows users to move back and forth between reports, investigating ideas in an efficient cycle of learning and while viewing change over time. This process relates to how one mentally creates knowledge (Swan, 2009). Swan writes about the way one thinks about a problem and then returns to the problem, incorporating new knowledge in a circular process. It takes time to incorporate new ideas into the knowledge base. Repeating the process allows one to continue to incorporate details into the knowledge base and thus help students succeed in a more effective manner.

Further, a good dashboard converts perplexing statistics into a report that is more intuitively understandable. University partners need data that are high quality, but not abstract. These data should be actionable, allowing all assessors to learn quickly. The underlying tenet is to help students appropriately and efficiently (Kuh, Kinzie, Schuh & Whitt, 2011). Good dashboards use visual techniques to highlight certain groups graphically instead of using old-fashioned tables (Evergreen, 2016; Evergreen, 2017). They put storytelling front and center, as the focus of the communication (Knafllic, 2015). They allow users to drill down and make important decisions in a tight evaluative cycle quickly, by providing the overall analytics and filtering out irrelevant information (Harel & Sitko, 2003). This allows the user to better understand the specifics, use the information to specifically intervene, and go back to see if the intervention made a difference.

Dashboards are necessary in IR because of the changing role these departments play in higher education. Many of the historical responsibilities of an IR office relate to mandatory reporting to different regulatory groups, such as the Integrated Postsecondary Education Data System (IPEDS) and the National Student Clearinghouse (NSC). The IR role previously focused on provision of the most accurate statistics on campus to assist high-level strategic planning and governmental reporting, and represented the standard of truth for official reporting (Swing & Ross, 2016).

Changing Institutional Needs

The process of learning from mistakes as a university community, and thus developing an adaptable strategic plan, relies on going beyond the typical requirements and moving into more precise areas of evaluation. Successful evaluation allows a university to examine its initiatives and improve them as needed. This requires IR offices to no longer simply report data without analysis. Increasingly, Wayne State requires that data be analyzed and critically considered by IR staff, in collaboration with assessment personnel in divisions, departments, and colleges. This

shift is part of a larger movement among institutional researchers (Swing & Ross, 2016) to better address real-world concerns in post-secondary education. IR is now transitioning to more of a data-management role, coaching a wide variety of data consumers to look at the same data through different lenses and for different purposes.

Part of the change relates to the growing range of data consumers. As college hierarchies are flattening, decision making is increasingly a job for front-line staff. As a result, IR professionals increasingly focus on assisting and coaching these day-to-day decision makers on how to better evaluate their outcomes and make timely changes for improvement based on information from analytics which address the data in a targeted way.

Many of the biggest innovations in supporting student success have been grounded in such cross-functional collaboration between IR staff and departmental experts. Researchers support this approach and indicate that the most valuable kind of assessment contributes to student success and improves institutional outcomes by answering real questions with real evidence on how to improve those outcomes (Kuh et al., 2015). It is, therefore, important to move beyond standard evaluation approaches and focus on improvement rather than perfection (Kuh, Kinzie, Schuh, & Whitt, 2005). The learning outcome-based curriculum must be discussed in a way that goes beyond rhetoric to build on upon shared definitions and approaches, thereby evaluating assumptions to see if they are accurate. We assume that students are learning certain material in our classes, but unless this is measured, we really do not know (Fraser, 2006).

Understanding one's audience is key in order to determine the type of analytics needed. The best dashboard approaches improve a university's ability to frame data in a way that is usable and understandable to the audience (Kidwell, Vander Linde, & Johnson, 2000). Some of the previous standards in IR are not useful to cross-functional teams. The statistics are too broad to assist staff working directly with students.

The best dashboards reflect strong communication between IR staff and those who will actually use the reports. The latter should be able to make quick decisions about specific actions to take after viewing targeted metrics aimed at specific needs, along with increased access to needed data resources (Eisler, 2001). This process assists university decision-makers in making quick, informed, and workable decisions in real time (Kidwell, Vander Linde, & Johnson, 2000). Successful dashboards provide needed data to people and do so in a timely manner, and their success depends on shared conversations and efforts to understand each other across campus.

Describing the Process

In 2012, discussions about student attrition were occurring all over Wayne State's campus. The Strategic Graduation Action Committee decided to take an analytical approach to better understand what was happening, what interventions could be used, and if used, how they might understand the outcomes. As so often is true, there is no substitute for effective and meaningful communication for successful outcomes. The focus of these conversations was to develop metrics that were understandable to a broader range of users, statistically sound, and easily shared in a dynamic way. Users guided the development of multiple metrics aimed at following students over time, tracking their accumulation of credits, their progress towards graduation, and

the various obstacles that can occur for students along the way. As an added incentive, the Michigan state legislature funds institutions of higher learning using graduation rates as one of its metrics; therefore, increasing the graduation rates took on additional importance as a goal included in Wayne State's strategic plan (Strategic Plan 2016-2021). The graduation and retention dashboard was developed as a result of conversations and meetings with university assessment staff and teaching faculty working to address the issues.

As an example, it was important for the Graduate Action Committee to better understand why students were leaving before graduating. Holds prevent a student from enrolling for their next semester. Financial holds occur when students have an unpaid balance with the Bursar's office. While there are several academic holds, the ones that are applied the most occur when a student's grades slip. Holds have been developed as a way to ensure that students at risk see a university representative to get support and advice before registering for classes. They were originally intended to help students by forcing them to see an advisor or other university personnel in the case of challenging circumstances. Recent proactive approaches by advisors include connecting students to university financial support services or referring them to the Academic Success Center for academic support.

However, in reality, often holds became barriers. Although intended to support a student, scheduling time to meet with a university representative requires admitting there is a problem, asking for help, and scheduling that time. This can be very difficult for a student, and in the past, university representatives were not fully empowered to find solutions for these sometimes simple problems. At Wayne State, we have 51 types of active holds that a student might experience; these are grouped as either advising, financial, academic, or conduct holds. Committee members wondered if intervening in this area, by eliminating the holds, would help more students graduate. Through conversations about these concerns, several data points were targeted that would help to answer these questions. Tables 1 and 2 and Figure 2 (below) offer more information on the data underlying the different reports generated as a result of these efforts.

Figure 1 and Tables 1 and 2 illustrate necessary metrics, which the Graduate Action Committee and OIRA jointly identified and defined, for use in the old, manual system. This system was evaluated and began the transition to the current dashboard system in 2012.

In Figure 1, for each cohort, the number of enrolled students is tracked for enrollment, registration, and graduation by certain dates. There are many different points along the way in which a student could stop progressing toward graduation. Students were tracked as either having formally applied for graduation or "pending," which is defined as currently enrolled in classes needed to graduate. Students may apply for graduation during the semester they plan on graduating. This flowchart illustrates the high level of detailed information needed for effective evaluation.

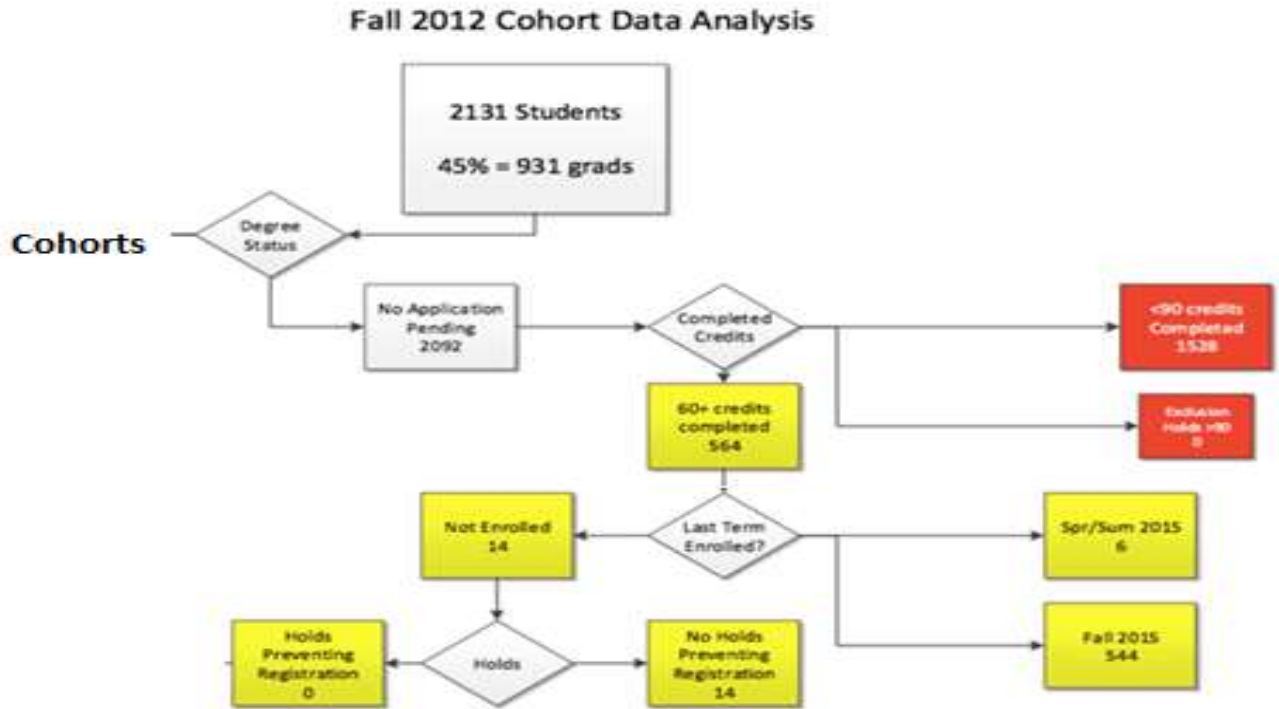


Figure 1: Flowchart illustrating underlying report metrics (Strategic Graduation Action Committee, 2012)

Table 1
Retention rates from semester to semester, September 2005-May 2009 (Strategic Graduation Action Committee, 2012)

Cohort 2005	Year 1 (2005)		Year 2		Year 3		Year 4	
	Fall	Winter	Fall	Winter	Fall	Winter	Fall	Winter
Enrolled	2424	2082	1678	1482	1300	1195	1106	837
Retention Rate		85.89%	69.22%	61.14%	53.63%	49.30%	45.71%	34.53%
Not Enrolled		342	746	942	1129	1229	1293	1351
Graduated							23	236
Graduation Rate							0.95%	9.74%

Unfortunately, using a manual system to track these metrics meant that each of these measurements increased the amount of time needed to complete the report. In 2012, the Strategic Action Committee reviewed an old excel report used to track the 2005 cohort (see Table 1), and requested a revised approach (see Table 2), including six-year projected goals. These goals were used by administrators to focus staff on specific numbers of students needing support in order for the university to meet the desired retention and graduation goals (Strategic Graduation Action Committee, 2012).

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Table 2

Retention rates from semester to semester, September 2009-May 2015 (Strategic Graduation Action Committee, 2012)

	Year 1 (2009)		Year 2		Year 3		Year 4	
	Fall	Winter	Fall	Winter	Fall	Winter	Fall	Winter
Enrolled	2690	2475	2081	1910	1586	1495	1355	1285
Retention Rate		92.0%	77.4%	71.0%	59.0%	55.6%	50.4%	47.8%
Graduated				3	9	20	36	286
Graduation Rate				0.1%	0.3%	0.7%	1.3%	10.6%

Table 2 *continued*

	Year 5		Year 6		6 Year Grad Projected Goal	
	Fall	Winter	Fall	Winter	Spring	
Enrolled	976	807	497	373	148	
Retention Rate	36.3%	30.0%	18.5%	13.9%	5.5%	Need 968
Graduated	397	696	789	886	931	Need 37
Graduation Rate	14.8%	25.9%	29.3%	32.9%	34.6%	Goal 36%
% Goal: 6-yr Grads					To Date 34.6%	

The Impact of “Holds” on At-Risk Students

Figure 2 highlights some important discoveries learned regarding student attrition. As suspected, student holds were found to be a major contributor to attrition. A recent focus group study by the Detroit Chamber of Commerce (2018) also reported findings about holds being a major factor in student attrition. Students would get a hold and drop out, and never resolve the issue that created the hold. In this chart, the green color indicates the total number of 2013 full-time first-year students at Wayne in each category. Gold indicates those students, identified in the green bars, who did not return in fall 2014. The first green bar group shows the total of full-time first-time college enrollees in fall 2013 (2068). The first gold bar indicates the 502 students of the 2,068 original enrollees who did not return—a 24.3% attrition rate. We then broke down those original 2,068 students by hold category (no holds, only academic holds, both academic and financial holds, and only financial holds). We found that for students with no holds, the attrition rate was only 12.6%.

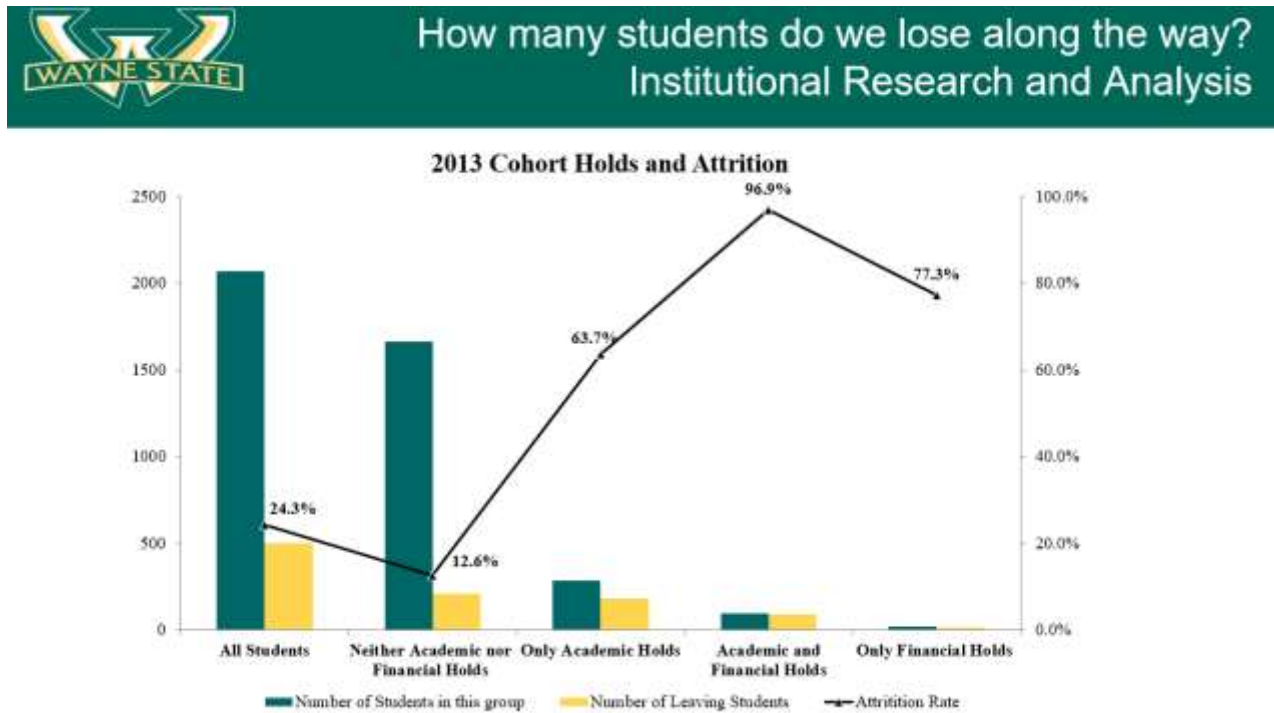


Figure 2. Hold Categories and Student Attrition, 2013 (Byrd, 2014 Higher Learning Commission Report)

To help address these concerns, a series of profiles of individual students was developed within the original dashboard and presented to university personnel, with key information about the nature of and connection between holds, student grade point average, and other minor and/or major indices. The key focus was on how these at-risk students were progressing. Staff in OIRA also developed an interactive feature in the dashboard. It allowed advisors to specify the number of completed credit hours required to move to the next level into the interface and view the number of students meeting that target.

The Graduation Dashboard

OIRA created a graduation dashboard on its main webpage, with secure access to protect the information made available for relevant staff throughout the university. This dashboard provided information which was then used by faculty and advising staff to develop targeted interventions aimed at improving the likelihood of more students graduating. Views of the dashboard and its customized reports are presented in Figures 3 and 4 and in the Appendix. Previously, university registrar staff spent weeks updating and entering the information in the original flowchart (see Figure 1 and Table 1). The time used to create reports impaired the university's ability to identify and timely intervene with those students who needed support. Now, anyone who has been granted access can download lists of students with holds and follow up with them in a much more time-sensitive way, and provide intervention when the student needs assistance the most.

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Figure 3. The landing page

The landing page is the first page of the graduation dashboard. It is a webpage devoted to funneling viewers to more specific information, in a drill down approach. The aggregate information on the page shown here is important to high level university administrators and outside regulators. In particular, it is used to generate reports for the Consortium for Student Retention Data Exchange (CSRDE; <https://csrde.ou.edu/>), an important project aimed at increasing transparency about student outcomes in higher education. CSRDE reports illustrate how many students across the country are retained by their institutions and successfully graduating.

The original flow chart was converted into this interactive, clickable dashboard. Each chart indicates high level, aggregate information. However, the chart is also clickable and leads to more specifics, holding real-time data about students and thereby allowing the user to review different possible interventions (Byrd, 2017).

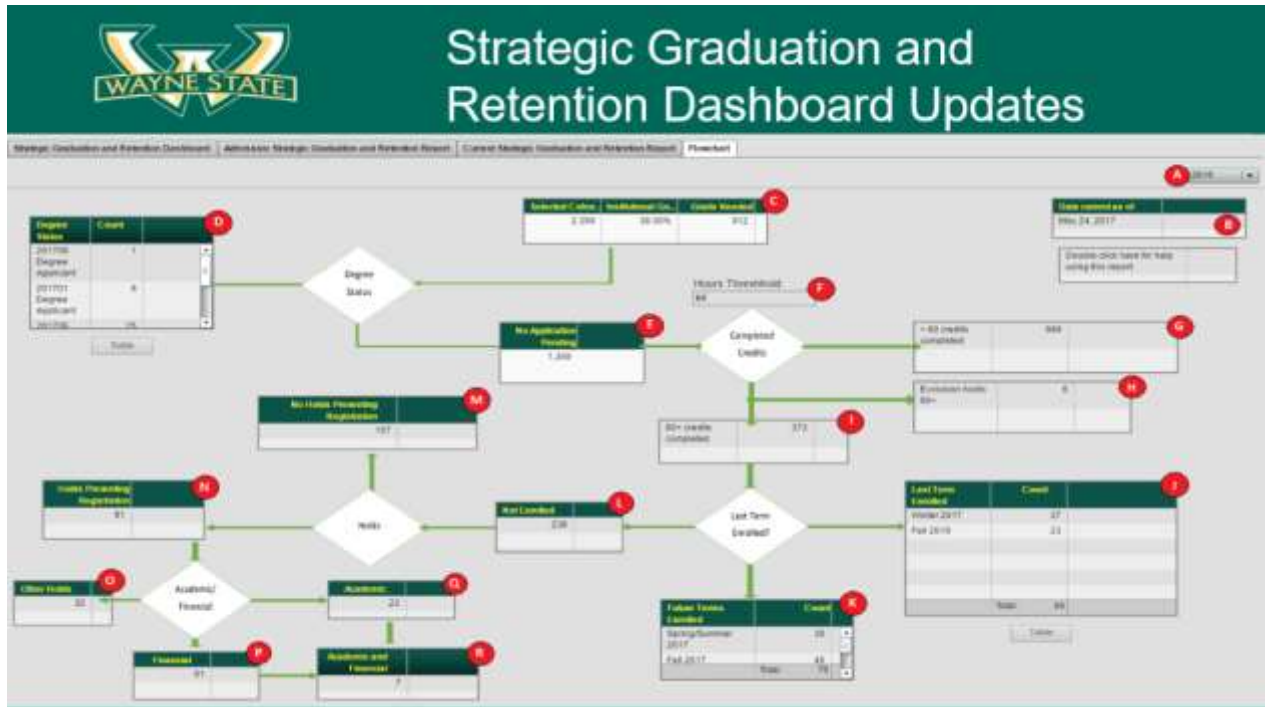


Figure 4. Dashboard

Current Climate

Ultimately, this dashboard provided high-level, aggregate data quickly and easily to several key administrators, including the Provost, the Senior Associate Provost for Student Success, and the Associate Vice President for Enrollment Management. Their staff were able to use the same dashboard to drill down to actionable specific interventions. They were able to use data in a tight assessment cycle and then offer targeted interventions in a timely way. Graduation Action Committee members are able to see how these interventions worked and to fine-tune their approach. For example, in 2013, several interventions followed as a result of reviewing the dashboard analytics. These included increasing the number of academic advisors; developing proactive advising approaches, such as lifting holds; and insuring that certain gateway courses were offered in adequate numbers of sections.

The landing page also provides important information useful for high level analysis besides the work done on retention and graduation by administrators. For users not on the Strategic Graduation Action Committee, the typical advisor is able to see much of the aggregate information as well as specific data for (only) those students assigned to that advisor, which can be used to strategize the best way to help those particular students' progress (see the Appendix for a training document on the tool for users who have access).

One of the Strategic Graduation Action Committee members (K. Smith, personal communication, April 27, 2018) had indicated that in preliminary discussions about the dashboard in 2012, his job as Business Process and Intelligence Specialist was seen as looking for possible incremental changes that, if made, might get more students across the graduation

line. The hope was that one or two small changes for a given cohort could be built on to produce a reduction in the graduation gap between different types of students, such as between first generation students and students whose parents graduated from college. For example, students who took their required English courses immediately had a better chance of being retained to the second year. However, students who took remedial English and remedial mathematics in the same semester did not do as well in each course as when they took the courses separately. This specialist ended up using information from the graduation dashboard to create cohort groups, using advisor tracking software. This option helped keep those advisors who were in direct contact with students better informed, and allowed them to target their efforts toward those students who needed the most help.

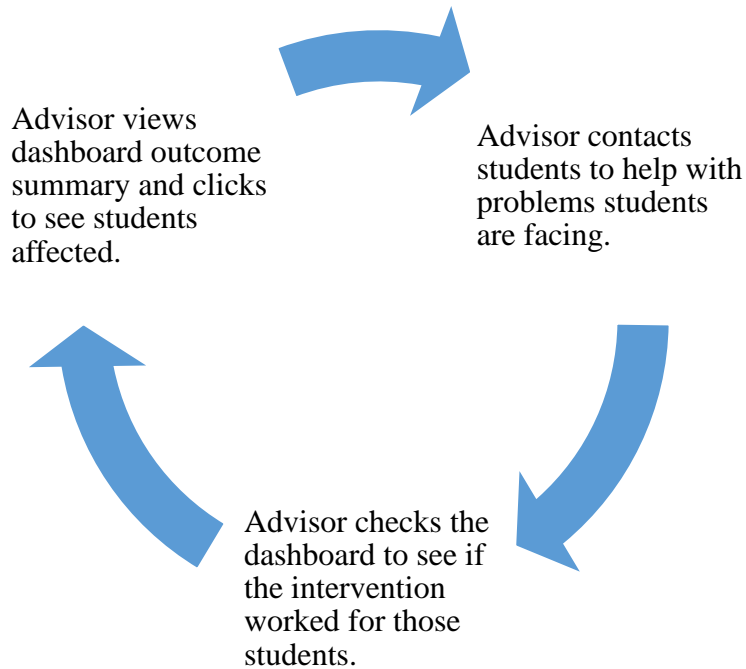


Figure 5. Advisor Dashboard Process

Before this change, this same type of report would require sending a request to Wayne State's Computing and Information Technology (C&IT) department to get these data and waiting until C&IT could get to the request and fulfill it. Now, these data are available in a way that can be customized based on the information the user both knows and needs to know about different students. This allows the user to precisely evaluate what students need help with immediately, especially when used in concert with registration deadline information to target those students who are at critical points in their academic progression.

Members of the Strategic Graduation Action Committee used these data, starting in mid-semester 2012, to implement key changes. Many different interventions were used. Sometimes a change was simple, such as lifting a hold to let a particular student progress. Members of the committee would coordinate with the department placing the hold to strategically lift it. However, the ability to look easily at the specifics related to student retention, and understand the individual circumstances of those behind these data, allowed for more targeted interventions that we believe make a difference in terms of retaining and graduating students. A recent piece in

the New York Times described this approach, specifically citing Wayne State: “Initiatives like these build a ‘we have your back’ community. They enable vulnerable undergraduates to realize that they’re not imposters, an all-too-common belief, and that they can handle the obstacles they’ll predictably encounter” (Kirp, 2018).

Conclusions and Discussion

Dashboard discussions began in 2012. Five years later, Wayne State University has experienced many different successes related to graduation rates (see Table 3). These were also highlighted by Roy Wilson, Wayne State’s President, in his annual address that supported the strategic plan (Wilson, 2017) and his recent testimony to the state of Michigan (Wilson, 2018), as well as in a recent ConnectEd presentation (Brockmeyer, 2017).

Table 3
Graduate rates over time (Medley, 2017)

Group	2011	2014	2017
Six Year Graduation Rates			
Cohort Overall	26%	43%	47%
Black	8%	13%	20%
White	39%	49%	55%
Latino/Latina	17%	26%	28%
First Generation	18%	26%	36%
Pell Recipient	18%	24%	38%
Family Income <\$40K	15%	22%	34%
ACT 16 – 20	19%	24%	30%
ACT 21 – 24	38%	41%	47%
ACT 25 – 29	41%	64%	68%

As the table above shows, the six-year graduation rate for Wayne State increased from 26% in 2011 to 47% in 2017. As a result, the President was able to take note of the fact that the university had now been ranked in the *U.S. News and World Report’s* top tier of higher education institutions (Wilson, 2017). Another comparison was made of improvements in graduation rates across cohort years for top similar Carnegie Classified Urban Research Universities. In 2017, the 47% rate increased Wayne State’s ranking to best of peers in graduation improvement (Wilson 2018). It is worth noting that across all sub-groups, the graduation rates have increased significantly, as well.

As institutional researchers, we must be strategic about how we spend our time and resources. It appears, based on Wayne State’s experience, that dashboards are a good way to support university colleagues to make needed improvements. An assessment-driven university is able to make changes that were previously believed to be difficult or sometimes impossible.

This dashboard approach was successful because of good collaboration with university partners concerned about university graduation rates. It also reflected an intuitional researcher focus on using technology to make information more understandable and more quickly available. Because this information was readily available as needed, thereby providing clear support for decision-

making, the university was able to make key positive changes in a timely way. The dashboard became a key part of a university-wide initiative to improve student graduation through better retention.

These changes seem to have transformed university graduation rates. Although there are still improvements to be made, of course, this dashboard has been the key to helping university staff change the university overall in a positive way. In the future, we will continue to work on more intrusive advising and evaluating and scaling back the hold system as we strive to serve our students more effectively and efficiently.

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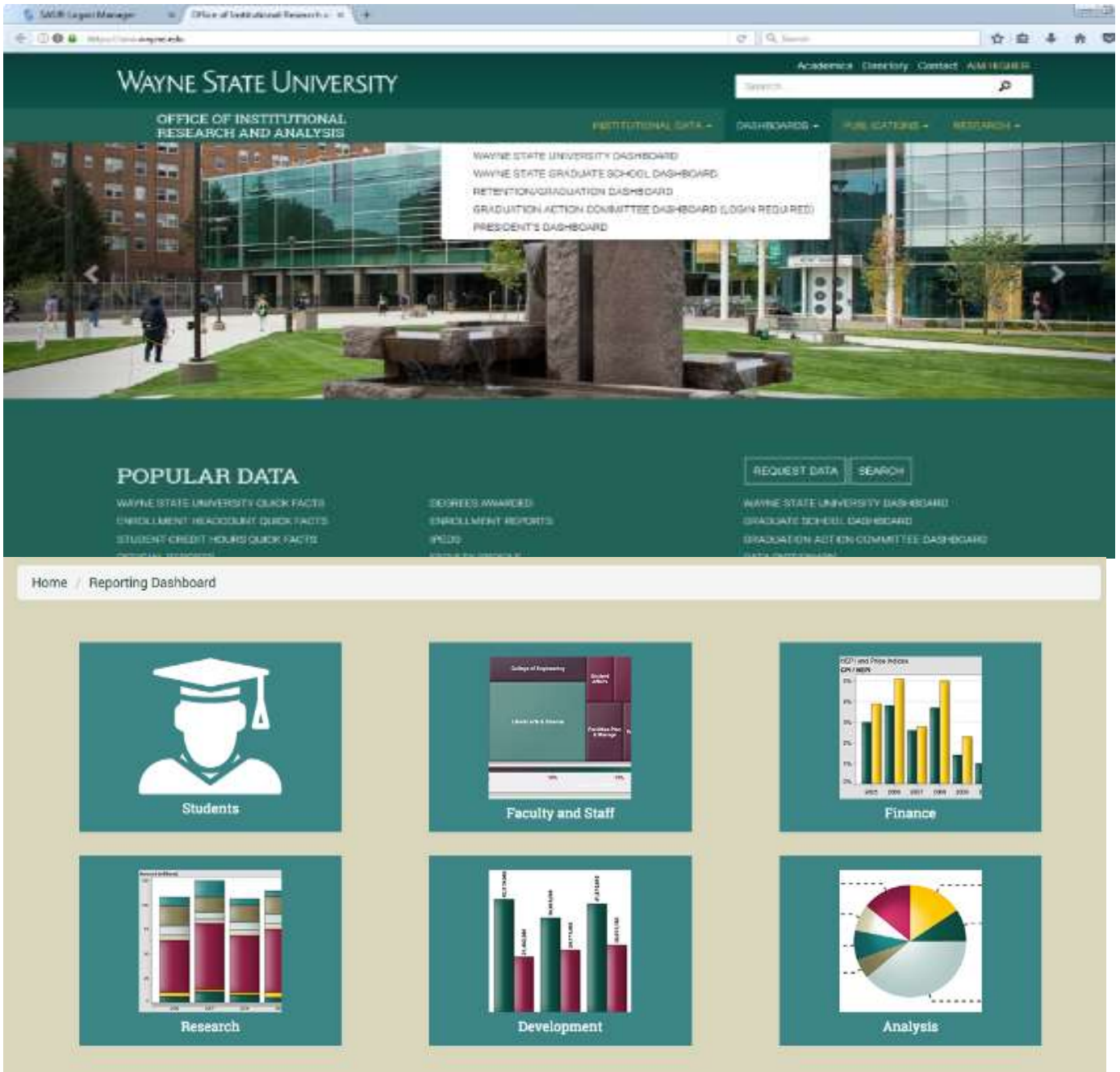
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Appendix A: Training Document: Introduction

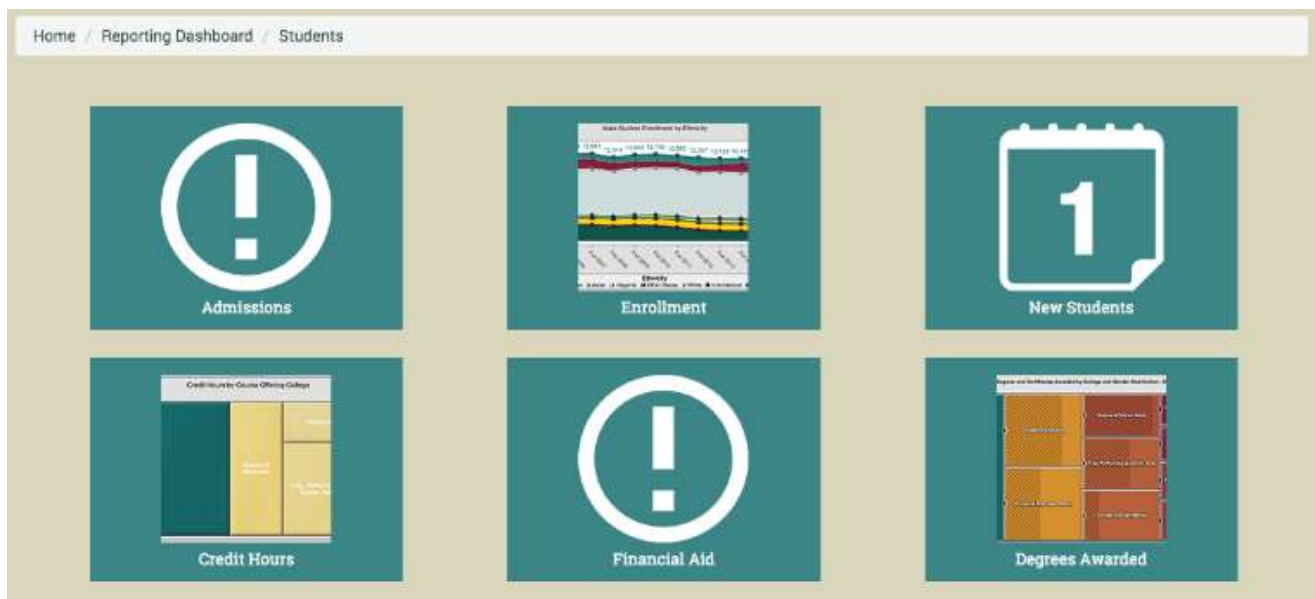
A complete description is beyond the scope of this paper, but this is a look at what Wayne State has accomplished thus far in terms of developing the dashboards. The beginning page shows the navigation possibilities for information that we make available to the university community.



Appendix B: Training Document: Navigating the Wayne State University Dashboard (Byrd, 2017)

Because of the amount of information on this dashboard, we have tried to assist our users by placing the information within a specific context. So, for example, if you are looking for student data, there is a tile that will tell you where to go.

Within the student data there is so much information about that topic that we created a second layer of tiles that further narrows your search; thus, if you are looking for enrollment data there is a tile for that. There are a couple of tiles, however, that are still a work in progress based upon ongoing collaboration with university personnel and departments.



Appendix C: Training Document: The Student Success Steering Committee Graduation Action Committee Dashboard (Byrd, 2017)

One of the more important areas, of course, is the Graduation and Retention Dashboard that was created via ongoing discussions with the Registrar’s office.

The dashboard has gone through a few iterations to make it as useful as possible in terms of monitoring incoming freshmen as well as recognizing some of the roadblocks that we have seen as the biggest impediments to a student graduating, specifically holds and academic concerns. These are two images of the dashboard.



The first image is of the landing page. It has measures that generally are typical measures for institutions to monitor and report on. In the top image there are five images and one prompt bar that allow you to specify which group(s) of students you want to examine. The default mode is full-time degree seeking students in the Fall 2009 and 2010 cohorts.

Red Circle A is the *Report Prompt*—a series of list selections that allows the end user to dynamically select a population based on its cohort, admission group (college, department, program, and major), First Time in Any College (FTIAC) Entry Band, Ethnicity, Gender, and FTIAC First Year Outcome Band. The FTIAC Entry Band and FTIAC First Year Outcome Band

are additions to the data model, which scores students based on their high school GPA and ACT scores (FTIAC Entry Band) or their first year GPA and credit hours (FTIAC First Year Outcome). These scores and descriptions can be easily adjusted to correct or modify the rankings accordingly.

Red Circle B is the Full-time FTIAC Yearly Retention Bar Chart. Based on the selections made in Point A, this report shows how many students in each cohort are continuing their education at WSU over the selected years. Double clicking on the year will allow the end user to observe how a cohort is doing in the terms of a particular year.

Red Circle C is the Full -Time FTIAC 4-8 Yearly Graduation Rate Bar Chart. Based on the selections made in Point A, this report shows how many students in a cohort are completing their education across the different years. Double clicking on the year will allow the end user to observe how many students are graduating in which terms in a particular year.

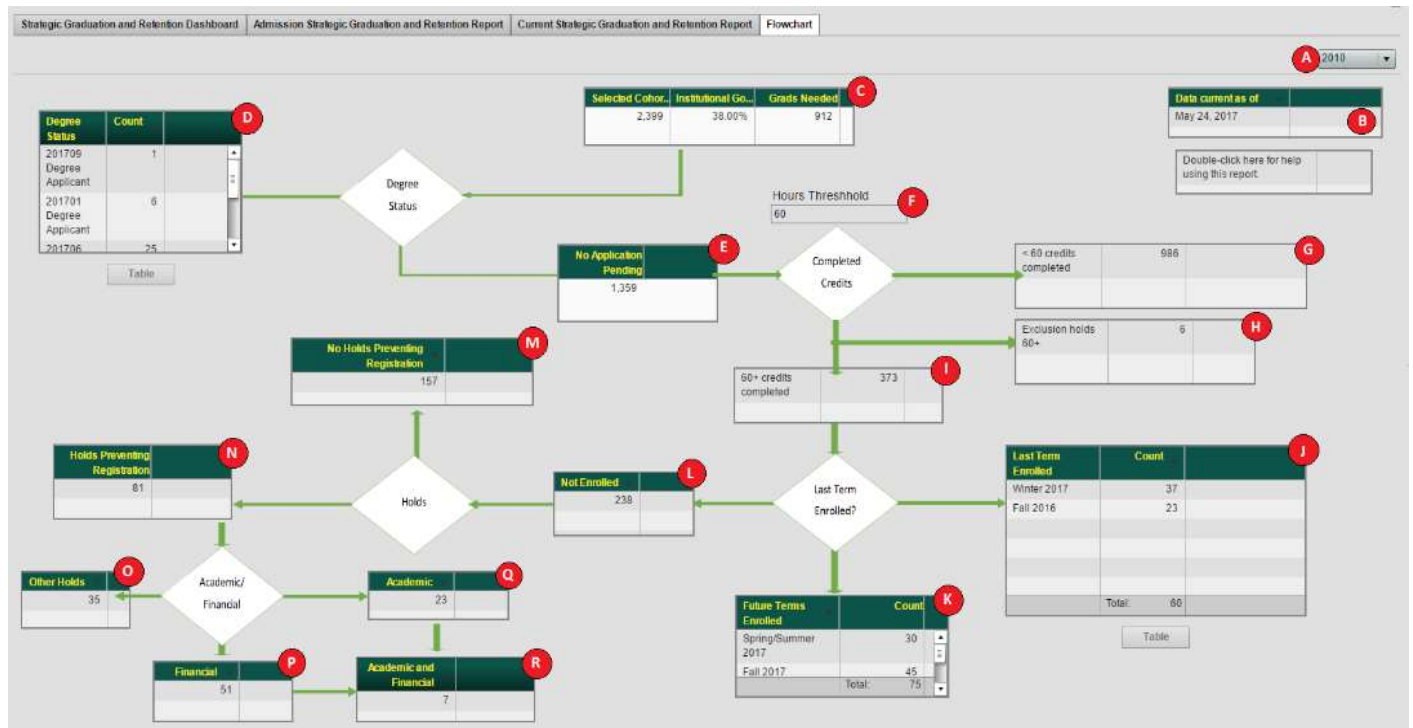
Red Circle D is the Full- Time Yearly Success Rates Line Chart. Based on the selections made in Point A, this report shows how the cohort is performing over the years, by considering both enrollment and graduation rates.

Red Circle E is the Full- Time FTIAC 4-8 Yearly Graduation Rate Line Chart. Based on the selections made in Point A, this report shows how many students in a cohort are completing their education across different years. Double clicking on the year will allow the end user to observe how many students are graduating and in which terms in a particular year.

Red Circle F is the Projected Goals. Based on the selections made in Point A, this report displays specific student data in thermometers based on the cohort: graduation percentage; number of students who have graduated; institutional goal for the cohort; original cohort size; and selected cohort size (based on the filters). The colors are based on the static values, 0%-60%. For percent graduated between 0-30%, the color is set to red; for 30-40%, it is set to Yellow; and for 40-60% it is set to Green. Double clicking on the thermometer object for a given cohort will link one to the flow chart report.

Training Document Flowchart (Byrd, 2017)

The below screenshot is of the Cohort Data Analysis Flowchart. Note the selector for the cohort in the upper right of the shot. Each of the flowchart decision elements is a simple image and is not data-driven. The graphs and other boxes, however, are data-driven student ID counts, with filters applied in accordance with the flowchart. This report is accessible through the Retention and Graduation Dashboard. The elements of this report are described below.



- A. Cohort Selector—a drop-down populated by the cohort column. If this report is accessed through the Graduation and Retention Dashboard, then only one cohort will be visible in this drop- down list.
- B. Data Current as of a particular date—populated based on the load date column.
- C. Top-level information. This table contains three pieces of information:
 - a. Selected cohort size—the number of students in the selected cohort. Calculated by counting unique PIDs (Personal Identification Numbers).
 - b. Projected goal—graduation goal percentage
 - c. Grads needed—number of total graduates needed to reach the projected goal, equal to the selected cohort size multiplied by the projected goal, then rounded up to the next whole number of students.
- D. Degree Status Count—one branch of the first decision point in the flowchart. This table and chart show the number of students within the cohort who have either graduated with an undergraduate or professional degree or have applied to graduate.

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- E. No Application Pending – the number of students who have not applied to graduate. This category is mutually exclusive of any category listed in (D). Calculated by counting unique PIDs.

Filters that are applied: LAST_TERM_DEGS_CODE Missing

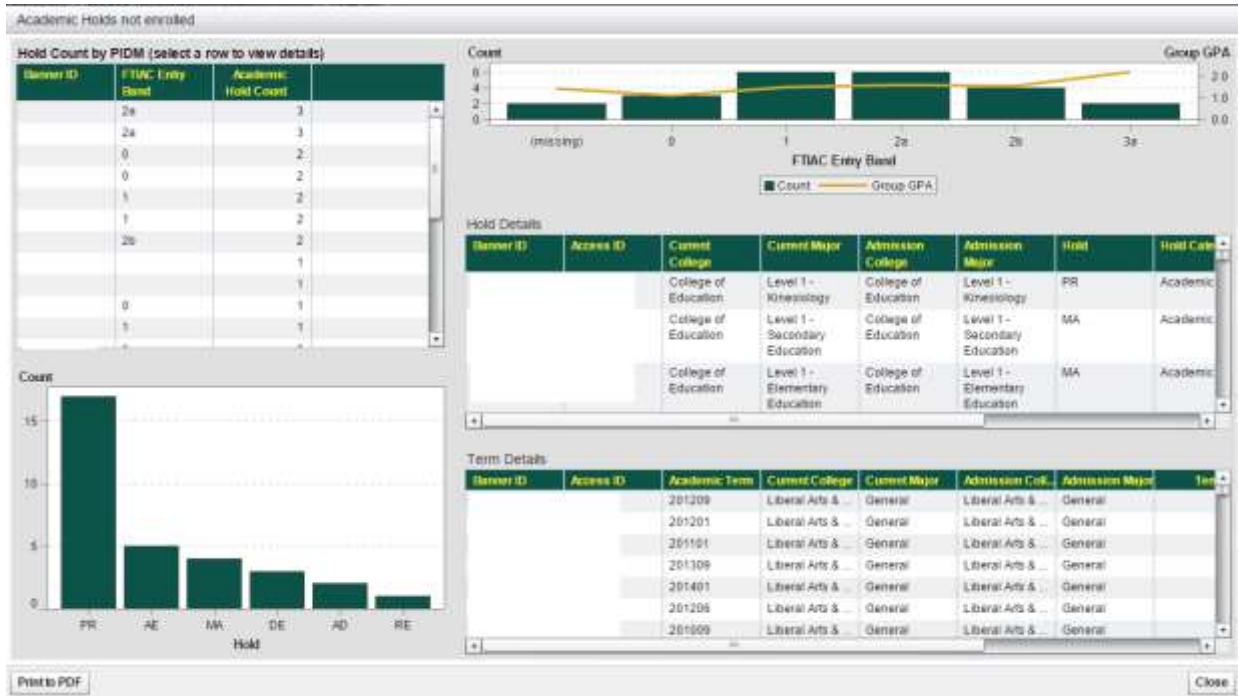
- F. Hours Threshold – A text entry for users to select the hours threshold. Students will be split into two groups at this point – those who have completed less than the specified number of hours and those who have completed at least the number of specified hours. This text box populates the parameter named ‘Hours Completed.’
- G. Less than [credits] completed – The number of students who have not yet completed the number of credits specified in (F). Calculated by counting unique PIDs.
- H. Exclusion Holds – the number of students who have an active exclusion hold (AE) and have less than the number of credits specified in (F). Calculated by counting unique PIDs.
- I. At least [credits] completed – the number of students who have completed at least the number of credits specified in (F). Calculated by counting unique PIDs
- J. Last Term enrolled – the number of students who have completed the hours specified in (F) and were last enrolled either in the current term or the previous fall/winter term. Calculated based on TERM_REPORTING and counting unique PIDs. Current, previous, and future terms are all calculated dynamically, based on the current date.
- K. Future Term enrolled – The number of students who have enrolled in any future terms and have completed the hours specified in (F). Calculated based on TERM_REPORTING and counting unique PIDs. Current, previous, and future terms are all calculated dynamically, based on the current date.
- L. Not Enrolled – The number of students who are not currently enrolled, are not enrolled in any future term, and were not enrolled in the previous fall/winter term. Calculated based on TERM_REPORTING and counting unique PIDs. Current, previous, and future terms are all calculated dynamically, based on the current date.
- M. No holds’ preventing registration – The number of students for which (L) applies and who have no holds preventing their registration in a future term. Double click this node to view an info window. Click the graph on the upper left of the visual or the table on the lower left to filter the elements on the right side.

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- N. Holds Preventing Registration – The number of students for which (L) applies who also have at least one hold that is preventing their registration. Calculated using ACTIVE_HOLD_IND and by counting unique PIDMs.
- O. Other Types of Holds – students who have non-academic and non-financial holds.
- P. Financial Holds – students for whom (L) applies and who also have financial holds preventing their registration. Calculated based on the FINANCIAL_HOLD_FLAG and counting unique PIDMs. Double click on the number to see an info window.
- Q. Academic Holds – students for whom (L) applies and who also have academic holds preventing their registration. Calculated based on the ACADEMIC_HOLD_FLAG and counting unique PIDMs. Double click on the number to see an info window:
- R. Academic and Financial – the number of students who have both an academic and a financial hold preventing their registration. Calculated using ACADEMIC_HOLD_FLAG, FINANCIAL_HOLD_FLAG, and counting unique PIDMs.

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