Features of Campus Data Systems and Reporting to IPEDS

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AIR/NCES Postdoctoral Policy Fellowship

July 2009

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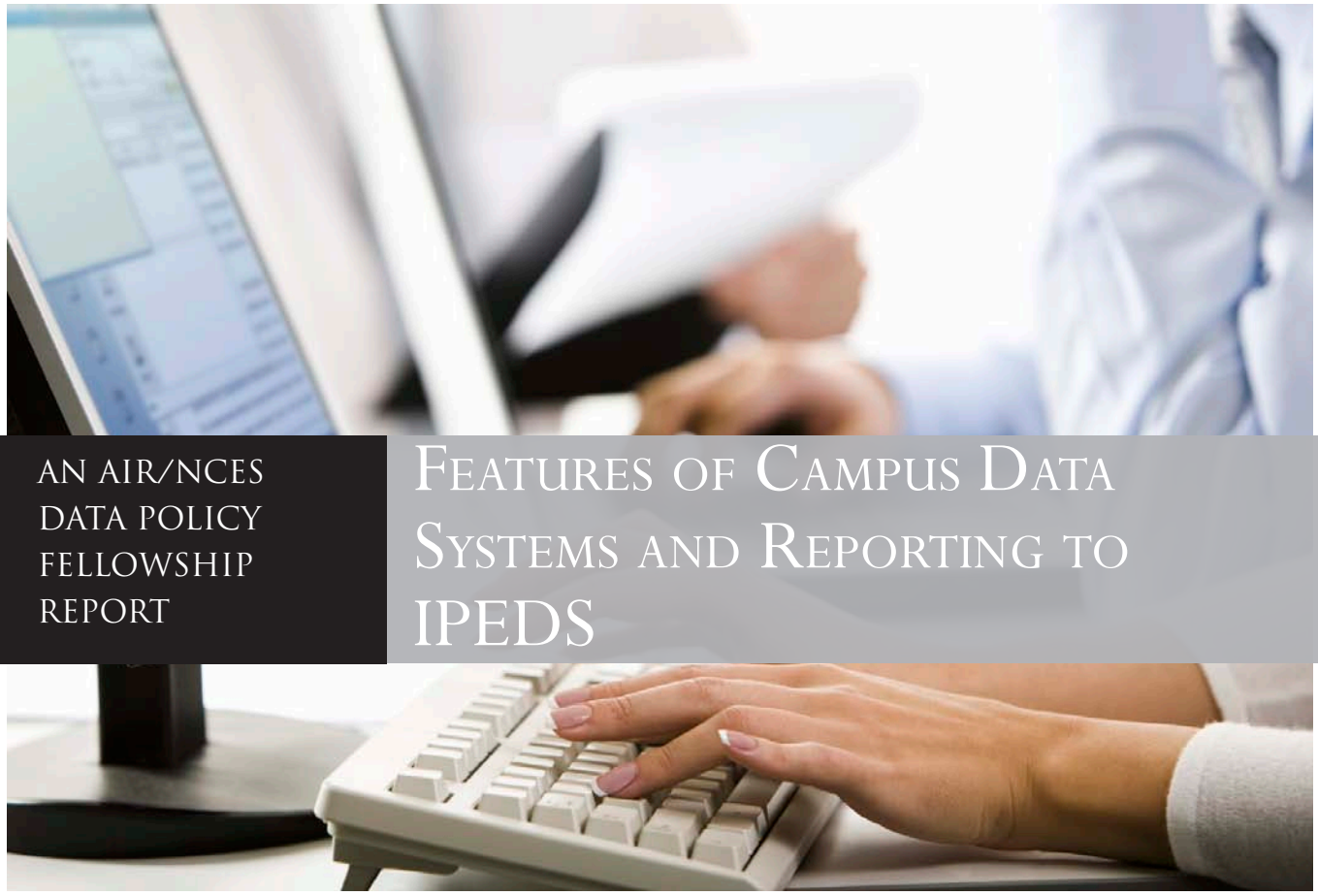

AN AIR/NCES DATA POLICY FELLOWSHIP REPORT

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The AIR/NCES Policy Fellowship Program

The National Center for Education Statistics (NCES) Postsecondary Studies Division collects and analyzes data on postsecondary education in the United States. As part of fulfilling its charge to "collect, analyze, and report education information and statistics in a manner that…is objective…and… is relevant and useful to practitioners, researchers, policymakers, and the public" (Public Law 107-279 § 151), NCES funded the Policy Fellowship Program through the Association for Institutional Research. Policy fellows plan and conduct a year-long research project designed to result in improvements to the quality, comparability, and usefulness of the Integrated Postsecondary Education Data System (IPEDS).

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INTRODUCTION

As demand for information on postsecondary education has increased, institutions have had to adapt information systems to accurately report data. Institutions currently respond to multiple constituencies including national media outlets, higher education associations, state regulatory authorities, and federal agencies. The purpose of this study is to examine the information/data systems postsecondary institutions use to report accurate data and how these systems increase or decrease the burden of reporting data. Specifically this study examines how information systems assist institutions in reporting data to the Integrated Postsecondary Education Data System (IPEDS), the primary source of data on colleges, universities, and technical/vocational postsecondary institutions collected by the federal government.

THE INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM (IPEDS)

The Integrated Postsecondary Education Data System is a data collection and dissemination program managed by the National Center for Education Statistics (NCES) in the U.S. Department of Education (DOE). IPEDS is made up of a system of interrelated surveys conducted annually by NCES. The surveys collect data on each institution's characteristics, institutional prices, enrollment, student/staff race/ethnicity, degrees and certificates conferred, student financial aid, institutional finances, student persistence and success, faculty salaries, and staffing levels. Reporting IPEDS data is a requirement for all postsecondary institutions that are eligible to receive Title IV funding through the U.S. DOE. Because IPEDS data collection gathers institution-level data on a variety of metrics, is mandatory for the majority of institutions, and is available to anyone with access to the Internet, IPEDS data are a rich source of information on postsecondary education.

NCES provides tools to support review and analysis of IPEDS data from institutions. Examples include:

- NCES's online **College Navigator** makes IPEDS data available for to the general public, primarily for college choice and decision-making by perspective students and parents.

- The ***IPEDS Data Feedback Report*** is a published report sent to institutions that compares the institution's IPEDS data to an institutionally defined comparison group.

- NCES publications such as the ***Digest of Education Statistics*** and ***IPEDS First Look*** provide summary information on postsecondary education. These publications serve as a trusted source of information on postsecondary education for policymakers, researchers, and the general public.

- The **IPEDS Data Center** enhances the capacity of institutions to compare themselves with peer institutions online or by downloading datasets for comparison.

- The **IPEDS Data Center** also assists in aggregating and analyzing IPEDS data from various institutions. Data are used by state legislatures, governing boards, Congress, and other constituencies to inform decisions about postsecondary education.

Since IPEDS data are used by a variety of people and venues and for a variety of reasons and purposes, its accuracy is vital. The responsibility for providing accurate data to IPEDS is the IPEDS keyholder.

Each institution is designated with one keyholder to coordinate data reporting for the postsecondary institution. Keyholders are responsible for entering data, ensuring the data are accurate, and locking the surveys when completed[1]. The IPEDS keyholder is typically an institutional research professional (e.g., director, assistant director, or staff within the institutional research department), a registrar, or an individual responsible for the administration of the institution. The keyholder may not have access to all needed IPEDS data and may need to gather data, so they depend on data systems to capture information from other departments within the institution. As a result, reporting to IPEDS often requires a great deal of communication and coordination by the keyholder.

[1] Keyholders may delegate reporting by allowing other institutional representatives report data to the IPEDS data collection system.

THE ROLE OF DATA SYSTEMS

The process of reporting to IPEDS begins with the collection and storage of institutional data. Most institutions use campus data systems to store, update, and maintain institutional data, though some smaller institutions use paper-systems without a defined computer system in place. Many commercially available data system products have been specifically designed for institutions of higher education. However, institutions are not obligated to employ a commercially developed data system to manage their campus data, and some may use off-the-shelf database and statistical programs. Other institutions may develop their own institution-based system using Oracle, SQL, Microsoft Access, open source, or some other software product to fit their needs and resources.[2] These systems may be more cost-effective as well, but may also require a great deal of information technology (IT) support.

Although IPEDS data can be gathered using numerous software mechanisms, commercial campus data systems promise to automate reporting to IPEDS by promoting simple input of data, storage, and reporting options. Many products also offer an "IPEDS report" that promises to gather, aggregate, and present all needed data to report to IPEDS. The ability to automatically generate IPEDS-specific reports is a central selling point for these systems because it centralizes data from multiple sources across an institution and would eliminate the need for keyholders to gather and work with raw data from many departments. Because these data system products vary in their complexity and utility, it is also helpful to understand differences in burden to keyholders using different systems. The need to better understand these issues led to the development of research questions listed below.

[2] Because institutions that are part of larger systems (e.g., each campus of the State University of New York system) report independently, systems may be developed by the system, rather than the individual campus. For the purposes of this study, both are considered institution developed systems.

RESEARCH QUESTIONS

Little is known about how keyholders gather data in preparation for reporting to IPEDS, including the information data systems they use, perceptions of those systems, and using these systems to generate reports for IPEDS reporting. The following research questions guide this study:

1. What types of campus data systems are institutions of higher education using to assist in completing IPEDS surveys?
2. What are the features of commercially available campus data systems commonly used by institutions of higher education?
3. In what ways do campus data systems and their features affect keyholder burden in completing IPEDS surveys?

BRIEF METHODOLOGY

To address this project's research questions, three data collection strategies were implemented between July 2008 and June 2009. Data collection for this study consisted of a keyholder survey, interviews with a subset of keyholders, and online demonstrations of products and correspondence with product users, as described below:

1. The Keyholder Survey. The keyholder survey was a web-based survey of 729 potential[3] IPEDS keyholders at 4- and 2-year degree-granting institutions across the United States. 141 participants submitted complete surveys resulting in a 19% response rate.

   Keyholder survey items were based on the literature demonstrating high keyholder turnover in institutional research (IR), suggesting that keyholders' experience levels in IR varied greatly (IPEDS Web-based Data Collection System, 2009) and were composed to address questions about the nature of campus data systems used by institutions. Respondents reported on their experience in two items. The first item asked respondents, "How many years have you held your current position?" The second item asked respondents, "How

[3] Respondents were identified by targeting individuals with job titles commonly associated with involvement in IPEDS data collections, including institutional research professionals, registrars, and budget and planning specialists.

long have you worked in the IR field?" Survey items also asked respondents to indicate which campus data system was used on their campus, the features of that system, and what features they thought would help improve the process of reporting to IPEDS.

Additional survey items were based on the need to determine how keyholders perceive their burden. Feelings of burden have been shown to influence motivation to perform a task (such as reporting to IPEDS) and are thought to be a key factor in the individual's longevity in the IR field (Deci & Ryan, 2000; Pekrun et al., 2002; Pekrun, 2006). Other survey items asked respondents to indicate their thoughts and feelings concerning the campus data system and reporting to IPEDS.

2. Keyholder Interviews. A subset of survey participants (n = 11) were selected for participation in interviews. Potential interview participants were purposefully selected to include a range of institution control and location (i.e., region) and by the participant's willingness to be interviewed. Interview participants were contacted via e-mail after the second month of survey collections to confirm their willingness to be interviewed and obtain their consent to participate in the interview.

3. Product Demonstration. Online demonstrations of campus data system products, plus correspondence with sales representatives and references from vendors, provided further clarification of the features of each campus data system product. Statements from product vendors are presented separately from the survey and interview results in the following sections.

Respondents to the web survey came from institutions from a range of sectors and sizes. They represent the range of the university professional community, including specialists in institutional research, department heads (e.g., human resources), and other research and information technology positions. Characteristics of the survey sample are shown in table 1.

Participants in personal interviews were also drawn from across postsecondary institution sectors and had varying professional positions within their institutions. Only one interview participant self-identified as an institutional research professional, while seven identified their positions as other management positions within the institution (e.g., director of student services, admissions, and financial aid). The remaining three participants worked within information technology or served in research positions at their institution.

Table 1. Characteristics of survey respondents and their institutions

Characteristics of institution and respondents	n	Percent
Total	141	100
Institution type		
Public 4-year	22	15.6
Public 2-year	49	34.8
Private not for profit, no religious affiliation	31	22.0
Private not for profit, with religious affiliation	25	17.7
Private for profit	14	9.9
Institution size		
Less than 1,000 students	40	28.4
1,000–2,500 students	28	19.9
2,501–5,000 students	27	19.1
5,001–10,000 students	17	12.1
10,001–15,000 students	10	7.1
More than 15,000 students[1]	19	13.5
Respondent current position		
Institutional research (director, asst. V.P., etc.)	62	44.0
Department head (e.g., financial aid, registrar)	34	24.1
Owner, CEO, president	5	3.5
Other management position	11	7.8
Research associate or professional	12	8.5
Research or administrative assistant	12	8.5
Not reported	5	3.5
Respondent time in current position		
Less than 1 year	16	11.3
1–3 years	33	23.4
4–7 years	34	24.1
8–10 years	19	13.5
More than 10 years	39	27.7

[1] This category is the sum of responses for institution sizes 15,001–20,000, 20,001–30,000, and more than 30,000 students, each of which had fewer than 10 respondents.

FINDINGS: DATA SYSTEMS USED BY SURVEY RESPONDENTS

Survey respondents were asked to indicate the data system or software product they used to collect data across a range of institution functions. These included administrative data, academic records, billing data, student financial aid, student registration, institution advancement, and course management. Respondents were also asked to indicate the number of years they have used their current system.

Responses on the open-ended items asking respondents to identify data systems resulted in a broad range of responses. Several widely known products were identified (e.g., Banner, Datatel), while a number of systems were reported by only one or two respondents. Unless these products represented specific institutional research niches (e.g., Raiser's Edge for institutional advancement), they were grouped together as "other software." For each campus data collection purpose, respondents indicated the use of off-the-shelf software not specifically designed for educational data management (e.g., Microsoft Excel, QuickBooks). Although not designed specifically for institutional research purposes, these products have wide-scale use and available technical support and are generally accessible. These were categorized as "repurposed off-the-shelf" systems. Some respondents reported the use of internally developed, institution-based systems, including systems that were designed specifically for their campus or for a larger university system of which their campus is an affiliate. These systems may be unknown outside of their local institution, but they may also offer the advantage of being customized to meet local research and reporting needs. Finally, some respondents indicated that they did not use a computerized system, relying on "hand count" to determine the data necessary for reporting to IPEDS.

Respondents were also asked how long they had been using their current system. These data are important for several reasons. First, the respondent's experience with a system likely increases his or her confidence in the system and perception of ease of use, making reporting a positive, rather than negative, responsibility for the keyholder. Second, the duration of use of each system is of interest because of changes implemented in the IPEDS system in 2002. Institutional response to these changes may have resulted in a change in local campus data system choices—so examining systems used only since the IPEDS modifications and those that were used before and after the change may inform institutional

Table 2. Percentage of respondents reporting use of various systems to provide data to IPEDS and time using current system, by type of data reported (*n* = 141)

	Administrative data	Academic records	Financial aid data	Billing data	Advancement data	Course management	Registration data
System used:							
Banner	19.1	20.6	19.9	19.9	9.9	17.0	20.6
Datatel	12.8	13.5	12.8	13.5	6.4	11.3	13.5
Jenzabar	12.1	13.5	7.1	12.8	8.5	8.5	13.5
PeopleSoft	7.8	0.0	8.5	7.8	5.7	5.0	7.8
PowerCAMPUS	2.8	2.8	1.4	2.8	2.1	1.4	4.3
CAMS	1.4	1.4	1.4	1.4	0.7	1.4	1.4
Raiser's Edge/Blackbaud	0.7	0.7	0.0	0.7	9.2	0.0	0.7
PowerFAIDS	0.0	0.0	7.1	0.0	0.0	0.0	0.0
Blackboard	0.0	0.0	0.0	0.0	0.0	5.7	0.0
Recruitment Plus	4.3	0.0	0.0	0.0	0.0	0.0	0.0
Repurposed off-the-shelf	2.8	2.1	2.8	5.0	0.7	1.4	3.5
All other products	17.8	25.5	18.5	14.1	10	22	14.8
Institution developed	3.5	5.0	3.5	5.7	2.8	4.3	5.7
None	0.7	0.7	0.0	0.0	4.3	2.1	0.7
Not reported	14.2	14.2	17.0	16.3	39.7	19.9	13.5
Time using current system:							
Less than 1 year	2.1	2.8	2.1	2.1	4.3	2.8	2.1
1–3 years	16.3	12.1	9.9	14.2	13.5	13.5	13.5
4–7 years	18.4	17.0	19.1	15.6	12.1	18.4	17.0
8–10 years	17.7	17.0	17.0	17.7	8.5	14.2	17.7
11–20 years	14.2	15.6	14.2	13.5	7.8	8.5	14.2
More than 20 years	2.8	5.0	3.5	3.5	2.8	4.3	5.7
Don't know	0.0	0.0	0.7	0.0	2.1	2.1	0.0
Not reported	28.4	30.5	33.3	33.3	48.9	36.2	29.8

choices. Data systems identified by respondents across campus departments and their duration of use are shown in table 2.

The most commonly reported data systems across purposes were Banner, Datatel, and Jenzabar, although there was a very high rate of missing data for advancement and course management data. Other systems were reported primarily for specific purposes, reflecting their intentional design. Systems such as PowerFAIDS for financial aid services, Raiser's Edge for institutional advancement, Recruitment PLUS for administration data, and Blackboard for course management were also frequently cited for their specific purposes but for no others. The percentage of institutions using repurposed software and institution-developed systems was generally low (about 5 percent or less across systems), and reports of no computer system in use were very rare. However, reports of missing data (14–17 percent for most data needs, but as high as 39.7 percent for advancement data and 19.1 percent for course management data) suggest that systems may not be in place, or that respondents lack knowledge of them. In addition, the "other software" category, which in some domains was the plurality report, captured as many as 25 to 30 different software products identified. This item was an open-ended response, and some of abbreviations could not be easily or readily reconciled and may represent institution-developed systems. Data collected from the survey and subsequent interviews do not help identify all of the software products used.

The duration of use of current campus data systems suggests some differences in the speed with which institutions adopt new systems. Few respondents indicated that their current systems had been in place for less than a year. However, some data systems appear to be earlier in their adoption phase than others. For example, systems for advancement data (29.9 percent in use 7 years or less) and course management (34.7 percent in use 7 years or less) appear to be in their early adoption stage, while systems for all other types of data are more evenly distributed in duration of use. Interestingly, a small percentage of respondents reported the use of the same data system for 20 or more years. The duration of use also indicates institutional commitment to its chosen system. More than half of respondents (57.8 percent) to the survey indicated that their institutions did not have plans to change or upgrade their current systems "in the near future." About one in four (24.4 percent) indicated that their institution did have such changes planned, while 17.8 percent indicated that they did not know of their institution's future plans.

These survey results were augmented by comments from interview participants. Many institutions may have outside contractors or data managers (as opposed to someone on site) to handle

data reporting. Perhaps employees at those institutions had more difficulty in providing the information needed to complete the survey and so left responses blank. Those institutions that use outside contractors or data managers may be more likely to use institution-developed or Microsoft Office systems as well since many of those institutions are smaller and the data may be easier to manage with a simpler, less expensive product.

FINDINGS: REVIEW OF CAMPUS INFORMATION SYSTEM TOOLS AND THEIR UTILIZATION

This study examined common campus information systems through a review of the most commonly used systems' documentation, and when possible, interviews with their publishers. In addition, the survey asked respondents about the availability of special tools within campus data systems intended to facilitate IPEDS reporting and their utility.

Review of Campus Information System Tools

There are many different campus data systems on the market, many of which are more appropriate for an institution of a certain institutional size and scope. Most campus data systems can be tailored to match any type of institution, but large and complex campus data systems are expensive and are often used by larger institutions. The survey results indicated that four main campus data system products are used by the majority of institutions of higher education: Banner, Colleague (Datatel), Jenzabar, and PeopleSoft. Campus data system product vendors identified in the respondent survey were contacted concerning the features of the product they offered institutions. Some vendors were helpful in providing detailed information concerning the product, while others directed us to the product website for information. Table 3 shows some of the campus data systems offered to institutions of higher education and the features of those systems as reported by the product vendors.

Table 3. Features of commonly used campus data systems

Products and Features	Banner: Sungard	CAMS Three Rivers	Datatel Colleague	Jenzabar	PeopleSoft: Oracle	PowerCAMPUS: Sungard
Suite includes all major parts	Yes	Yes	Yes	Yes	Yes	Yes
Microsoft-compliant reporting	Yes	Yes	Yes: can also run SQL	Yes	Yes	Yes
Standard reports to include IPEDS	Yes	Yes (plus BYOR makes it easy)	Yes: both ST and HR	Yes	Yes	Yes
Query reports with ease	Yes	Yes	Yes	Yes	Yes	Yes
Can share all reports online	Yes	Yes	Yes	Yes	Yes	Some client-based
Real-time updates	Yes	Yes	Yes	Yes	Yes	Yes
Fully integrated modules	Yes	Yes	Yes	Yes	Yes	Yes

Notes.
Suite includes admissions, academic records, billing and cash receipts, advancement, financial aid, online advising, online reports, online grading, online course management, online access to students, online registration, online payment and account information, and online access to alumni. BYOR: Build your own report (report writer).

Survey Respondent's Access to and Utilization of Special Reporting Tool

Taken as a whole, commonly used data systems appear to provide tools that should support institutional researchers' reporting to IPEDS. However, this conclusion is based upon marketing materials and interactions with vendors and does little to address the degree to which these tools are actually useful to IPEDS keyholders. Therefore, survey respondents were asked to indicate the degree to which their campus data system has features *that should* make reporting to IPEDS easier, as well as the degree to which they felt their campus data systems had features that actually made reporting to IPEDS easier. Their responses to these two items are shown in table 4. Note that responses to these items did not vary by characteristics of the respondent and the institution (the distribution of campus data systems in use did not allow for testing differences by system in use).

Table 4. Percentage of respondents who reported of the presence of campus data system features that should make reporting to IPEDS easier, features that do make reporting to IPEDS easier, and the helpfulness of these features

	Not at all	Somewhat	Mostly	Extremely	No response
Campus data system has features that should make reporting to IPEDS easier	13.5	23.4	29.8	12.8	20.6
Campus data system has features that make reporting to IPEDS easier	24.1	34.8	17.7	4.3	19.1
How helpful are these features when reporting to IPEDS?	25.5	31.2	17.7	2.8	22.7

Notes.
Number of respondents = 141.

As shown in table 4, IPEDS keyholders generally felt that their campus data system includes features that should provide some support for IPEDS reporting, but their views on the degree to which these features actually were helpful were less enthusiastic. Keyholder views of the usefulness of campus data system features for reporting to IPEDS was highly correlated with their reported satisfaction with the system ($r = .38$, $p < .01$). When asked about their overall satisfaction with their current campus data system when reporting to IPEDS, more than half (51.8 percent) of respondents were mostly or extremely satisfied with their system, while 28.4 percent were somewhat satisfied, and 9.2 percent were not at all satisfied with their current system (an additional 10.7 percent indicated it was "too early to tell" or did not respond to this item). However, the high level of missing data on these items makes a clear interpretation more challenging. The utility of available campus data system features was therefore further explored through direct interviews of 11 IPEDS keyholders.

Interview Findings About Campus Data System Ready Reporting Use

All of the interview participants indicated that they did not make use of the IPEDS ready-made report offered by the campus data system, but instead used other software, created unique queries, or used some other combination of actions to gather data to report to IPEDS. Their comments about these reports demonstrated that the keyholder's technical skills development (or lack thereof) and his or her opinion of the campus data system contributed to how much the keyholder used the features of the campus data system to complete the IPEDS surveys. An overall theme found in the interview results is that even though the campus data system products claim to offer ready-made reports to gather needed data for IPEDS, the keyholder often has to create his or

her own reports or manipulate data in another way in order to gather the data needed to complete the IPEDS surveys.

When asked about access to data and extracting data from the campus data systems, many institutional research professionals said that they do not use the canned reports available through the campus data systems but rather prefer to use other programming software or "raw data" to acquire the information needed to complete reports such as IPEDS. One institutional research professional said that he "work[s] directly with the tables, I don't use the [data system] interface. I use Microsoft Access and with the SQL programming I can read right off of the tables. They have given me access to a few of the [data system] interface screens but they aren't useful for my purposes." He went on to say that he has "…a good deal of a programming background. I can program in several different languages, so I am comfortable with doing that." Numerous interview participants made similar comments. For example, one participant said the campus data system on his campus

> *...has them [canned reports] but I don't use them. I am just more of a hands-on [person], I would rather write my own, I am more 'you tell me the data you want and I know where it's at, and I'll go and get it.' And I am more comfortable with that and like to do it that way. Other people would say there are some things in [the data system] that will pull some of your IPEDS data but, uh, I like to look at the data as I pull it. And it's a game to me. I look at, and I expect my data to look like this and I pull it and hopefully…if it's close I am happy and if it's not I say, 'Whoops, let's look at this again, let's look at why.'*

Other interview participants said that a programming background has assisted in their success as an institutional research professional. One such participant said that relying on the campus data system canned reports is not ideal because "…I didn't write that code so I can't really say for sure that I know what it is pulling. When I use my Impromptu and [programming software] reports I know what I am pulling, I know what I want after and I know what I am using in that report. And it makes me feel a whole lot better." Likewise, another participant noted a preference for extracting data directly, "Because rather than having multiple reports to pull all of the information out of, I build a report that can be run from a [programming software] into a data table. …it's easier to get the information we are looking for rather than using the canned reports that are available."

Competent Technical Skills: Data Warehouse

Many interview participants reported that they have access to a data warehouse on their campus. A data warehouse is another source for data commonly used by IR professionals that forms a fixed dataset (not live, or changing), which makes analyses of the data stable and consistent. One

interview participant noted that "…we have a system…called data warehouse. So I can go in there and run queries if I need to. So, there is a lot of information available there."

Several IR professionals reported using Cognos software to access data within the data warehouse as a way to work with the raw data as opposed to relying on canned reports available in the campus data system. One participant noted that "my staff [and I] ... spend much more of our time in Cognos as a reporting tool than we do in the campus data system. [It] is more of a transaction system. And then we use Cognos as the reporting." He went on to say that the campus data system:

> *…is very confusing…it is to me. But it is very challenging, unless you are a pure programmer kind of person. So interfacing to the warehouse turns it into data that me and a large number of end users on campus can touch and you know we don't have to understand strange language and bizarre field names… So that is why I am glad we have Cognos. Because without Cognos…like any system the canned reports are not exactly what the person wants. And they want them tweaked a little bit and that is difficult. So…if it is something that doesn't fit well with something already in the system, we can always go to Cognos and pull a custom report… So, if you rely on the campus data system you have to rely on their programmers to make the change in their software. So, with Cognos we have some more flexibility.*

Lack of Technical Skills

Unfortunately, many IR professionals do not have the technical skills needed to overcome the faults of the campus data system and the data access issues that may exist on their campus. One participant expressed his frustration with a lack of technical skills that the prior IR professional at the institution had, stating that

> *…the problem stems from when I got here...I think it is that the prior person had query experience with InfoMaker and could go out there and query information. And other people [on campus] had query information so they would report numbers and all the numbers were different, because it depended on how they wrote the query and how they specified it. That was one of the things that I was asked to fix. And the only way you can fix it is by having it restricted. Where this office reports the information and I am not responsible for how the query is formed because I am not a database administrator and I don't know how their system all works. I just ask for the information and they [IT] give it to me.*

Many survey and interview respondents reported that they do not use the canned reports available through the campus data systems. Interviews with IR professionals revealed similar findings. One participant stated that she

> *…[hasn't] looked at [the canned reports] since 2000 because when we looked at it then, it really wasn't doing what they [the vendor] claimed it did, it didn't do your IPEDS reports…so we really haven't looked at it since then. We have our own files that we create from our census date. We freeze the entire data base. And then we create our own files that we use to put our various reports together. And one of the biggest things we have is just cleaning up the data. So that's what we use for our IPEDS reports because we know that that data is clean.*

The participant mentioned during several phases of the interview the importance of reporting clean data when reporting institutional data and believed that the campus data system canned reports did not always produce clean data for reporting.

Others had similar concerns: "There [are] a lot of canned reports, however I use none of them!" Some of the reasons for not using the campus data system canned reports were being unsure of the results, the reports not providing the needed results, and the reports being "unreliable" and "not up to date with current changes to IPEDS."

As a result, many keyholders turn to other technical software (e.g., InfoMaker, Cognos with data warehouse) to pull needed data for reporting, rather than rely upon campus data system reports. Many respondents mentioned that they have customized the campus data system reports to pull the needed data but did not use the canned reports as delivered from the manufacturer.

FINDINGS: THE SURVEY RESPONDENTS' ATTITUDES TOWARD CAMPUS DATA SYSTEMS AND IPEDS REPORTING

Survey respondents were asked a series of questions about their attitudes toward the campus data systems in use at their institutions and their attitudes towards IPEDS reporting. It is likely that IR professionals, who are more comfortable and confident in the use of their campus data system, may be more efficient at completing their IPEDS reports and may also provide more accurate data.

Survey Respondents' Attitudes About the Campus Data System in Use

Survey respondents were asked the degree to which their campus data systems evoked specific emotional reactions, including positive reactions (e.g., contentment, happiness) and negative reactions (e.g., anxiety, anger). Their responses to these items are shown in table 5.

Table 5. Respondents' views about their current campus data system

Item description	Response option	n	Percent
When I think about my campus data system, I feel angry.	A little bit	66	46.8
	Somewhat	25	17.7
	Quite a bit	17	12.1
	Very much	9	6.4
	Extremely	5	3.5
	No response	19	13.5
When I think about my campus data system, I feel anxious.	A little bit	28	19.9
	Somewhat	31	22.0
	Quite a bit	36	25.5
	Very much	16	11.3
	Extremely	9	6.4
	No response	21	14.9
When I think about my campus data system, I feel confident	A little bit	9	6.4
	Somewhat	14	9.9
	Quite a bit	30	21.3
	Very much	21	14.9
	Extremely	41	29.1
	No response	26	18.4
When I think about my campus data system, I feel content.	A little bit	13	9.2
	Somewhat	12	8.5
	Quite a bit	33	23.4
	Very much	32	22.7
	Extremely	29	20.6
	No response	22	15.6

Item description	Response option	n	Percent
When I think about my campus data system, I feel determined.	A little bit	17	12.1
	Somewhat	11	7.8
	Quite a bit	32	22.7
	Very much	31	22.0
	Extremely	25	17.7
	No response	25	17.7
When I think about my campus data system, I feel happy.	A little bit	22	15.6
	Somewhat	23	16.3
	Quite a bit	28	19.9
	Very much	30	21.3
	Extremely	18	12.8
	No response	20	14.2
When I think about my campus data system, I feel insecure.	A little bit	41	29.1
	Somewhat	28	19.9
	Quite a bit	30	21.3
	Very much	14	9.9
	Extremely	6	4.3
	No response	22	15.6
When I think about my campus data system, I feel overwhelmed.	A little bit	42	29.8
	Somewhat	32	22.7
	Quite a bit	24	17.0
	Very much	12	8.5
	Extremely	10	7.1
	No response	21	14.9
When I think about my campus data system, I feel reluctant.	A little bit	57	40.4
	Somewhat	27	19.1
	Quite a bit	24	17.0
	Very much	13	9.2
	Extremely	3	2.1
	No response	17	12.1
When I think about my campus data system, I feel satisfied.	A little bit	13	9.2
	Somewhat	17	12.1
	Quite a bit	31	22.0
	Very much	24	17.0
	Extremely	36	25.5
	No response	20	14.2

Survey Respondents' Attitudes About IPEDS Reporting

Survey respondents were also asked questions specifically about their role as IPEDS keyholders and their views of completing IPEDS surveys. Specific to their roles as IPEDS keyholders, respondents were asked about the degree to which they perceived IPEDS reporting to be a burden, as well as a major task within their assigned job duties. Their responses are shown in table 6. The perception of burden was correlated with time spent ($r = .59$, $p < .01$), but not importance ($r = .02$, ns).

Table 6. Respondent perception of the importance of IPEDS reporting and its burden ($n = 141$)

	Not at all	Somewhat	Mostly	Extremely	No response
IPEDS is a burdensome part of my job	25.5	37.6	17.0	7.1	12.8
IPEDS is a major task (in terms of time)	7.1	39.7	19.9	16.3	17.1
IPEDS is a major task (in terms of importance)	4.3	22.0	28.4	29.8	15.5

Respondents were also asked a series of questions about their emotional responses to their role as IPEDS keyholders. These items were comparable to those asked about their campus data systems (see table 5). Responses to these items are shown in table 7.

Table 7. Respondents' views about reporting to IPEDS

Item description	Response option	*n*	Percent
When I think about reporting to IPEDS, I feel angry.	A little bit	82	58.2
	Somewhat	12	8.5
	Quite a bit	12	8.5
	Very much	6	4.3
	Extremely	2	1.4
	No response	27	19.1
When I think about reporting to IPEDS, I feel anxious.	A little bit	26	18.4
	Somewhat	28	19.9
	Quite a bit	27	19.1
	Very much	18	12.8
	Extremely	13	9.2
	No response	29	20.6
When I think about reporting to IPEDS, I feel content.	A little bit	21	14.9
	Somewhat	20	14.2
	Quite a bit	34	24.1
	Very much	24	17.0
	Extremely	16	11.3
	No response	26	18.4

Item description	Response option	*n*	Percent
When I think about reporting to IPEDS, I feel determined.	A little bit	22	15.6
	Somewhat	10	7.1
	Quite a bit	28	19.9
	Very much	27	19.1
	Extremely	19	13.5
	No response	35	24.8
When I think about reporting to IPEDS, I feel happy.	A little bit	49	34.8
	Somewhat	22	15.6
	Quite a bit	19	13.5
	Very much	24	17.0
	Extremely	4	2.8
	No response	23	16.3
When I think about reporting to IPEDS, I feel insecure.	A little bit	49	34.8
	Somewhat	34	24.1
	Quite a bit	18	12.8
	Very much	10	7.1
	Extremely	6	4.3
	No response	24	17.0
When I think about reporting to IPEDS, I feel overwhelmed.	A little bit	40	28.4
	Somewhat	26	18.4
	Quite a bit	23	16.3
	Very much	16	11.3
	Extremely	11	7.8
	No response	25	17.7
When I think about reporting to IPEDS, I feel reluctant.	A little bit	56	39.7
	Somewhat	32	22.7
	Quite a bit	16	11.3
	Very much	9	6.4
	Extremely	4	2.8
	No response	24	17.0
When I think about reporting to IPEDS, I feel satisfied.	A little bit	16	11.3
	Somewhat	21	14.9
	Quite a bit	31	22.0
	Very much	25	17.7
	Extremely	20	14.2
	No response	28	19.9

Composites were also developed from these items to reflect overall positive responses (mean ratings for content, determined, happy, and satisfied) and negative responses (mean ratings for anger, anxiety, reluctance, insecure, and overwhelmed). These overall scores were not highly correlated (r = .14, ns) with each other. Respondents' ratings of their overall satisfaction with their current campus data system was correlated with their overall positive response to their campus data system (r = .67, p

< .01), positive views when reporting to IPEDS ($r = .24$, $p < .01$), and less negative views of reporting to IPEDS ($r = –.45$, $p < .01$).

LIMITATIONS

This study utilized a mixed-methods approach to examine information/data systems at degree-granting postsecondary institutions. Using a qualitative approach limits the generalizability of this study to all degree-granting institutions. The low number of respondents to the survey portion of this study (n=141) cannot be used to represent all postsecondary institutions. Additionally, the breadth of responses did not allow for comparisons across institution or keyholder characteristics, but the responses do provide a potential starting point for additional study that can target specific institution types either by characteristic or campus data system employed. The strength of a mixed-methods approach provides readers with more indepth and rich information than is available in a survey study, especially when combining survey data with qualitative interviews.

SUMMARY AND CONCLUSION

This study was largely intended to be exploratory in nature. In this section key findings are summarized, and several recommendations are made regarding steps that can be taken to enhance the potential for IPEDS keyholders to accurately and efficiently report IPEDS data.

Summary of Key Findings

The survey of IPEDS keyholders and interviews revealed the following findings:

- Institutions rely upon a range of campus data systems. The most common systems are Banner, Datatel, Jenzabar, and Peoplesoft.
- While four commercially available products were most commonly used, there was no clearly dominant system, and institutions instead seemed to use campus data systems based upon their own reasons.

- The majority of respondents indicated generally positive feelings toward their campus data systems and reporting to IPEDS. They also tended to see their role as IPEDS keyholder as important, but also noted the high volume of work. None of these perceptions were related to characteristics of the respondent or institution.

- There was a tendency for individuals specifically in the role of IR professional to view their systems and IPEDS responsibilities more positively.

- Despite the availability of ready-made reports (such as IPEDS reports) in campus data systems, most keyholders do not use these reports to gather the data needed for IPEDS. Interviews were conducted to determine why the reports are not used. Many of the interviewees mentioned that they have developed their own reports to collect the data needed for IPEDS to be sure the correct data are being gathered. Interview results also demonstrated that despite the data systems' ready-made reports that promise reporting to IPEDS with ease, the reports are often difficult to use and require numerous steps. Reports built by the keyholder are trusted and known to gather the correct data needed for IPEDS.

Recommendations Based on Results

This section provides recommendations for various groups and individuals based on the results of this study.

Ready-Made Campus Data System Reports. Interviews revealed that keyholders with full access to the campus data system and the available reports do not tend to use the canned reports (such as those provided to report to IPEDS), as the reports are often inaccurate. At the same time, IR professionals noted the level of work required to respond to data requests. Several possibilities arise from this need for accurate campus data system reports:

1. NCES could work IPEDS keyholders to develop additional tools to reduce workload related to IPEDS data reporting.

2. Campus data system vendors could work with keyholders to improve the usability of the reports function of the data systems..

3. AIR trainers could train IPEDS keyholders to use the various campus data systems and their canned reports to assist them in reporting to IPEDS.

4. AIR could provide IPEDS keyholders with discussion boards or electronic mailing lists so the users of various campus data systems could have a central place to discuss the issues of reporting to IPEDS using that particular software.

Developing Competence in Technical Skills. Another finding emanating from the interviews conducted within this study was the importance of keyholders' having adequate technical skills for working with data and extracting the needed information to complete reporting requirements, such as for IPEDS. Below are two possible means of addressing this apparent need:

1. Training can be provided to keyholders in the use of existing data management software (e.g., Excel, SPSS) to extract data.
2. Training sessions on software querying tools and IT programming may also provide assistance to new keyholders.

This study was undertaken to better understand how IPEDS keyholders use local campus data systems to complete their IPEDS reports. While these data may be based upon a modest sample, they are suggestive of future research needs. Specifically, there were no clear patterns in the use of commercially available products, especially when there are other avenues of support for institutions reporting to IPEDS. Likewise, the survey and interviews were of limited scope and did not directly tap institution motivations for using one system or another. Although we collected general impressions of the campus data systems and IPEDS, it may be necessary to develop more detailed data collection strategies to understand these decisions. Finally, although one motivation for understanding how IPEDS keyholders prepare IPEDS reports concern regarding the quality of data reported, this study did not examine data quality in any way. Perhaps future efforts can address these issues.

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