

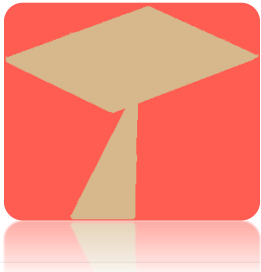
Texas Student Data System



TEA's Texas Student Data System (TSDS) One-stop shopping for school district Business Intelligence

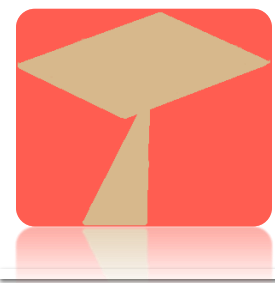
GTC Southwest 2012
David Butler

Texas Education Agency
July 13, 2012



Business Intelligence Emergence

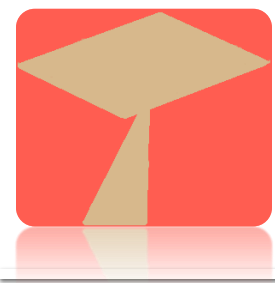
- This term was used as early as September, 1996, when a Gartner Group report said:
 - By 2000, Information Democracy will emerge in forward-thinking enterprises, with Business Intelligence information and applications available broadly to employees, consultants, customers, suppliers, and the public. The key to thriving in a competitive marketplace is staying ahead of the competition. Making sound business decisions based on accurate and current information takes more than intuition. Data analysis, reporting, and query tools can help business users wade through a sea of data to synthesize valuable information from it - today these tools collectively fall into a category called “Business Intelligence”.



Business Intelligence Defined

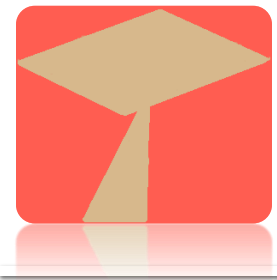
- **Business Intelligence (BI)** is defined as:
- (1) the ability for an organization to take all its capabilities and convert them into knowledge, ultimately,
- (2) getting the right information to the right people, at the right time, via the right channel...effectively implemented, this can
- (3) provide an organization with a competitive advantage in the market, and stability in the long run (within its industry). — *"Business Intelligence Success Factors : Tools for*

Aligning Your Business in the Global Economy" by Olivia Parr Rud '09



Business Intelligence Applied

- The application of Business intelligence (BI) requires bringing together a broad category of applications and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions.
- BI applications - also referred to as Decision Support Systems (DSS), include the activities of query and reporting, Online Analytical Processing (OLAP), statistical analysis, forecasting, and data mining.
- Business intelligence applications can be:
 - Mission-critical and integral to an enterprise's operations or occasional to meet a special requirement
 - Enterprise-wide or local to one division, department, or project
 - Centrally initiated or driven by user demand
- Some tools that you may be aware of: Cognos, Business Objects, SAS BI, Oracle BI
- Technologies: ETL, SQL, Teradata (Emerging: Mobile Solutions and Cloud (BlaaS))



How are we doing this?

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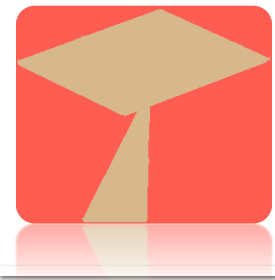
Aligning Your Business in the Global Economy" by Olivia Parr Rud '09



Gaining a competitive advantage in state government...

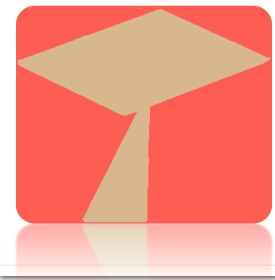
"Why would I want to do THAT?!..."

- Whether or not you have external competitors, you won't know if you are improving without collecting and analyzing supporting data.
 - "Am I beating my last performance?" ← The question you (or your users) should get an answer to by using the BI system.
- What is it that your agency is out to overcome or diminish? Poverty? Hunger? Crime? Disease? Illness? Homelessness?
- TEA's competitors (for TSDS) are external vendors and district self implementations.
 - The social problems we are out to overcome are student illiteracy, ignorance, and improved high school graduation rate (currently 82%).



Why are we doing this?

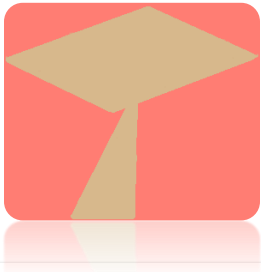
- Because we believe that educating the kids in Texas is very important
- We believe the ESCs, Districts and charters around the state are doing everything they can afford to....
- Because we want to help LEA's make this happen
- We have the resource....
- What is the resource?
- Data...



How are we doing this?

- **Business intelligence (BI)** is defined as:
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Data Collection and Information Sharing Today – Room for Improvement



Districts spend significant time providing data to TEA for PEIMS



Cost to districts is extremely high, estimated to be \$323M annually statewide



Data that is shared back with district is not timely and is not in a particularly useful format

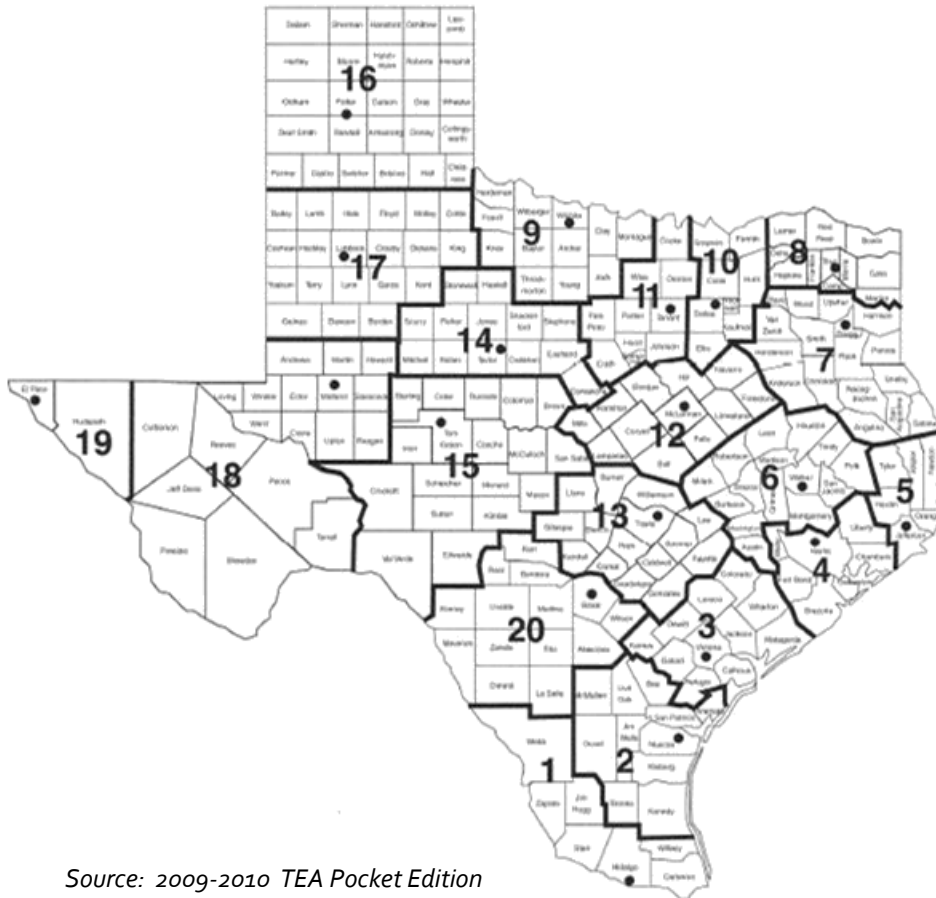


Data rarely makes its way to the educators best positioned to improve student achievement

Texas Stakeholders At a Glance

Quick Facts

- 333,007 Teachers
 - 58,576 Professional Support
 - 18,543 Campus Administrators
 - 6,853 Central Office Administrators
 - 1,030 Superintendents of ISDs
 - 207 CEOs/CAOs/Presidents of Charters
-
- 1,237 Districts & charters
 - 8,435 Campuses
 - 20 Education Service Centers
 - 15 SBOE Districts
 - 4.8M Students



Source: 2009-2010 TEA Pocket Edition

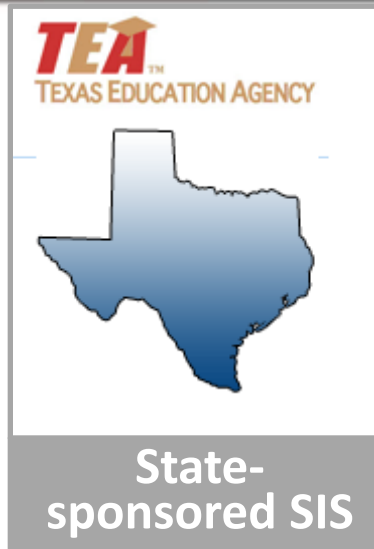
The graphic features a red square with a gold graduation cap icon inside. Below the square is a reflection effect.

Texas Student Data System (TSDS) Vision

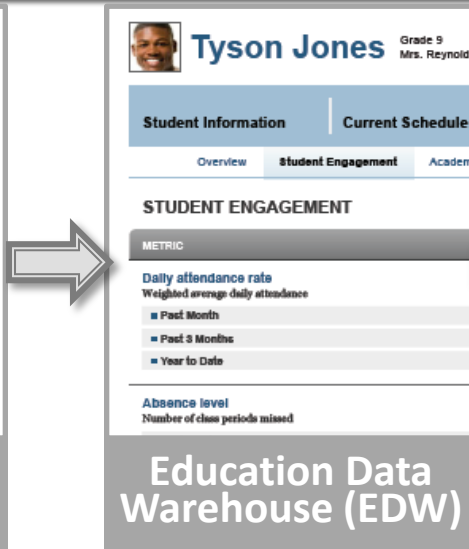
Enable 100% of educators to have access to timely, relevant, actionable data to drive classroom and student success

- A data system ***for teachers, designed by teachers.***
- Delivers relevant, timely and actionable student data back to educators to ***continually improve performance***
- A ***comprehensive, easy to use resource for student data*** – brings together student information from multiple sources
- Reduces reporting and collection ***burden to districts***
- Requires ***no additional data*** input
- ***User friendly and intuitive*** and accessible from any location
- Available ***free of charge*** to all Texas districts

TSDS encompasses four key projects



- Opt-in, voluntary SIS
- TEA is considering multiple options on the model for offering state-sponsored SIS
- TSDS will integrate with other SIS's – no requirement or mandate to switch



- Powers student, campus, district data snapshots
- System supported by the state but the data only available to educators
- Will become conduit to submit PEIMS data
- Loading of non-PEIMS data is strictly optional and at the districts' discretion

EDUCATION AGENCY
Excellence Indicator System
District Performance

Hispanic	White	Native American	Asian
84%	98%	57%	91%
81%	96%	80%	91%
78%	95%	67%	94%
71%	91%	70%	91%
73%	94%	57%	89%
66%	90%	60%	92%

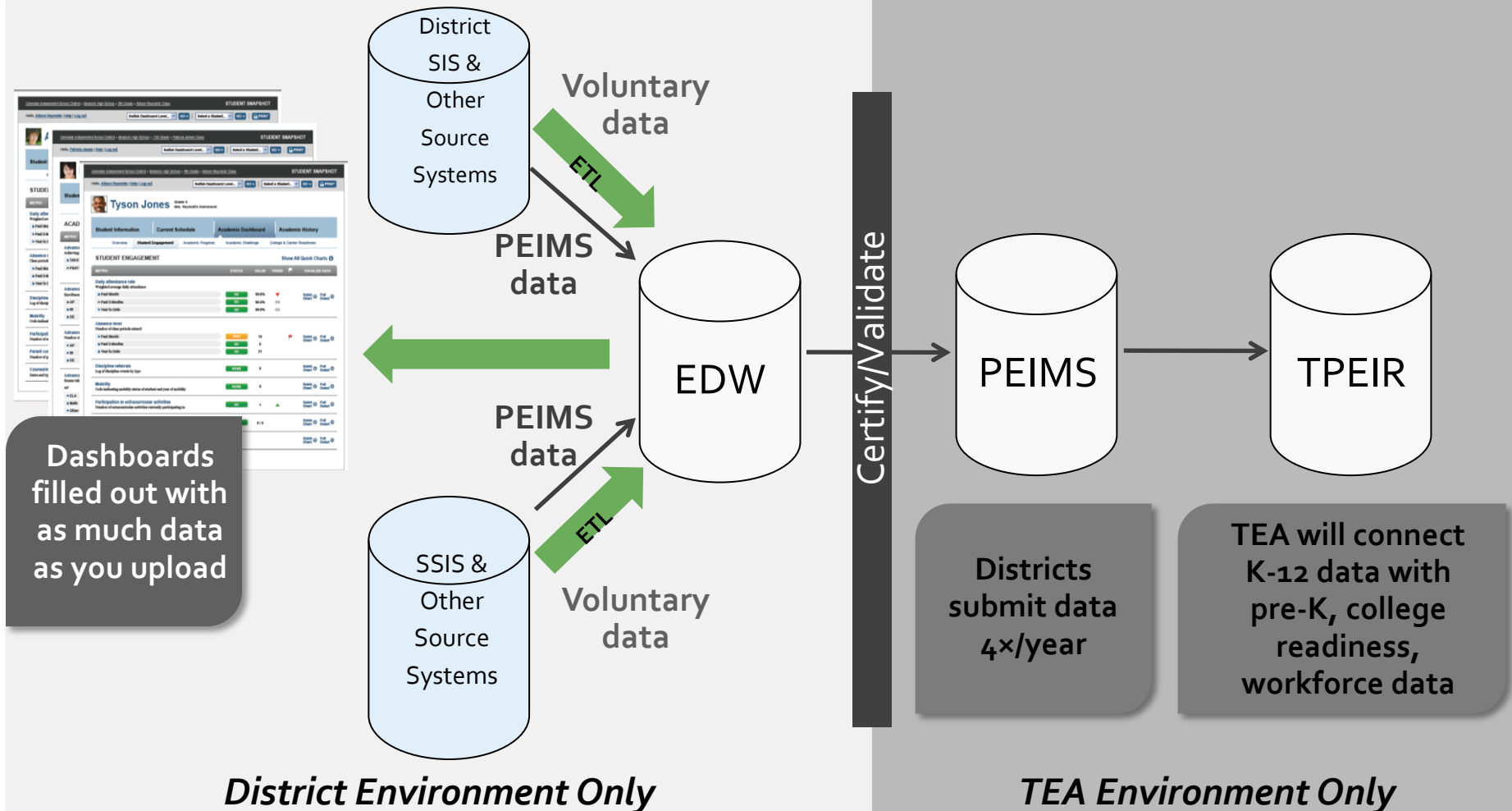
PEIMS

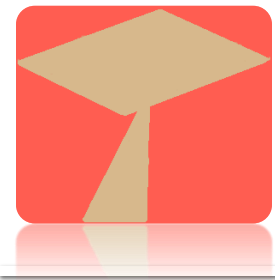
- XML data standard will make it easier to submit and certify data
- Realign statewide data collection standards and protocol for districts



- Expanded to link pre-K, college readiness, and workforce data
- Load college readiness test score collections (SAT, ACT, AP Test data)

How Will TSDS Work in the Future?





How are we doing this?

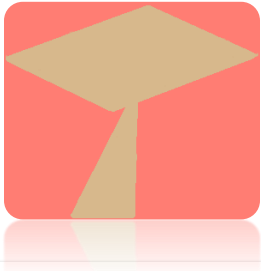
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Texas Student Data System



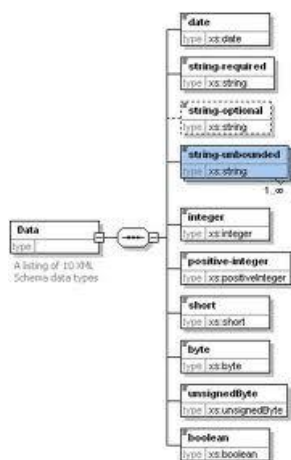
Student Performance Improving Dashboards



What is the Education Data Warehouse Solution?

- The Education Data Warehouse (EDW) is the core of a district-facing statewide education data warehouse solution. This solution will provide a new environment that will collect granular operational data from the districts' local source systems into the EDW.
- The EDW is intended to drive the district-facing Performance Dashboards and Reporting Services as well as the PEIMS data submissions.
- The EDW will be used by the districts for their own operational analysis and reporting needs and only local educators will be allowed to see the data housed in the EDW.

EDW Based Upon Texas Education Data Standard



TEDS

- XML based standard
- Common Data Model across all 1237+ LEAs
- 18 interchanges in total
- For both PEIMS and dashboards
- 2013-14 standard stable, released to public in March



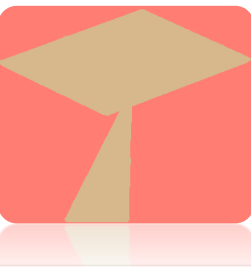
Ed-Fi

- National CEDS compliant standard
- 11 interchanges
- Some elements dashboard specific, other used for PEIMS and dashboards



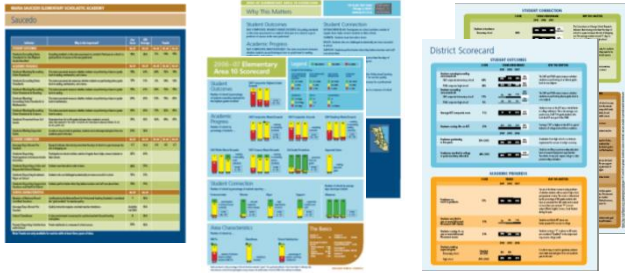
Texas Extensions

- PEIMS specific elements that can't be full-filled through Ed-Fi
- 7 interchanges



Dashboards are Grounded in Best Practices and Vetted by Educators

Nationwide Best Practices Audit



Academic Research



Stanford University
School of Education



GEORGE W. BUSH
INSTITUTE

TEACHERS COLLEGE
COLUMBIA UNIVERSITY

THE UNIVERSITY OF
TEXAS
AT AUSTIN

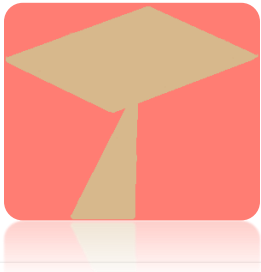


NATIONAL
MATH+SCIENCE
INITIATIVE

Focus Groups with 2,600 Educators



- Initial dashboards based on national education research and review of best practices across the country
- Received and incorporated feedback on dashboard from 2,600 educators in Texas
- Enhancements to dashboards based on stakeholder feedback



Metric Definitions - Algebra I

- Why measure Algebra I vs. other courses?
 - Research indicates that students who enroll and complete Algebra I by the 9th grade (a key prerequisite for higher math) will graduate in higher numbers and are more likely to be college ready.
- Algebra I Metrics-High School:
 - **Taking or have Taken:** % of students who have taken Algebra I by the 9th grade. In the case of students who have never enrolled, teachers and counselors can quickly identify students who need to be enrolled and, based on each student's academic history, provide the necessary support to register and prepare them for Algebra I.
 - **Passing or have Passed:** % who are passing/have passed by the 9th grade. For students who are currently enrolled in Algebra I, teachers can quickly identify students who need additional academic support to successfully complete the course. In the case of former Algebra I students, teachers of advanced math courses can view Algebra I performance to evaluate the level of support students may require as they engage in more rigorous coursework.
- Algebra I Metrics - Middle School:
 - This measure, defined as enrolling and successfully completing Algebra I by the 8th grade, helps campuses identify the level of students who show potential for more advanced coursework and their ability to master higher level math skills to be successful at the post-secondary level.

Metric Definitions - Attendance

(Campus Level)

ATTENDANCE	STATUS	VALUE	TREND	△	CAMPUS GOAL	DETAILS
Average Daily Attendance (Through May 27, 2011) Average daily attendance for all students with membership on the campus (unweighted)			Common measure used by districts to track attendance and for state reporting			+ More...
▪ Current Grading Period	92.0 %	1931		90.0 %	2.0 %	+ More...
▪ Year to Date	94.7 %	1931		90.0 %	4.7 %	+ More...
Daily Attendance Rate (Through May 27, 2011) % of students meeting attendance rate threshold of 90% during the specified time frame			Use to pinpoint specific students negatively impacting ADA. Value often lower than ADA.			+ More...
▪ Last Four Weeks	78.6 %	1518 of 1931		95.0 %	-16.4 %	+ More...
▪ Last Eight Weeks	85.4 %	1651 of 1931		95.0 %	-9.6 %	+ More...
▪ Year to Date	90.8 %	1754 of 1931		95.0 %	-4.2 %	+ More...
Class Period Absence Rate (Through May 27, 2011) % of students exceeding class period absence rate threshold of 10% during the specified timeframe			Catch students with attendance problems that aren't reflected in daily attendance measures above			+ More...
▪ Last Four Weeks	26.1 %	505 of 1931		10.0 %	-16.1 %	+ More...
▪ Last Eight Weeks	18.5 %	358 of 1931		10.0 %	-8.5 %	+ More...
▪ Year to Date	6.0 %	116 of 1931		10.0 %	4.0 %	+ More...

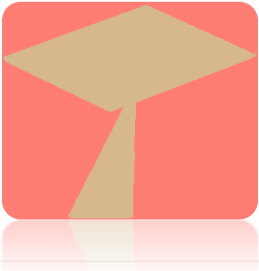
Metric Definitions – Discipline

(Campus Level)

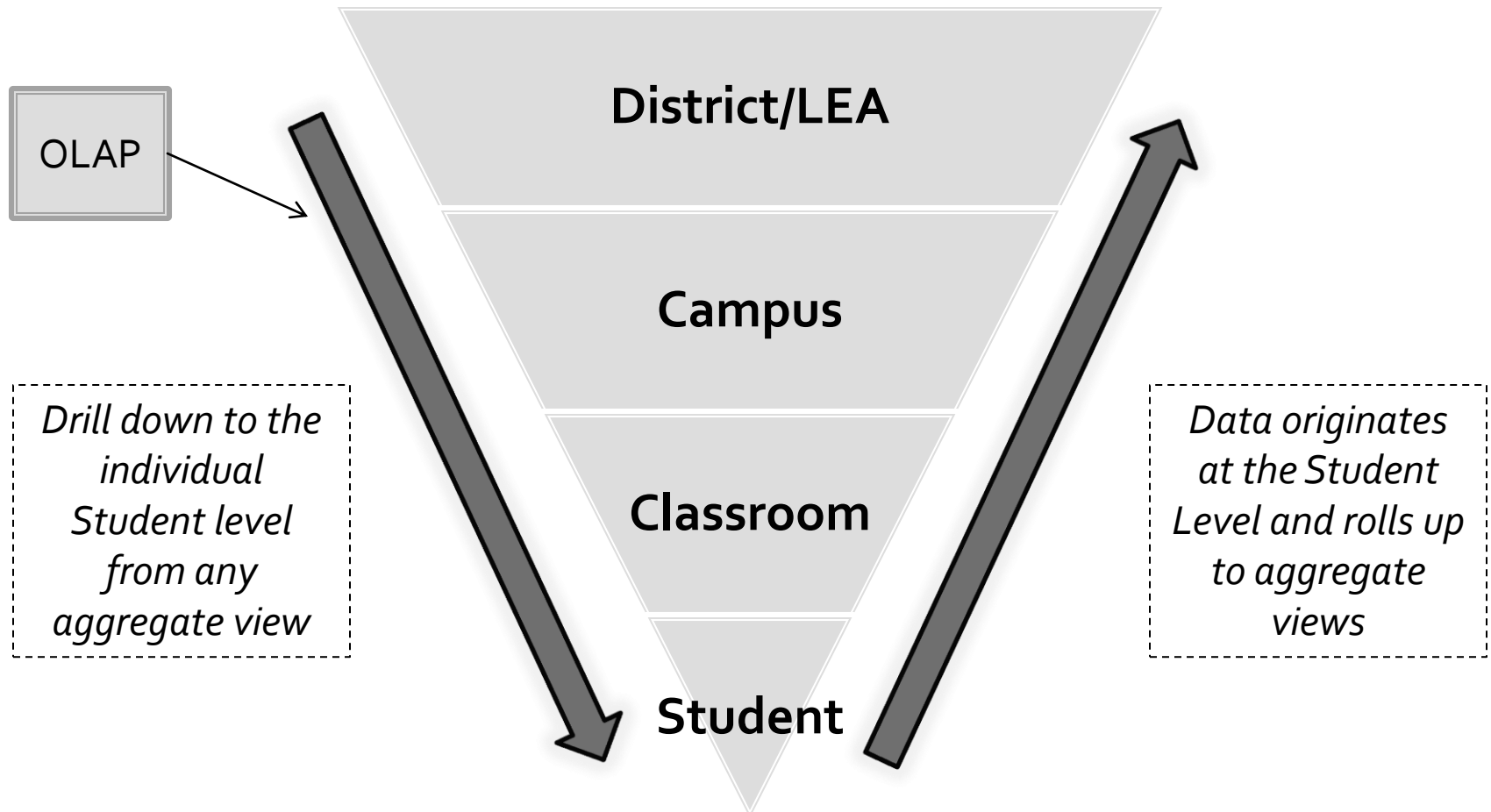
DISCIPLINE	STATUS	VALUE	TREND	FLAG	CAMPUS GOAL	DETAILS
All Discipline Incidents (Through May 26, 2011)			+ More...			
% of students with 1+ non-school code of conduct and/or excessive (5+) school code of conduct incidents in a given grading period			Identifies students with chronic discipline issues			
■ Current Grading Period	1.4 %	4 of 276			5.0 %	3.6 % + More...
■ Previous Grading Period	1.0 %	3 of 276			5.0 %	4.0 % + More...
■ Year to Date	3.2 %	9 of 276			5.0 %	1.8 % + More...
School Code of Conduct Incidents (Through May 26, 2011)			+ More...			
% of students with 1 or more incidents in a given grading period			Identifies students with early signs of discipline problems			
■ Current Grading Period	15.9 %	44 of 276			5.0 %	-10.9 % + More...
■ Previous Grading Period	17.7 %	49 of 276			5.0 %	-12.7 % + More...
■ Year to Date	43.1 %	119 of 276			5.0 %	-38.1 % + More...

incidents representing minor infractions (school code of conduct incidents) or one or more discipline incidents representing the most serious incidents, excluding school code of conduct incidents.

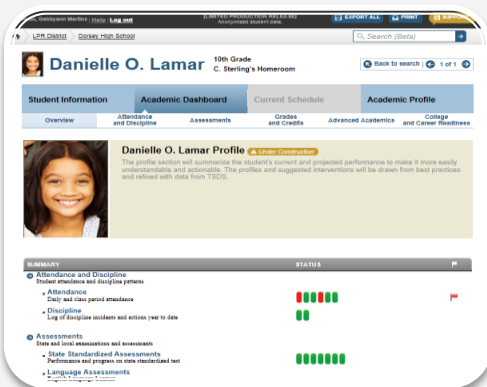
- School Code of Conduct Incidents: percentage of students who have one or more minor infractions (school code of conduct incidents) in a given grading period.



Dashboards Consist of Four Levels Driven by Individual Student Data

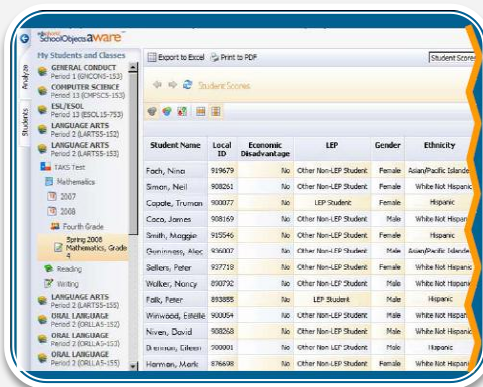


Tracking Student Performance: Dashboards vs. Other District Data Tools



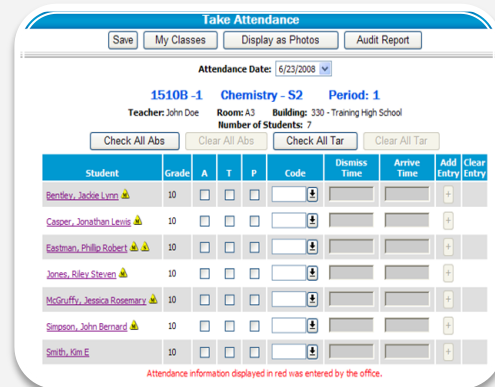
Dashboard Provides

- * 360 view of student: attendance, grades, district assessments, student profile & academic history
- * Accesses data from multiple district systems
- * GPS - Identifies and highlights issues for further action
- * Accessible to all teachers via web



Other Campus Tools Provide

- * Captures state, district, campus and classroom assessments
- * Deep dive on assessment data
- * Detailed information: assessment scores, SE and item and question-level detail
- * Directly available to teachers



SIS Provides

- * System of record for all student information - demographic, program participation, transcript
- * Student scheduling tool
- * Detailed attendance and discipline data
- * Less user-friendly for providing summary data and identifying issues and trends; "more clicks to get to data"

Dashboards save users time

Student Information Academic Dashboard Current Schedule Academic Profile



Anthony Q. Awbrey

608 Miller Farm Rd
Krum, TX 73367

Guardian / Parent Information

Primary
Contact

Name Phoenix Patterson

Relation to Student Mother

Address 608 Miller Farm Rd
Krum, TX 73367

Cell Phone (619)-840-4563

Work Phone (806)-776-7000

Email phoenix.patterson@tsds.org

Name Rael Hickman

Relation to Student Father

Address 637 Hitchcock Sta
Krum, TX 74668

Cell Phone (766)-988-2194

Work Phone (806)-747-2000

Email

Demographics

Date of Birth September 19, 1996

Place of Birth Lubbock

Age as of Sept 1st 14

Gender Male

Hispanic or Latino No

Race Black - African American

Home Language English

Student Language

Parent in Military No

Single Parent/Pregnant Teen

School Information

Grade Level 10th Grade

Late Enrollment

Homeroom C. Sterling

Date of Entry August 22, 2011

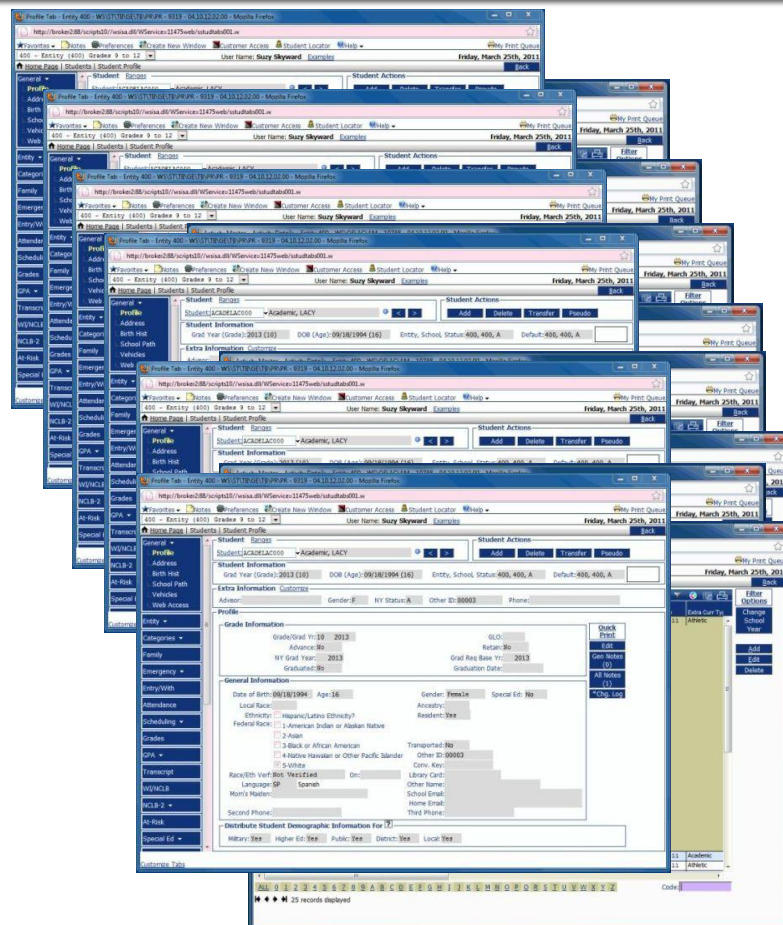
Date of Withdrawal

Graduation Plan Recommended

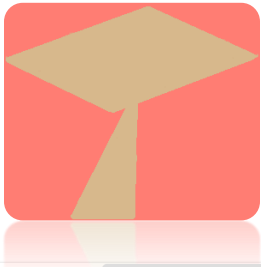
Expected Graduation Year 2014

Program Status

- ☐ Bilingual Program
- ☐ Career and Technical Education
- ☐ English as Second Language
- ☒ Free or Reduced Priced Lunch Eligible
- ☐ Gifted/Talented
- ☐ Special Education
- ☐ Title I Participation



It takes 10 – 15 screens in the student information system to get the information on the dashboard student profile page



Dashboard Content & Features

Attendance & Discipline

- Daily attendance
- Class period attendance
- Tardy rates
- Discipline

Assessments & Grades

- State assessments
- Language assessment
- Early reading
- District benchmarks
- Course / subject area grades
- Credit accumulation and 4x4

Academic Potential

- Advanced course potential
- College entrance exams (SAT, ACT, PSAT)
- College readiness indicators

Student Information

- Program participation
- Enrollment dates
- Contact information
- Key transcript data:
 - Current and historical courses and grades
 - TAKS history

- **Highlights trends over time and flags negative trends**
- **Easily drill down for more detail** (e.g., finer grain, historical data, student exception lists)
- **Highlights where students are not meeting performance goals**

Texas Student Data System



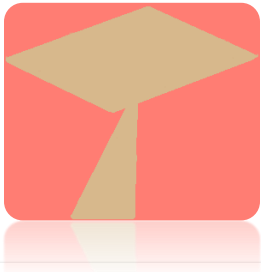
Demonstration of the Dashboards Student and Classroom

<http://www.tea.state.tx.us/Workarea/downloadasset.aspx?id=2147506494>

Texas
Student
Data
System

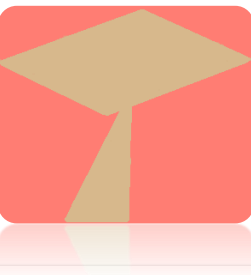
TRAINING DEMONSTRATION VIDEO





In feedback sessions users cited many applications for the dashboards

- Common settings where users site that the dashboards are valuable
 - Parent / teacher conference – print and share student dashboards
 - Student Support Team (SST) meetings – data across performance measures
 - ARD meetings – requires broad student data that is included in dashboards
 - PLC/departmental meetings – assessment, discipline data
 - RTI committee meetings – benchmarks, grades, assessment data
 - Intervention groups – TAKS prep, post-benchmark pull-out groups
 - Truancy warning – identity and track students with chronic attendance issues
 - Student goal setting – set individual goals for benchmark performance
 - Campus tracking for at-risk students
- There are several critical times to use the dashboards including the beginning of the school year or a new grading period, when organizing intervention groups, and after benchmark results are reported.



Based on initial feedback dashboards are a valuable tool for educators



"This will be so valuable in communicating with parents."

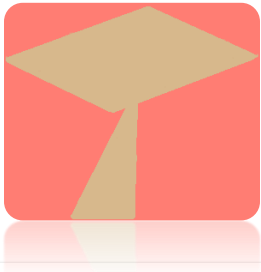


"I do LOVE that now I can access info about absences, credits, college readiness, etc. at the same time!"



"With this data we would be able to identify and challenge our power kids!"

100% of Lubbock ISD and 98% of PSJA ISD users said they are likely or very likely to recommend the dashboards to their colleagues



Dashboards are giving educators new insights on their campus and students



"Attendance did surprise me! Our goal is set at 95% and we are still missing the mark."

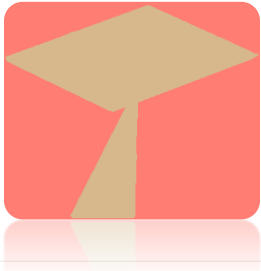


"It surprised me to see all the red for TAKS. Our campus goals are high!"



"WOW! Everything about my school is here. Unbelievable! It's everything I need to do my job."

87% of PSJA users could see themselves using this tool on a regular basis to **make decisions** about instruction



Limited Production Release (LPR)

- Next phase will include 4 more Limited Production Releases (LPRs) for a total of 7 (along with their Vendor/Student Information System).

LPR District

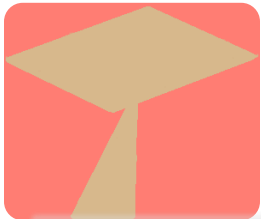
1. Lubbock ISD*
2. Allen ISD*
3. Pharr – San Juan – Alamo ISD*
4. Taylor ISD
5. Hays CISD
6. Lewisville ISD
7. Alief ISD

SIS Vendor

- Prologic/TEAMS
- Skyward/Skyward
- Sungard/eSchool Plus
- **TCC/TxEIS****
- Prologic/TEAMS
- **Skyward/Skyward****
- Sungard/eSchool Plus

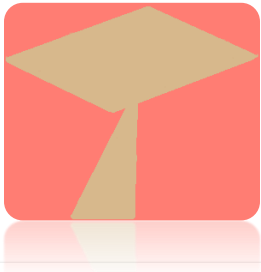
* - MSDF/DLP supplied the extracts from all the systems for these districts as well as all the extracts not supplied by the SIS vendors for the remaining districts.

** - SSIS Vendor Implementation



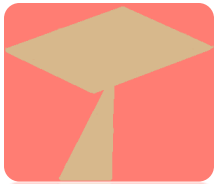
EDW Projected Timeline

FY10	FY11	FY12	FY13	FY14
✓Draft data dashboards defined ✓Dashboards finalized based on feedback ✓Stakeholder engagement ✓SLDS 2009 ARRA Grant Awarded ✓Draft data standard defined ✓Initial EDW (Dashboards) prototype	✓RFI for DW Solution Issued ✓Draft Data Standards for EDW ✓Evaluate RFI Responses ✓<i>Re-engineer Data Collection Business Processes</i> ❖<u>Begin Limited Prod Releases 1-2</u> ✓Requirements (Solution Components) ✓Issue 3 RFOs ✓Select Vendors	❖<u>Limited Prod Releases 3-5</u> ➤Dashboard Enhancements ➤Hosted EDW ➤Integration with SSIS ➤Integration with other SIS's ➤Interface with other Source Systems	❖<u>Limited Prod Release 6 & 7</u> ➤Dashboard Enhancements ➤PEIMS Data Standards Published ❖Begin Production Deployment ➤PEIMS Collection through EDW	➤Continued Deployment to all Districts



Lessons learned

- The importance of prototyping and piloting activities was reinforced as significant learning and discovery continued during subsequent phases of the project.
- Sufficient time needs to be allocated for iterative change and refinement.
- The high level of stakeholder feedback is worth the additional efforts associated with the refinements.
- Communication with key stakeholders is critical to minimize misinformation.



www.TexasStudentDataSystem.org

Texas
Student
Data
System

State
Sponsored
SIS

District
Connections
Database

PEIMS

TPEIR

Resources

F.A.Q.

Provide
Feedback

The Texas Student Data System will provide educators and policymakers with actionable, timely data to improve student performance while easing the burden of data collection on districts.

Collectively, the TSDS components will standardize the data collection and data management process, and equip educators with historical, timely and actionable student data to drive classroom and student success.



- Contact: David.Butler@tea.state.tx.us about any additional TSDS questions and/or assistance