



Illinois State Board of Education: Collecting and Leveraging High-Quality Data

The Illinois State Board of Education (ISBE) has made great strides in the past seven years regarding the collection, storage, and use of teacher data for staff records. Improvements in technology and communication strategies have allowed the ISBE to more effectively manage teacher data on a more carefully timed basis. The state education agency (SEA) is thus able to leverage these data to monitor teacher quality, assess staffing and subject matter needs, keep track of teacher certifications, and thoroughly and securely comply with federal reporting requirements.

The Need: A Comprehensive View of the State of the SEA

Until 2013, ISBE used the salary data districts provide to the Illinois Teacher Retirement System (TRS). In this way, ISBE collected employment and demographic data, as well as other relevant teacher information. When the Administrator and Teacher Salary and Benefits law came into force, new requirements for salary data meant that ISBE could no longer use the teacher salary records from TRS. An additional issue was the annual nature of the data collection—each year’s data would not be finalized until the following fall, while U.S. Department of Education (ED) data submissions were required in May. Thus, ISBE had to submit data to ED in a preliminary state, before they could be checked, refined, and finalized, and resubmit the final data in the fall.

The Challenges: Data Quality, Security, and Transparency

In 2013, ISBE launched its new Employee Information System (EIS) as an ongoing live data collection system. The EIS collects data relating to 68 educator positions and allows LEAs to review and correct data from previous years. The data collected by the EIS about teachers in Illinois include:

- attendance;
- position;
- evaluations;
- base salary;
- benefits;
- working locations;
- employer;
- experience;
- grade level assignments; and
- employment contract types (full- or part-time, percent of full-time employment).

ISBE also extends its data collection efforts into the state’s colleges and universities. All students pursuing post-secondary degrees in education and courses in teacher prep are tracked. This permits ISBE to fill the pipeline for coming teacher needs and shape future plans with an eye to resources that will be available.

All of these data are conveyed to the SEA for use in federal and state reports, including state report cards and reports to the governor on measures of education equity.¹ Attendance data are especially useful for understanding the available supply of teaching talent as measured against education needs in the state—this is vital for keeping teachers in positions where they can be most effective and reducing the number of unfilled positions.

To manage the security of these data, ISBE placed tight controls on access to the EIS. Access is strictly role-based, and the number of people at any level who can make changes to data is small. SEA access to the system is extremely limited, and access at the local education agency (LEA) level is determined in each district. For all information requests that come in, from within the educational system or from individuals under the Freedom of Information Act (FOIA), authorized SEA staff follow review protocols to heighten security. Every request is submitted to the SEA’s

1 Illinois’ Educator Equity Plan may be viewed here: <https://www2.ed.gov/programs/titleiparta/equitable/ilequityplan11615.pdf>.

legal division for a full review to determine its legitimacy. While this review is in progress, the SEA redacts the requested data to remove all sensitive information. If, and only if, the legal review deems the request legitimate, the redacted data are released.

Knowing that staff would be willing to provide data of high quality if they understood the value of those data, reasons for their collection, and the importance of their use, the SEA relied on a policy of providing transparency, accessibility, and openness regarding data collections. All data collections are based on the Illinois school code, and communications with districts regarding data collections frequently reference the school code. For example, the exact terms of what does (and does not) constitute an educator absence have been decided after close collaboration and discussion with the state teacher's union, and subsequently detailed in the state school code.²

Attendance data collection may move beyond teachers and educational staff in the future. The Employee Information System has the capability to track administrative attendance, as well, in the event that the state school code is modified to include that requirement.

Webinars are one way in which the Illinois State Board of Education fulfills its commitment to data education for the districts. These are made available for review as recordings (registration required) and as PDFs for download. Webinars and materials going back to fall 2018 may be found here: <https://www.isbe.net/Pages/DSA-Webinars.aspx>.

The SEA also provides all districts with clear and concise instructions for staff data collection, again with references and direct links to the school code, along with a data collection calendar. This highlights the established need for data while removing any guesswork from the collection process. Once collected, the SEA offers districts the ability to review and clean up their data through a data quality dashboard, with a subsequent phone call to discuss any data quality issues. The SEA also reaches out to districts with regular webinars on the collection process and provides assistance by phone and website. Staff are engaged, informed, and aware that the support of the SEA is always there.

The Results: A More Connected, More Responsive System

ISBE's implementation of the EIS has led to consistently strong engagement with LEAs throughout the state. SEA staff hold regular meetings with districts, including a standing meeting with Chicago public schools, the largest district in Illinois, and workshops with the city's charter schools. Expansions and updates to the system are planned to further refine the data collected. To bring the process full circle, the TRS has taken an interest in the data in the EIS and may begin to work with the SEA.

The key to these improvements has been consistent and attentive communication from all parties, in all directions. Illinois views the school code as a grounding and template for asking the state's educators how they can work together to ensure compliance with minimal burdens. In this model, data collection is a form of active listening—when LEA staff know that their messages are being received, they will continue to provide the data that bring constant improvement to the SEA.

Connecticut State Department of Education: Integrating Systems

A key to improving data management is to streamline processes in ways that reduce collection and reporting burdens while also ensuring the quality, privacy, and security of data. The Connecticut State Department of Education was able to achieve this by automating the connections between the data systems used to manage staff licensure and assignments. As a result, the SEA has improved data quality and utility, reduced burdens on LEA staff, and maintained data privacy and security.

² The SEA makes the Illinois School Code freely available for consultation online. Please view it here: <http://www.ilga.gov/legislation/ilcs/documents/010500050K10-17a.htm> (105 ILCS 5/10-17a(2)(E)).

Linking Two Systems: Staff Assignment and Certification

Teacher data at the SEA level in Connecticut are handled by two separate systems, one used for purposes of educator assignment tracking (here called the staff system) and another for keeping track of educator certifications and licensure (here the certification system). The systems are managed by different offices. Until a few years ago, the systems' linkages were behind the scenes and limited. To gain access to the joined data, SEA staff needed information technology (IT) support and to perform additional outside analyses. This made it burdensome and difficult for the SEA certification office to perform its annual certification compliance verification (an annual check that educators are working within their certification performed in December). Furthermore, if an LEA needed reporting of this kind at any other time of the year, it would have to file a special request with the SEA to receive data. This staggered process and once-yearly full output proved inefficient and frustrating to staff at both the LEA and SEA levels.

This changed for the 2013-2014 academic year, with the launch of a new staff system with greater integration with the certification system. Now, designated LEA staff can access information and generate reports on their educators when and as needed, year-round, without going through intermediaries. These reports allow LEAs to quickly identify staff working outside of their certification, as well as find potential data entry coding errors, improving data quality. In addition, the SEA provides LEAs with more reports to help with staff management, such as reports on educators who need to renew their certifications. Two banks of data have been joined, streamlined, and made available in a secure way.

Secure Identifiers

Maintaining the privacy of data subjects is paramount for any system, especially one designed for easy access. In addition to limiting this access to users who occupy certain roles in Connecticut's LEAs, the SEA's integrated system masks educator identities end to end through the flow of data. Each educator in the state is assigned a unique educator ID number. The two systems exchange information electronically by using this number in conjunction with date of birth. All of an educator's courses, activities, certifications, and service requirements are linked to this secure identifier and tracked throughout their career in the SEA.

Timely and Accurate Data

The staff system devotes a page on the site to each educator in the LEA. This enables LEAs to more effectively manage data for compliance and staffing. Authorized parties easily can

- track the key elements of a teacher's assignments, including courses taught, grades served, school served, and effective dates of this service;
- access a teacher's active certificates to ensure that teachers have the correct certifications and endorsements for the courses they are teaching;
- determine that classes are not being taught by teachers without such certifications; and
- note which teachers are certified in more than one subject area, which they potentially could teach (as an example, a French teacher who also is certified to teach Spanish).

Ensuring that all courses are taught by certified teachers is always a crucial responsibility but carries significant added weight for teachers in Connecticut—educators working outside their certification fields can lose retirement credit.

The staff system also permits LEA staff to assist teachers in keeping their certifications current. If a teacher's certificate is due to expire, the district can advise the teacher on necessary steps and deadlines, including education and professional learning.

A Smoother Process for the Future

After the inevitable growing pains that accompany any change in process, Connecticut has experienced improvements in data management, data accessibility, and LEA user ease of use since the introduction of the integrated system. Furthermore, the SEA continues to improve the integration of the systems to reduce data burden on LEAs and streamline its processes. In the past few years, the staff system has added modules for reporting of completion of the SEA's teacher induction system, as well as a way for LEAs to indicate if a teacher's prior year service met their standards (a key element in advancing an educator's certification). While it is still early in their use, these two new modules hold the promise of significant time savings at the LEA and SEA levels.

Frequent data entry mistakes that can make their way into reports through human error are now easy to isolate and correct. For example, teaching positions may be confused with similar school positions outside the classroom and incorrectly reported. It is not uncommon for reports to mistakenly identify a psychology teacher as a licensed school psychologist, and vice versa.

Ohio Department of Education: Protecting Sensitive Information with Regular Review of Access Rights

The Ohio Department of Education (ODE) manages a large volume of data from many sources, including data from public schools in more than 600 LEAs, more than 300 charter schools, and various other education institutions. These data include confidential personal information (CPI) and personally identifiable information (PII) pertaining to staff members across the state. ODE's rigorous system of checks and audits ensures that such information is accessed only by those with proper permissions and only when those individuals have a legitimate professional interest in the information.

Data managers for staff data and the Office of Educator Licensure at ODE collaborate in a regular review of access to CPI and PII in the department's data system for educator licenses. ODE developed the process in accordance with state statute, to occur on a regular timetable, without the burden of extra meetings or other unnecessary bureaucracy. Multiple offices in the agency have roles in the review process, including data managers (sometimes known as data stewards), IT staff, and staff and leadership in the Office of Educator Licensure and the Office of Professional Conduct, who are the owners of the data in the licensure system.

Legal Requirements

The Ohio law that defines confidential public information and specifies limits on its use and access, Ohio Revised Code 1347.15, defines CPI as "personal information that is not a public record," and it places requirements on the development of computer systems to protect such information, requirements to notify people when their records have been accidentally exposed to those without access rights, and requirements to review public employee access to those types of records. Ohio's Office of Budget and Management (OBM) conducts regularly scheduled audits related to this statute, along with other issues of compliance.

Process and Review

In the course of a scheduled compliance audit, Ohio's OBM advised developing a review process for employee access to sensitive information in Ohio's educator licensure database. The goal was to develop a process that would ensure that

- only appropriate staff members have access to CPI and PII stored in the database;
- the information accessed by these staff members is used solely in the execution of their professional responsibilities; and
- the list of approved staff members is kept current with staffing and access is revoked promptly when employment with ODE ends.

Tools of Review: Business Rules, Metadata, and Attestations

ODE's data managers collaborated with data owners at the department's Office of Educator Licensure to develop the review process. Together, they updated the licensure database to provide reports on metadata. These reports include the identities and roles of all employees with access to CPI and PII in staff records and all instances of employees accessing staff records outside normal business hours. In addition, recognizing that it might at times be necessary to access the database at odd hours, data owners allowed employees to memorialize their reasons for doing so by creating a form for them to sign. These metadata already are stored by data owners in the database in accordance with state statute.

Once metadata reports were ready, ODE developed the following process, to be carried out once per quarter:

- Data managers generate the metadata reports.
- Data owners check over the list of employees and revoke the access rights of any who have left the agency or who have moved to other roles within the agency that do not require such access.
- Data owners review the list of instances of after-hours access, and the relevant employees sign the form, thereby attesting that they viewed the records for professional purposes only.
- Signed attestations are reviewed and stored by the Office of Educator Licensure.

Importantly, the revocation of access for departing/transitioning staff members is not limited to this quarterly review. This occurs at the time of their exit from the position. The review process is meant as a safeguard to catch any instances that may have been missed. It ensures ODE's security around CPI and PII without burdening staff with unnecessary meetings or paperwork.

Pawtucket School Department (Rhode Island): Going Digital

The Pawtucket School Department (RI) (PSD) undertook a joint effort with the city of Pawtucket, Rhode Island, to convert all staff records to a new data system. The LEA has a longstanding relationship with the city for the management of staff records. In the past, the LEA and the city shared payroll, but human resources records were separate. With the conversion, the two entities share one comprehensive system with separate access. The conversion was necessary because the previous data system was becoming obsolete. The conversion offered the city and the LEA an opportunity to review and refine their staff records collection and maintenance processes, while also introducing a new staff portal with a dashboard for data viewing and updates. The portal enables the LEA to automatically report data to the Rhode Island Department of Education (RIDE) on a nightly basis. It also links to a public portal showing the certifications of teachers in the LEA.

Data Privacy and Quality

The new data system required the development of a comprehensive rule set to determine who would have access to the data and how that access would be limited based on data sensitivity and confidentiality. The LEA set up a system of role-based access, where the ability to add, view, and use data is determined by an individual's role in the LEA. Staff implementing the new system then reviewed each data element and assigned appropriate roles.

The process of converting to a new system allowed the LEA an opportunity to conduct data quality checks on existing data and data elements, and to build checks into the new system. For example, the LEA's earlier data system had been in use for such a long time that some of the certifications it contained were outdated. In the event of a teacher layoff or relocation, that teacher's certifications in the earlier system had to be cross-checked against RIDE's data bank, where certification information was more correct and current. With the introduction of the new system, the LEA was

able to update the list of certification options so that it only includes currently used certifications, thereby eliminating the need for cross-checks with RIDE.

Beyond the conversion and upload of data from the previous system, the LEA expanded the system to include new data elements and allow for interoperability with other systems. The new system includes elements for data required by the SEA, which has made it possible to automate reporting to RIDE—a feature that greatly reduces reporting burdens. In addition, the new system allows for the management of data from documents that previously were handled on paper. To improve the comparability of data, the LEA used standardized data elements, such as the National Center for Education Statistics (NCES) college numbering system whenever possible.

The LEA offered extensive training on the new system and continues to add end-user training to ensure that staff are using the system effectively and efficiently. In addition, the LEA and the city ran the old system and the new system in parallel to check for any issues in the new system and verify that the reports produced by the new system matched those from the old.

Challenges and Lessons Learned

The amount of work undertaken to check and convert existing data and data elements, then add new data elements, has reduced the burdens of record-keeping by removing paper from the equation and automating complex reporting tasks with an expanded and aligned data set. The LEA has found the following to be important for educational agencies seeking to upgrade their data systems:

- **Clear and frequent communication:** Standing meetings between affected departments or divisions within a district (human resources and payroll, for example) make it possible to locate, document, and reconcile any data issues that may occur. When multiple parties are contributing data to the system, communication is crucial.
- **Organization:** Opacity between different entities within an LEA is not helpful. These entities may have unique ways of identifying data that are to be shared (unique teacher numbering systems, for instance). To merge these data into a common system, all contributing entities must be able to understand one another.
- **Resource allocation:** Be mindful of the many working hours required to thoroughly check and convert data from one system to another, as well as the time needed to effectively establish role-based access and ensure data privacy and security.
- **Documentation and backups:** Ensure that information concerning crucial duties is not limited to one or two people. A large-scale data effort on a timeline cannot depend on such a small base of expertise. Make sure that an adequate number of staff are trained in essential activities and that full documentation and data backups are available to let new staff step in if current resources become unavailable.

The COVID-19 pandemic has provided an example of the need for thorough documentation in case of changes to or reductions in staffing. When all staff were sent home to work remotely full-time, some staff were charged with new tasks for which they were not fully prepared. A siloed staff working on-site easily can ask questions and seek help when challenged by new expectations—the disconnect of a telecommuting situation makes this difficult, if not impossible. It is therefore helpful to keep all crucial processes thoroughly documented and easily available.

Putnam County Schools (West Virginia): Secure Data Access Across Multiple Systems

Putnam County Schools (WV) has taken a proactive approach in the management of staff records through technology. The LEA uses numerous data systems, each one optimized for the storage and transmission of a certain type of data, and is working to integrate these systems for heightened utility, tighter security, and ease of access. The ongoing effects of the coronavirus disease (COVID-19) pandemic have made the need for this integration all the more urgent.

System Integration

The LEA's staff records are used by numerous systems, including the following:

- a learning management system (LMS) for classroom and academic data;
- a performance analytics system;
- a software platform for email and other communications;
- a system for career applications and hiring management;
- a system to record teacher absences and engage substitutes automatically;
- a system to track and manage professional learning; and
- a customized program to broaden the current human resources (HR) system into a complete database of all personnel.

The diversity of systems using staff data can pose a challenge for any staff responsible for accessing or updating these data. Changes such as a new name, an adjustment in marital or identity status, a new degree or professional specialization, a new job description, or any number of other possibilities can impact several systems. Moreover, every new hire needs to be incorporated into these systems, and every staff member who leaves the LEA needs to be removed promptly. The solution: integrating the systems so that data are pulled from a single, authoritative source and so that multiple systems can be accessed with a single sign-on.

A Single Sign-on

A single sign-on has proven to be the most efficient way to combine access to many of the LEA's necessary systems. By associating an employee's payroll system information and county-specific employee ID with a single set of sign-on credentials, Putnam County creates a universal passkey containing the identifying information and credentials required by multiple systems. Payroll is used as the anchor for the single sign-on not only because a staff member's file is certain to include some vital identifying information (such as date of birth), but because of its use as a monitor for data security. By tying staff access to the basic indicator of who is and is not drawing a paycheck from the agency at any given moment, data managers ensure that only current staff can engage with the data and that all permissions are revoked at the end of employment. Not all of the above systems have been integrated yet under this universal sign-on, but several have, and the integration continues.

The single sign-on covers the professional learning system, the LMS, the analytics system, and the HR database, with additional integrations in progress. This allows staff who work with different aspects of these systems to easily access the resources and data they need. For example, once a teacher is provided with a sign-on, they automatically have access to their grade book, training software, and any application software needed for their work. Soon, teachers also will have access to the staff attendance system, permitting them to easily notify the school if they are absent and need to request a substitute teacher.

Authoritative Data Sources

Integrated systems improve the flow of data—rather than collecting and storing the same data in multiple systems, each system pulls data from one source. Putnam County engages in required data exchanges with the West Virginia Education Information System (WVEIS). WVEIS provides an authoritative source for many of the data needed by the LEA, including payroll data, but it does not include all of the information needed by the LEA. For example, dates of educator seniority, duty pay, and contract signings are needed only at the local level and therefore are not shared via WVEIS. Putnam County’s HR department created an HR database that imports data nightly from WVEIS, and these data then are combined with LEA-specific data. Putnam County’s HR database is used frequently to validate data requested by the state.

The COVID-19 Effect

Ease of access became an issue of paramount importance in 2020 due to the COVID-19 pandemic and the resulting shift to widespread remote working, teaching, and learning. Navigating multiple data systems without a single set of sign-on credentials is time-consuming for educators and staff working on-site, where one can visit administrators and ask questions in person; trying to do so entirely online is even more challenging. Now, staff can access many of the resources they need from home using the single sign-on. Moreover, integrated systems have improved data management. Staff can enter information about a newly hired staff member once, and relevant information such as staff name can be updated simultaneously in multiple systems. This proved especially useful with onboarding new staff. Rather than having to set up accounts within the training software for each newly hired staff member, those staff soon will be able to access the training they need using the single sign-on.

Lessons Learned

Security must always be a top priority with education data. Apart from the usual common-sense security protocols for online data work (strong passwords, not sharing credentials), Putnam County advises that a key point for security is to pull together only the least amount of information needed in an integration. For example, while a training system may need to pull data on a teacher’s name and credentials from the HR system, data that are not needed (such as the teacher’s birthdate) are best excluded from the pull. A thorough data audit will show which data are stored in which system(s) and where these data are needed. Secure integrated data systems will not provide data that are not needed and will not ask users to input data already present; both of these activities pose clear data risks and are to be avoided. In addition, a single sign-on for all data systems is not a safe practice; the data contained in some systems may require additional security.

Northshore School District (Washington): Remotely Onboarding Staff During a Pandemic

In early March 2020, like much of the country, Washington’s Northshore School District was required to adopt a remote learning model with almost no notice. Almost as abruptly, staff at district schools and in the central LEA office followed students and teachers into remote work environments. Instead of working in their offices and cubicles, staff began working from their living rooms, kitchen tables, basements, and spare bedrooms. Meetings moved from conference rooms to teleconferencing tools. This created a variety of challenges, and the process of onboarding staff was no exception. Northshore staff quickly adapted to ensure that the abrupt switch to remote work would affect the staff onboarding process as little as possible. A primary focus of this effort was maintaining the ability of HR staff to remotely access and work with staff records as necessary for their jobs, without compromising the privacy or confidentiality of those records. This effort also extended to adapting the application process and the onboarding process to ensure that staff records created during remote work would be handled with the same protections as existing ones and that potential staff and new staff were provided with the support needed to effectively perform their jobs.

Working with Staff Data in At-Home Work Environments

In almost all cases, Northshore's HR staff were restricted to accessing the hiring system and other HR data exclusively within the protection of the district's secure network. This restriction helped to ensure the security of data related to job applicants and existing staff. As a result of the pandemic, HR staff suddenly were faced with the need to work for an indeterminate amount of time from home, using home Internet connections of varying security levels. To protect the data in the hiring system, Northshore installed virtual private networking (VPN) tools on all HR staff workstations and trained staff on how to use those tools. For staff who previously had elected to work from desktop computers, this process also meant transitioning them to agency-assigned laptops and assisting them with secure connections to their home network. Before being able to accomplish a moment's work, some staff had to acclimate to a new workspace, new work computer, new software for accessing district systems, and new teleconferencing software.

In addition, since some staff also are parents of children who also were shifting to remote schoolwork, they often needed to update their home network to ensure reliable connectivity for everyone. And in the event of home networking issues, they also needed time with support staff troubleshooting the entire system over several sessions before their new at-home setup became a stable and secure work environment. Depending on home environments, the place chosen for this set-up (be it the kitchen table, the basement, or a spare bedroom) was not always well suited to working with confidential information or conducting meetings requiring an appropriate level of discretion. Northshore worked with staff to emphasize the importance of finding an environment in which they could both be productive and keep confidential records, materials, and communication secure.

Comfort and Ease of Access for Applicants

Several years ago, Northshore moved its entire application process online. To accommodate applicants without home access to a computer or the Internet, the HR department placed application kiosks on-site at the central office. This allowed applicants to access online applications while also being able to ask support staff questions, as needed. However, the move to remote work for staff made these kiosks a non-viable option.

Applicants without home computers and reliable Internet connections had to find alternate ways to connect with Northshore's HR staff. The LEA increased the availability of phone, email, and other support options to support applicants and continues to look for new methods of connecting with potential applicants.

Northshore also has worked to make the process of remote interviewing accessible to a wide range of applicants and continues to look for ways to make the process as equitable as possible for applicants with limited technological access or training. While remote learning and work have led to a reasonable level of proficiency with video conferencing tools among existing agency staff, the same is not true for all applicants. It also is not possible to make assumptions about the reliability of the interviewee's tech set-up or about the environmental conditions around the interview—in other words, it would be unfair to include dropped Internet connections, household noise, or the interruptions of pets in the criteria for evaluating applicants post-interview. Northshore holds a team meeting before each interview in which interviewers are reminded that environmental conditions such as those listed above are not part of the evaluation to keep the selection process fair and equitable. The interview team also is reminded that part of its task is to make the candidate comfortable and to keep its focus on the interview, rather than the circumstances of the interview.

In cases where lack of Internet access completely rules out a teleconference-based interview as an option, interviews under the same guidelines also may be conducted by phone.

Touching Base at a Distance

Challenges with remote work continue post-interview, once a new hire has accepted an employment offer and the onboarding process begins. Initial challenges include carrying out onboarding professional development and meeting new colleagues via teleconference. In addition, onboarding's less documented aspects pose significant challenges. A new hire will have many questions in the early weeks of employment, questions that could be answered easily with a visit to a colleague's desk; the inherent complication of setting up a quick video conference to ask these questions as they arise means they may not get asked at all. The new hire may go without needed information at a crucial time and may make incorrect assumptions about job requirements and procedures. Therefore, Northshore has profited from being thoughtful and intentional about touching base, with staff making themselves available at regularly scheduled standing meetings at the beginning and end of the workday. These meetings are an invaluable opportunity to ask and answer questions or just for staff to check in with a new colleague. Another excellent option, staff workload permitting, is to designate a staff member as an onboarding mentor for all new hires. The mentor serves as a readily available resource for all questions.

Northshore has found that when onboarding new hires in a remote environment, it is important to establish that they have a resource for their questions and that asking those questions is not an imposition, but an expectation. It is just as essential to clarify this point with existing staff: making new staff feel like part of a team, and helping them avoid making guesses about processes and procedures instead of seeking answers, is a vital part of their jobs.