



Achieving the Dream™

Community Colleges Count

Strengthening Institutional Research and Information Technology Capacity through Achieving the Dream

PRINCIPLES AND PRACTICES OF STUDENT SUCCESS

Rhonda Glover

The Achieving the Dream model for improving student success is data-intensive. Achieving the Dream encourages colleges to use data to inform decision-making and guide efforts to improve student success. As a result, colleges participating in the initiative soon discover that collecting, analyzing, and using data is a continual process.

Having information technology (IT) and institutional research (IR) functions with sufficient capacity to meet increased demand for information, and that work together in a coordinated way, are essential to the success of any effort to implement the Achieving the Dream improvement process. At most colleges, IT typically operates as an individual department. That is not always the case with IR functions. While some institutions establish a stand-alone IR office as their primary data resource, other colleges centralize their data and analysis functions by combining IR with institutional effectiveness, strategic planning, or assessment. At institutions with no specific IR office, data and reporting responsibilities are distributed among several staff. Regardless of organizational structure, however, Achieving the Dream colleges must be prepared not only to generate information, but to use it. In general, colleges that make the investment necessary to collect data, and to effectively interpret and present it, are far better positioned to deepen their understanding of student

progression and outcomes, and identify strategies for improving student success.

This guide describes basic roles and activities for IR and IT to support student success efforts under Achieving the Dream. It also provides guidelines to help colleges review their IR and IT functions, and to determine if each is optimally prepared to meet the college's data needs under Achieving the Dream.

Types of information colleges need to produce

Institutions vary in the information they are able to produce prior to joining Achieving the Dream. At a minimum, colleges participating in Achieving the Dream are expected to be able to produce the following information.

National database. Participating colleges are required to submit data on their students to the Achieving the Dream national database. The national database contains student unit record information on the progress and outcomes of cohorts of entering students across years. Colleges can use this information as a benchmark to compare their performance to that of other schools. Colleges have to submit data on cohorts from baseline years shortly after joining Achieving the Dream. Thereafter, colleges are required to submit data annually on the baseline cohorts and on new cohorts.

Longitudinal cohorts. Most of the information colleges are required to produce for state and federal compliance reporting consists of cross-sectional “snapshots” of student characteristics, enrollment patterns, grade distributions, and credentials completed. This information is important, certainly, but is only of limited use in understanding and improving student success. Achieving the Dream colleges are expected to track the progress of cohorts of students over extended periods of time. This allows colleges to identify “leakage points” where students tend to drop out or founder, and to focus their energy on those points in students’ experiences where there are opportunities for improvement. Colleges are encouraged to disaggregate longitudinal analyses by student characteristics such as age, gender, income, race, and ethnicity to identify gaps in achievement among different groups. (For more details, see the Achieving the Dream guide on the Basics of Longitudinal Cohort Analysis.)

Other information for improvement. Colleges that have joined Achieving the Dream invariably experience an increased demand for information from within their institution. This may include requests from faculty on the success of students in particular classes, and from administrators for use in program review, strategic planning, and budgeting.

Roles for institutional research (IR) and information technology (IT)

Colleges need to understand the important role of both IR and IT in efforts to improve student success, and how they can work together effectively. In some colleges, IR and IT have considerable interaction and operate as partners. In other institutions, the relationship between IR and IT is undeveloped, strained, or at least not clearly defined. Ideally, the mission and responsibilities for the two functions are well defined, and there is a supportive

partnership between them. The broad summaries that follow describe some of the typical responsibilities of IR and IT.

Role of IR. Institutional research (which can include research, learning outcomes assessment, planning, institutional effectiveness, and accreditation) generally maintains ultimate responsibility for completing all internal and external reporting requirements. In responding to that obligation, IR necessarily relies on IT to maintain the systems infrastructure for its data needs. At some colleges, institutional research’s dependence on IT can create an apparent hierarchical relationship that places IT in the lead role. Although the hierarchy may not appear in organizational charts, perceptions may outweigh reality.

Role of IT. Information technology’s role does not usually include major reporting obligations. Instead, IT generally focuses on data processing and storage; information systems design, operation and maintenance; technical support; and user access and training. Increasingly, IT departments are also responsible for providing support for instructional technology and campus telecommunications systems.

Regardless of the roles of and relationship between IR and IT at particular colleges, there are generally a number of challenges that both departments confront. Colleges seeking to join Achieving the Dream should assess the extent to which these challenges exist on their campuses, and consider how each will be addressed.

Typical challenges for institutional research departments

Compliance reporting. Foremost among the challenges faced by institutional research offices is the time and resources consumed by the preparation of state, federal, and accreditation compliance reports. Although necessary to complete, such reports include highly specific definitions and measures, and require enormous amounts of time to prepare. Unfortunately, information reported for compliance purposes is often not very useful for efforts to improve student success.

Technical barriers. A very common obstacle for many IR departments is minimal or cumbersome access to data systems. Even when access is available, IR staff need a published data dictionary — a catalog that describes the contents of a database — and validation tables. With a published data dictionary, staff can ensure the data fields

they select are appropriate for each specific analysis. For example, there may be three FTIC (first-time-in-college) fields: one that includes dually enrolled students, one that includes non-matriculated students, and one that includes degree-seeking students. Validation tables allow IR staff to translate what a coded variable value such as “APHS” (any place high school) means, and to identify invalid or erroneous data entries. Without easy access to these tools, IR staff may unintentionally produce inaccurate results or lose valuable time investigating definitions and errors. Also, in some colleges, data systems are outdated, and while the data are collected, the systems do not store sufficient data elements. These factors may limit IR’s ability to analyze student outcomes thoroughly.

Role confusion. Another challenge for IR offices is the confusion that exists at colleges about which department should provide what type of data. Some requests sent to IT might better be completed by IR — for example, the percentage of first-time-in-college students enrolled in the fall semester. The opposite occurs when IR receives requests for class rosters or grade input sheets, which may typically be produced by IT. On occasion, college employees forward the same request to both departments (without their knowledge) because it is unclear which should be the appropriate responder. Such confusion surrounding the respective reporting roles of IR and IT wastes time and reduces productivity.

Influence. Regrettably, institutional research offices may not be viewed as important or influential units within their colleges. If institutional researchers are perceived as compliance reporters, college faculty and staff may discount IR’s potential contribution to efforts to improve student success. This perception can unintentionally cause faculty and staff to overlook valuable information that could inform their activities and decisions.

Titles and organizational structure: Further complicating institutional research’s credibility is the level of influence it enjoys with the college’s leadership. For some colleges, IR’s standing may be related to the title held by the IR officer or the specific division that supervises the department. Administrative IR titles such as vice president and assistant/associate vice president obviously garner higher levels of influence. In terms of organizational structure, IR leaders sometimes report directly to the president, which usually raises their influence. At institutions where IR officers report to academic vice presidents, opportunities to focus on

student outcomes and engage with faculty are more common, but the degree of influence over decision-making may not be as high. Regardless of reporting structure, IR leaders who are members of the president’s cabinet generally experience higher standing at the college.

Typical challenges facing information technology departments

Competing processing priorities. Information technology departments regularly juggle competing priorities. At most colleges, registration and financial aid processes are considered highest priority. Requests to support these key activities usually are met with fast response times, because both functions are critical to the operation of every college. IT controls the number of users accessing data systems to prevent slow processing times and potential system crashes. Policing system utilization in this way is necessary. However, IT departments may be unaware that the lower priority given to requests from IR staff sometimes can make it difficult for IR offices to meet the college’s need for data analysis.

Limited or no reporting functionality. Missing from many information technology departments is the capability to produce summary level reports quickly or easily. Creating summary reports from the vast amounts of data stored by IT departments is very useful to efforts to improve student success.

Preparing IR departments for Achieving the Dream participation

Beyond the routine challenges mentioned above, colleges should consider ways to ready their IR departments for participation in Achieving the Dream. The following are some suggestions to help meet the increased demand for data analysis that typically occurs when a college joins Achieving the Dream.

Ensure appropriate institutional research staffing

For colleges with no IR function. Colleges without an institutional research function should plan to establish one as quickly as is feasible. Participating institutions without IR functions generally struggle with the data analysis requirements of Achieving the Dream. Additionally, these colleges often progress more slowly than desired because they lack the consistency of a centralized data analysis function. Without an official IR unit, colleges can find it daunting to establish a routine practice of using data for decision-making. It may take months to

recruit and hire IR professionals or to develop in-house candidates. As an interim measure, institutions may want to consider providing release time to faculty or staff or contracting with outside consultants to complete specific data assignments until a permanent IR professional can be recruited. Contract workers, however, should not be considered a permanent solution.

For colleges with existing IR functions. Staffing for colleges with existing IR offices should be sufficient to complete compliance reports, respond to internal data needs in a timely manner, and incorporate the cohort tracking and ad hoc queries that accompany their Achieving the Dream improvement plans (see below for more detail). Colleges with limited staffing should create an inventory of IR responsibilities and record the corresponding percent of time spent to fulfill each assignment. Once completed and analyzed, a redistribution of activities may be necessary. In the analysis of these duties, responsibilities for data collection and analysis to support Achieving the Dream should be officially assigned and prioritized.

One-person IR functions. In addition to the information mentioned above in the section for existing IR offices, offices with one full-time equivalent (FTE) employee supporting IR should analyze their capacity carefully. They may need to identify ways to increase capacity if existing reporting responsibilities are extensive or if data errors and unwieldy data systems cause report production to be time-consuming. No matter the size of an IR department, if capacity is severely limited, colleges should consider redirecting some assignments to other appropriate areas or plan to add additional staff. Some colleges located near universities have had success contracting with graduate students or with faculty and/or research staff to do discrete data analysis projects.

Professional development. If IR staff members require training or “refresher” courses, the Association for Institutional Research (AIR) is a rich resource (www.airweb.org). In addition to an annual conference, the organization offers both introductory and advanced week-long institutes designed specifically for higher education institutional researchers.

Create baseline cohort data sets and prepare for follow-up queries

By early fall of the first year of affiliation with Achieving the Dream, IR offices will create baseline cohort data for

the five Achieving the Dream performance measures, disaggregated by various student characteristics. By generating cohort data sets early, institutions can detect student success barriers and achievement gaps and proceed more strategically toward developing their improvement plans. Production and analysis of longitudinal cohort datasets also will become a routine practice for IR departments, which suggests the permanent need for adequate statistical software and skilled programming staff. Users of SAS and SPSS software are particularly well suited to this type of dataset production.

Also, IR offices must be prepared for the fact that when new data analyses are released, requests for additional information are likely to follow. Some examples of follow-up questions include which courses have the highest and lowest success rates or what percent of students need remediation in math only. IR staff members need to allot time to handle ad hoc requests such as these.

Although handling them can be time-consuming and demanding, colleges should welcome ad hoc inquiries and increased interest in student outcomes because they are early indications of an emerging culture of inquiry and evidence. At the same time, a balance needs to be struck between analyses of “interesting-to-know” questions from faculty, staff, the administration, and the data team, and the essential information needed to inform strategic efforts by the college to improve student success. IR officers need to manage expectations by screening requests thoughtfully and prioritizing queries that support the college’s improvement plan. Prioritization is vital to effectively managing data requests.

Prepare national Achieving the Dream database files for submission

Within weeks after the Achieving the Dream kick-off meeting, colleges will be presented with their first deadline to submit their cohort data extracts to the national Achieving the Dream database. After reviewing the record layouts, IR staff should set aside a sufficient block of time for programming and error correction. Subsequent submissions should be much less demanding if colleges establish a process for identifying and correcting data entry errors throughout the year.

Organize and set an overall agenda for the Achieving the Dream data team

IR officers often lead or co-lead their college's Achieving the Dream data team. The primary role of the data team is to collect and analyze data to inform the activities of the core team. The data team's effectiveness will depend on good leadership, clarity about its charge, and focused activity. Providing team members an advance copy of a well-constructed plan of objectives centered on the Achieving the Dream measures and goals can help the team focus its activities. The IR leader should also be prepared to explain data definitions and help the team identify relevant points within the data. Meetings tend to be frequent in the early stages of improvement planning. To keep the team aligned with its objectives, it is helpful to provide advance copies of each meeting's agenda and publish minutes for each meeting that note all action items. An important role for the data team leader is to serve as the liaison to the Achieving the Dream core team with the goal of ensuring that the data team provides the sort of analysis needed by the core team to identify achievement gaps, design strategies for overcoming those gaps, and evaluate the outcomes.

Establish data integrity procedures

IR professionals, as reporters of data that reside in the college's data systems in partnership with IT, must be vigilant about data integrity and quality. Achieving the Dream colleges frequently use data for decision-making. Clearly, it is essential that data cleansing and validation processes be in place to ensure that the information on which teams are acting is accurate. To that end, colleges may consider developing a college-wide data integrity workgroup or taskforce and include IR and IT staff among its members. This group would help identify means to ensure quality control of both data entry and extraction (more information is included in the IT section that follows). In addition, IR staff should have a corresponding process to review their own data tables and other published information to guarantee that data are well defined and reported accurately, and that comparisons are valid. The credibility of both the data and the data reporter are crucial to successful data-driven decision-making.

Convert data into information for others

One of the most important tasks for IR staff members is to transform data into information that is clear and readily accessible to others. Data definitions and descriptions

should be clearly indicated and consistent for audiences and readers; e.g., the cohort includes only first-time-in-college, degree-seeking students enrolled in fall 2008. If IR staff is attentive about clearly defining student groups and time frames, some of the confusion that causes audiences to distrust data can be minimized.

It is also imperative that IR staff members judiciously select only essential data variables to present or publish. Too much data can overwhelm viewers or readers. As a result, they may become inattentive or lose sight of the forest for the trees. One approach IR staff can use to streamline a data presentation is to think about telling the story that the data suggest. Below are a few suggestions to simplify data presentations and documents:

- Report brief background information or preface a presentation by establishing its context and explaining its limitations.
- Limit the number of columns and rows presented in data tables, to make the tables easier to comprehend.
- Limit the number of data points and time periods presented in graphs.
- Avoid decimal points in presentations to lay audiences unless needed (such as with grade-point averages).
- For presentations, intersperse text slides that report implications or meaning between graphs and data tables.

Add qualitative results to your data analyses

The Achieving the Dream improvement model encourages the use of both quantitative and qualitative (e.g., focus groups, interviews, open-ended surveys) data to analyze student performance. Feedback from student focus groups and interviews is generally detailed and tailored to gain specific information. For example, students who attended orientation may be asked to evaluate their experience and provide feedback about what was helpful and what was not. Focus groups (student, faculty, or staff) can add helpful insight from participants about programs, courses, policies, or services.

Not all IR offices employ a qualitative researcher. In many colleges, institutional effectiveness, planning, or assessment departments direct survey efforts. Likewise, focus groups may be conducted by trained

student services staff, faculty, or an external facilitator. It is, however, beneficial for IR staff to gain a working knowledge about qualitative research methods. IR staff members should understand appropriate ways to complement quantitative information with qualitative data results. Knowledge about survey design, coding, and analysis is helpful. Finally, focus group techniques and analysis are useful for IR staff. IR offices should consider sending at least one staff member for professional development in the area of qualitative research.

Develop an evaluation plan to measure outcomes

IR departments will need to ensure that an evaluation plan is developed to measure and track results for each of the improvement strategies and the five Achieving the Dream measures and ultimately help the institution decide where it has been effective in increasing student success. The data team and other groups responsible for implementing student success interventions on campus also should participate in developing the plan. Institutional researchers with backgrounds in, or professional development related to, experimental research design, logic models, formative and summative assessment, and evaluation methods will be well prepared for this activity.

Preparing IT departments for Achieving the Dream participation

In addition to reviewing the typical challenges mentioned earlier for information technology departments, colleges should make certain their IT departments are equipped to support their Achieving the Dream improvement plans. The following are ways in which colleges can prepare their IT departments to support improvement efforts.

Institute data quality control

Because Achieving the Dream colleges routinely practice data-driven decision-making, it is critical that the data are accurate and complete. In partnership with IR, IT should ensure data quality in a number of ways. IT departments must assume the role of data regulators by developing tools such as validation tables and error audit programs to minimize data entry errors. These controls are particularly imperative in decentralized data entry environments, with large numbers of staff entering data. For errors that are not technologically preventable at the point of data entry,

error listings should be distributed to appropriate divisions for correction. For some types of errors, IT should create automated batch corrections.

In addition to technological solutions for error prevention, other techniques are needed to support data accuracy. One fundamental tool that supports data accuracy and consistency is the data dictionary. A data dictionary is a catalog that describes the contents of one or more databases, and includes variable names, descriptions of those variables, their type (alphanumeric or numeric), length of each variable, and the source from which it enters the database. Well-crafted dictionaries also describe the interrelationship of a particular variable with other similar variables. The value of a data dictionary is to ensure that all staff and faculty who work with data gain a common understanding of those data. IT should ensure the data dictionary remains current and provide IR with information about updates.

Additionally, IT should conduct mandatory data entry and data retrieval training sessions for users. The training sessions should be held at least twice a year, or more frequently if errors are rampant. Trainers should provide a data entry and retrieval manual to accompany training sessions. As mentioned earlier, colleges are encouraged to create a college-wide data integrity workgroup to monitor data definitions and error correction. IT staff should be integral members of this taskforce.

Recognize and accommodate IR's elevated priority level

As mentioned earlier, financial aid and registration processes appropriately receive the highest priority in most IT departments by virtue of their urgency to students. With Achieving the Dream participation, colleges often discover that IR staff needs expanded access and priority status with IT to be able to respond to the college's increased demand for data analysis. Some colleges assign an IT programmer to work exclusively with IR for institutional data needs. Other colleges create a data warehouse to enable IR staff to conduct their own data queries, mining, and reporting. Whatever solutions are most feasible, IT managers should be aware that student performance data requirements may necessitate shifting priorities or work processes so that IR becomes a higher priority client.

Explore ways to expand access and availability to data

IT departments, in coordination with IR, should identify methods to automate processes that allow college faculty and staff to easily gain access to data and reports. While some colleges may have the capacity to build “business intelligence” systems, there are other, simpler ways to expand user access to student outcomes data. Report writing software is one option that allows trained users to retrieve data more easily. Another approach is to establish an intranet or portals for posting data reports. More advanced methods would include creating pre-programmed, Web-based templates that allow users to select specific parameters, such as time and student characteristics, for analyses they want to conduct.

Develop a public Achieving the Dream presence on the college’s Web page

As participating colleges embark on the Achieving the Dream model of improvement, it is beneficial to create a public Web page to record Achieving the Dream activities. IT could establish the site and provide a quick link from the college’s home page. At some colleges, IR also maintains a public Web page, even if a separate, more inclusive IR intranet site is active. The public site generally includes high-level summary information, while a separate intranet site may include more detailed information that external audiences would not need or be able to interpret correctly.

Identify a process to modify or expand current data systems

As institutions analyze student outcomes data, they often discover they are not collecting or storing some of the data they need for decision-making — for example, high school transcript data or data on placement test scores for students who retest. IT departments will need to gauge their capability to add or modify fields in their existing systems. Some changes or additions may require software vendor assistance or may be incompatible with existing, standard processes such as financial aid, registration, or degree audit. Other changes might halt production of long-standing, routine data reports or class rolls. Also, as colleges select improvement strategies and modify student enrollment policies, they will need to understand what changes to information systems are needed to monitor compliance automatically. For example, if a new policy is developed requiring all entering students to take

a college-skills course, IT will modify the registration system to ensure that new students do indeed register for the course in the appropriate time frame.

Achieving the Dream colleges with increased capacity in information technology and institutional research

Advancing IR capacity beyond compliance reporting

TALLAHASSEE COMMUNITY COLLEGE, TALLAHASSEE, FL

Tallahassee Community College’s (TCC) institutional research office spent so much time producing state and federal compliance reports that it had little time to conduct studies that could help the college improve the effectiveness of its programs and services. The college’s data-savvy president realized that a technological intervention to revamp the institution’s data systems was in order. A new data warehouse and a strategic knowledge management system are changing the way the college uses and shares data. With five portals, 245 portal sites, a data mart, a data warehouse, and several data cubes in the system, TCC has greatly expanded access to student outcomes data for college personnel. The institution created a Web portal that allows members of the board of trustees to review student data during their meetings. Data cubes for early alerts, registration, academic history, and applications are operational, and a graduation data cube is under development. Each cube is a collection of specific data subsets relevant to its particular topic that gives users the option to analyze measures from multiple dimensions or perspectives; e.g., 2008 graduates by date of entry, race, and former high school. Data cubes generally provide summary level output as well as the opportunity to link to detailed records. Ultimately, these components will be connected to allow the college to track students’ academic experiences from application to completion and evaluate the impact of efforts to improve student outcomes. Although compliance reporting requirements have not been eliminated, IR staff members have advanced well beyond producing compliance reports and spend much more time conducting analyses to support performance improvement efforts and making data more readily available to end users.

Expanding IR capacity through reorganization

DURHAM TECHNICAL COMMUNITY COLLEGE, DURHAM, NC

Leaders at Durham Technical Community College recognized their data and research needs were growing as their Achieving the Dream improvement efforts expanded. They decided it was time to reorganize their research and planning functions to create a single office for research, evaluation, assessment, and planning (REAP). The administrator for this new unit reports to the college president, which the institution believes is a clear statement of its commitment to making data-informed decisions. This change has brought the college faster and more timely access to student performance data. One particularly beneficial asset is the hiring of a full-time database programming specialist in the IR (research) area of this division. The specialist developed intervention databases that link to the college's student information system and permit immediate query access and timelier adjustments to strategies and plans. Since the reorganization, the college has expanded its capability to share refined data with more audiences and increased the availability of data useful for improving student success interventions. Durham Tech's centralized effort has increased staff productivity levels so much that the college plans to eliminate one position from the division.

Adding IR capacity through temporary staffing

SEATTLE CENTRAL COMMUNITY COLLEGE,
SEATTLE, WA, AND COMMUNITY COLLEGE OF
BEAVER COUNTY, MONACA, PA

Seattle Central Community College and Community College of Beaver County (CCBC) are located in different parts of the country; however, they chose similar approaches to addressing IR staff shortages. Seattle Central employs 1.5 FTE staff in IR, but needed to conduct some special, time-consuming projects. The college turned to contract workers and hired two graduate students from a local university as interns. One developed a set of metrics to facilitate consistent evaluation of interventions. The other intern created a college-wide, entry-exit math requirement matrix for each of the college's degree and certificate programs. These products helped the college continue moving forward with its improvement plans.

In Pennsylvania, CCBC employs one FTE staff in IR. After several attempts, the college was unsuccessful in recruiting a qualified director to lead the department. In the interim, the college hired two graduate student interns to update its longitudinal student data sets. The two data consultants also produced graphs, bullet-point summaries, and other updates for the college's data scorecard, which tracks the college's annual progress on a number of key performance indicators. Working with these two off-site interns required excellent communication techniques to ensure that data definitions and measures were fully explained. However, as a temporary means to keep the improvement process on track, contracting with outside consultants proved to be an effective strategy.

Expanding capacity in both informational technology and institutional research

CUYAHOGA COMMUNITY COLLEGE (TRI-C),
CLEVELAND, OH

Leaders at Cuyahoga Community College realized that they needed easier access to reliable data on their students. Although the institution was capable of retrieving data from its student information system, the reports took too long to generate, required a programmer, and sometimes produced inconsistent results. In Cuyahoga's multi-campus environment, college leaders urgently needed consistency and a solution that would give them a "single view of the truth." The college launched a cross-functional work group called the "intelligence council" to determine the information needs of key user groups. The college used this information to develop a business intelligence system with a data warehouse, called "One Institutional Intelligence" (OII). This gave the college the data it was seeking to support planning, decision-making, and its Achieving the Dream improvement work. For example, the institution now has the capability to identify, within individual courses, the points at which students drop out. The college uses these data to improve student success and retention by strategically targeting the timing of its interventions.

A new data warehouse and accompanying reporting tools also added capacity in the college's institutional research department. The department created extensive longitudinal student cohorts and developed an exemplary evaluation plan to track each intervention strategy. The department has now added the capacity to more quickly generate data reports and analyses. IR staff also developed an inventory of 30 reports that users can customize by selecting their own parameters (terms, campus, course,

etc.). One example is a report designed for instructional managers to track course and pre-requisite completions. These data help managers schedule courses and numbers of sections to meet student scheduling needs in upcoming semesters. Additionally, the expanded data retrieval tools allow IR staff to spend less time creating individual queries and more time helping others understand the data and how to use the new reporting environment.

Benefits of the new intelligence system are many. One college administrator said that the college developed this knowledge management system on the premise that consistent data will yield better information and knowledge in the long run. Cuyahoga also discovered that it is able to generate knowledge about what does and does not work for students at a much faster pace now that the

warehouse is operational. Several complex queries that once took an hour to process are now performed in four seconds. Most significantly, the college took action to close its data gaps and is now operating with consistent, timely, and easy-to-retrieve data to advance its efforts to help more students succeed.

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Additional Resources

Bers, T. & Seybert, J. (2000). *Effective Reporting*. Tallahassee, FL: Association for Institutional Research. Note: examples of presentation slides available for download at <http://www.airweb.org/page.asp?page=460>

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