

The Power of Predictive Analytics



What is predictive analytics?

NETFLIX

amazon

PANDORA

Predictive Analytics: How it Works



Historical
Data



Machine
Learning



Customized
Predictive Models
(by district and
gradespan)

Predictive Analytics – technology that learns from experience (data) to predict the future behavior of individuals in order to drive better decisions.

The Cost of an Incomplete High School Education



\$292K

Cost to Taxpayer over
Course of Dropout's Life



\$8B

Annual Crime-Related
Savings/Revenue with a 5% Male
Graduation Increase



14.3%

Dropout Unemployment

(Center for Labor Market Studies; Alliance for Excellent Education; U.S. Bureau of Labor Statistics)

Economic Benefits of a 90% National High School Graduation Rate



\$3.1 B

Additional Annual Earnings



\$5.7B

Economic Growth



\$664 M

Annual Tax Increase

(Alliance for Excellent Education)

Threshold Models

Traditional Early Warning Systems Have Not Improved Outcomes



Reactive Identification to At-Risk Students

Identifies at-risk students using limited risk indicators in isolation.

Risk is defined by what has already happened.



One-Size-Fits-All Risk Indicators Apply to All Students

Based on national data, risk signs of a second grader in a rural district are the same risk signs as a ninth grader in an urban district.

More High Schools Found to Have Low Graduation Rates

(EdWeek)

Predictive Analytics

On-Time Graduation & Postsecondary Readiness



State-of-the-Art Predictive Analytics

Draws upon many data points across domains of performance, attendance, and behavior.



Customized to Districts & Grade Levels

Looks at actual data across all domains, and fits the best predictive models that would have predicted on-time graduation and postsecondary success. Models are applied retroactively to current students.

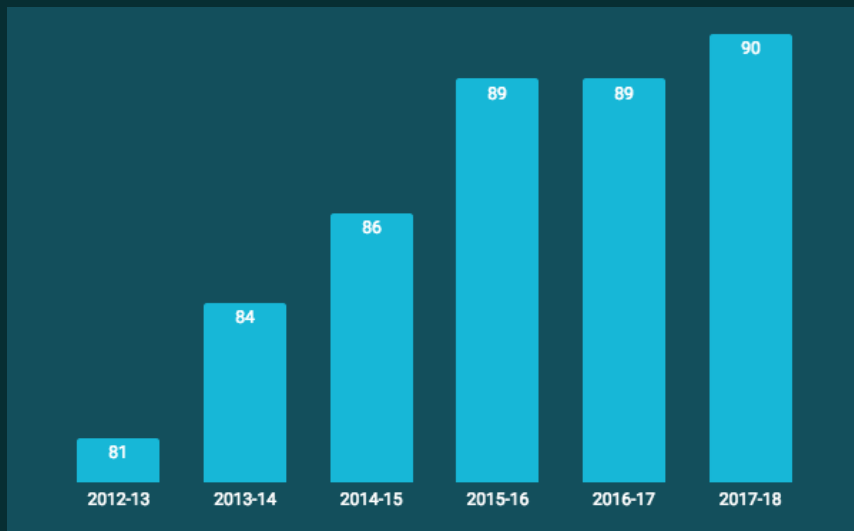
Founded in 1946 1800+ Employees



Case Study: West Virginia

Identifying at-risk
students & implementing
interventions
at earlier ages

Graduation Rates



Results from
statewide efforts to
identify, connect, and
monitor at-risk
students early and
accurately

Recognized as a top
5 state for improved
grad rates

9%

Grad Rate
Improvement

~24,000

Additional Graduates

~\$283M

Per Pupil Savings

THE BRIGHTBYTES TEAM



Jann Arnold

Director of Partnerships

Professional Experience

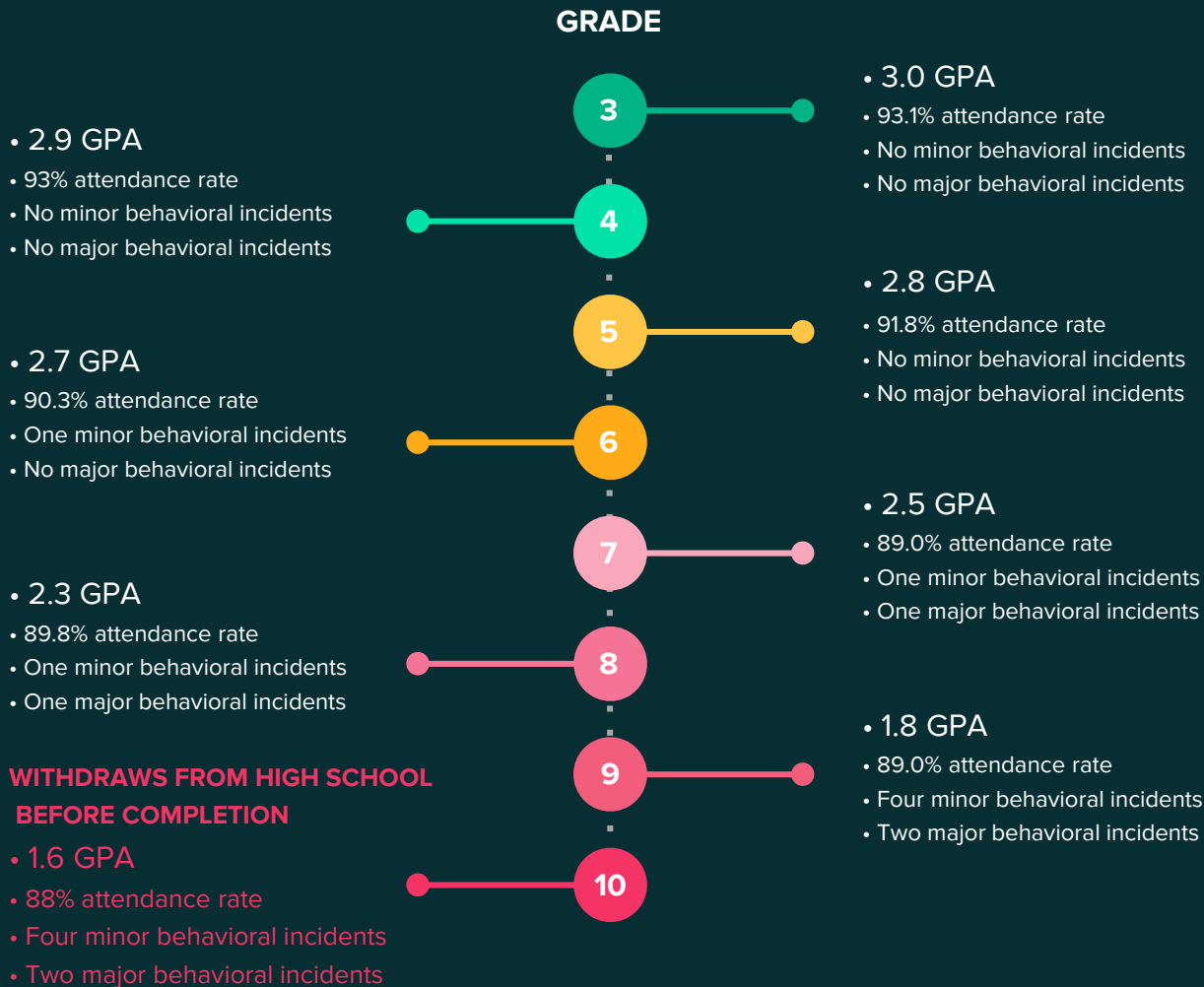
- School Finance Officer, Arkansas
- Governmental Auditor
- Certified Public Accountant

Professional Service

- AAEA Legislative Committee
- SASBO and AASBO Board
- US DoE Regional Technical Advisory Committee

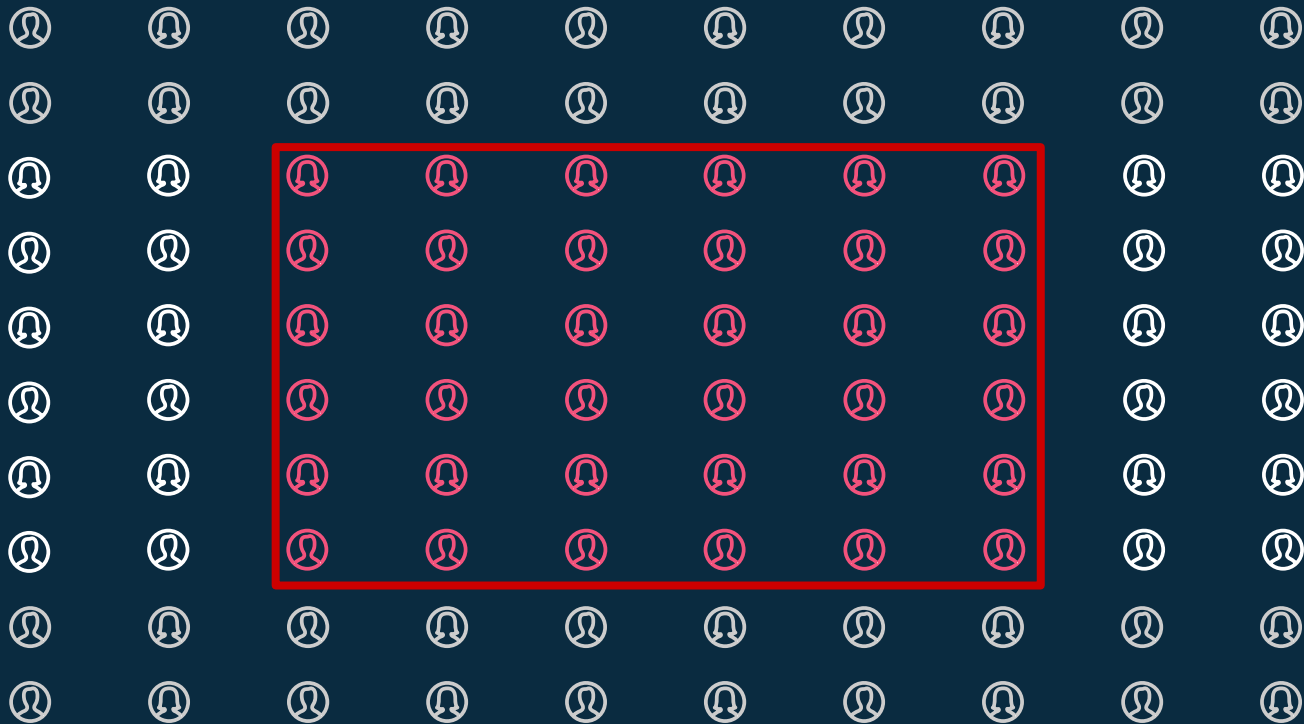
An Incomplete High School Journey: Summative Data

The data contained in this figure is based on analyses of 42,571 students and represents the profiles of students, at each grade level, who eventually did not graduate high school.

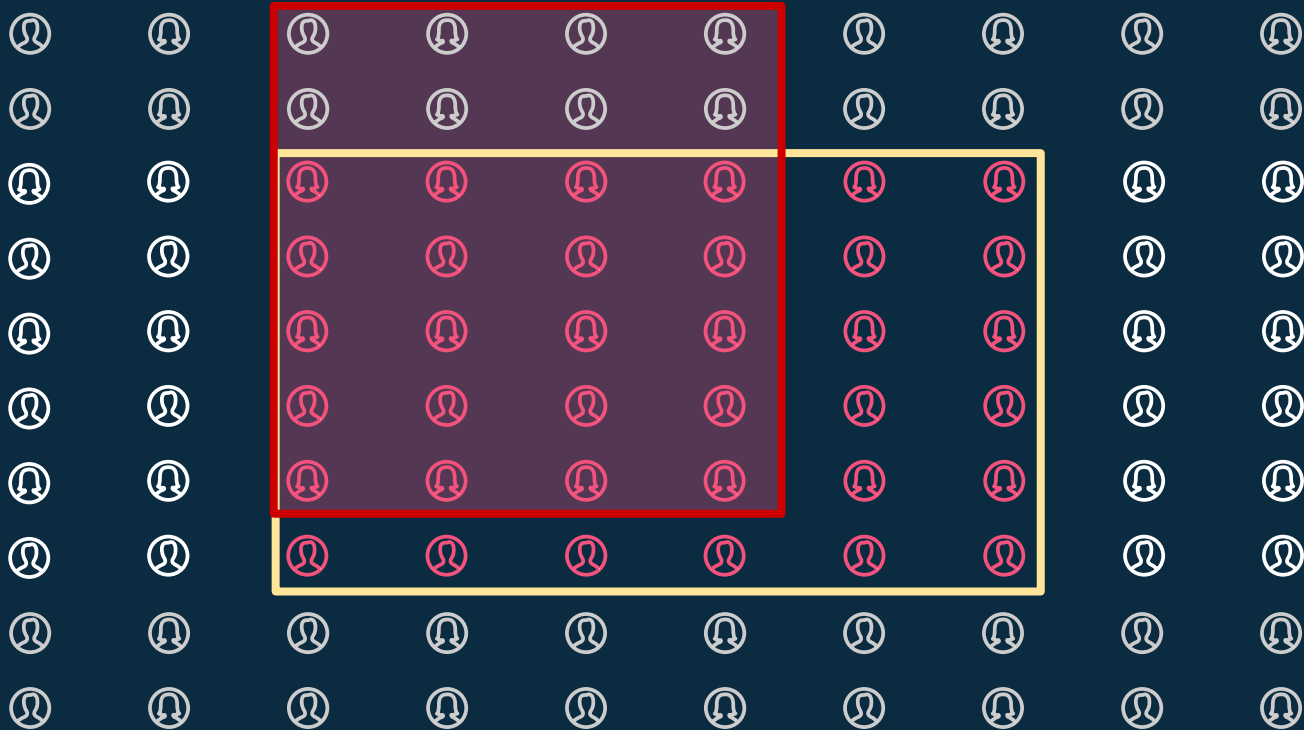


In a class of 100 ninth graders...

36 students are off track for graduation



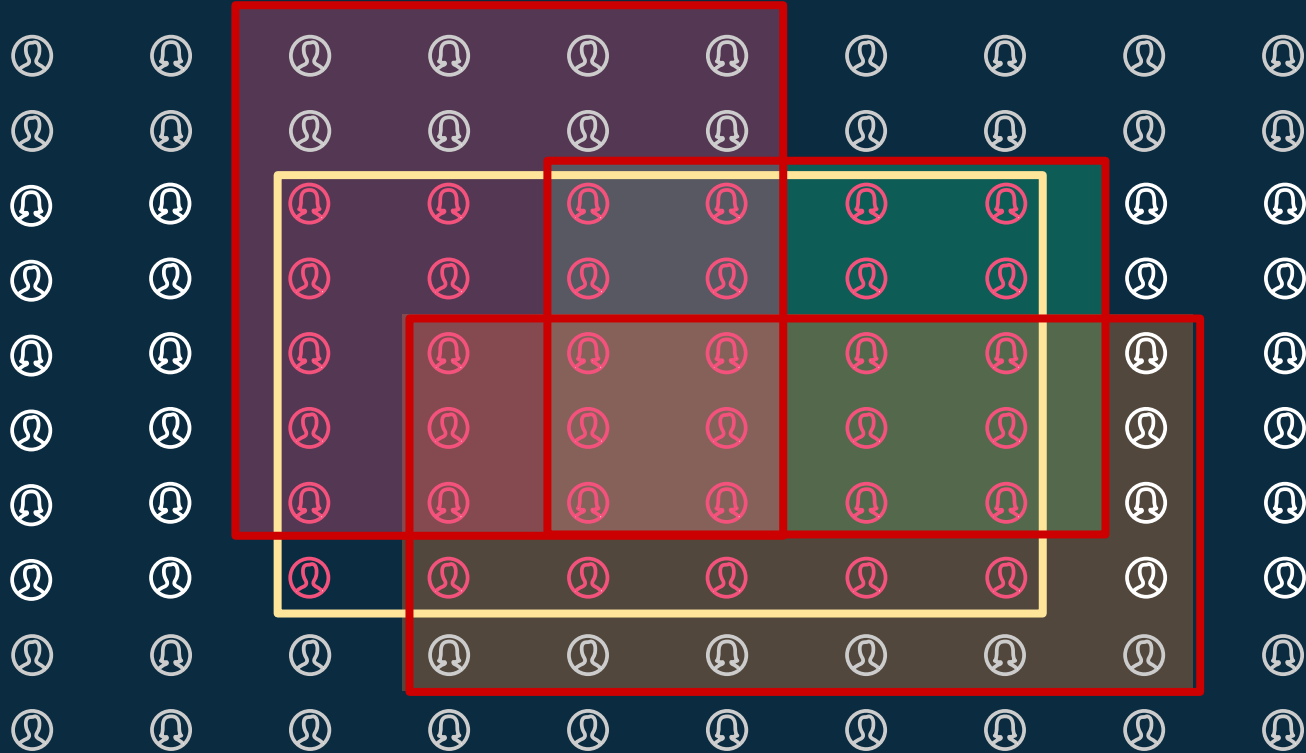
Identification with a Single Indicator



Identification with Two Indicators



Identification with Three Indicators





OUR MISSION IS TO

Improve the Way the World Learns.



The BrightBytes Footprint

30+

Industry Awards

3

Countries

98%

Renewal Rates

42

States

2,385

Districts

1 in 5

Schools in the U.S



PROBLEM

The Education Data Challenge

Data Rich Information Poor

DATA MANAGEMENT

- **Integration**
Fragmented and antiquated systems
- **Interoperability/Quality**
Multiple data standards and significant data quality gaps
- **Provisioning/Management**
No secure and centralized way to share and manage sensitive data

DATA ANALYTICS

- **What Matters**
Research on what matters is difficult to access and integrate
- **Data for Change**
Packaging data for usability and impact is challenging and requires special expertise
- **Actionability**
Lack of evidence and research-based recommendations and insights

Effectively Change Student Trajectories

How are you...



Accurately identifying all students at risk along the K-20 continuum?



Ensuring students are connected to the right services and support at the right time?



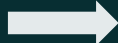
Monitoring efficacy of programs and student progress?

Platform Approach...

1 *Clarity* District Data Integrator

Data Integration

Solve for integration, interoperability, data quality and provisioning



2 *Clarity*

Research-Based Analytics

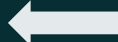
Provide high quality analysis that is informed by research and experts



3 *Clarity*

Engaging Experience

Transform analysis into engaging information



4 *Clarity*

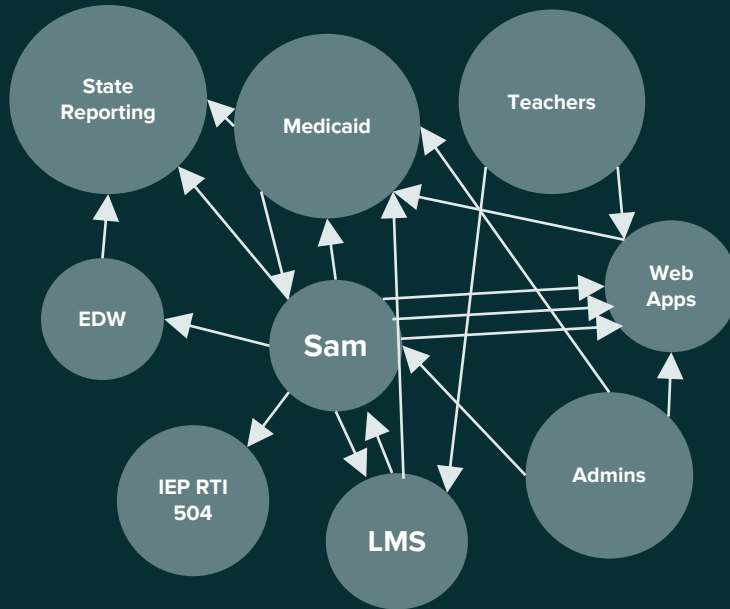
Actionable Data

Provide tools and content that help integrate data into the day to day practice

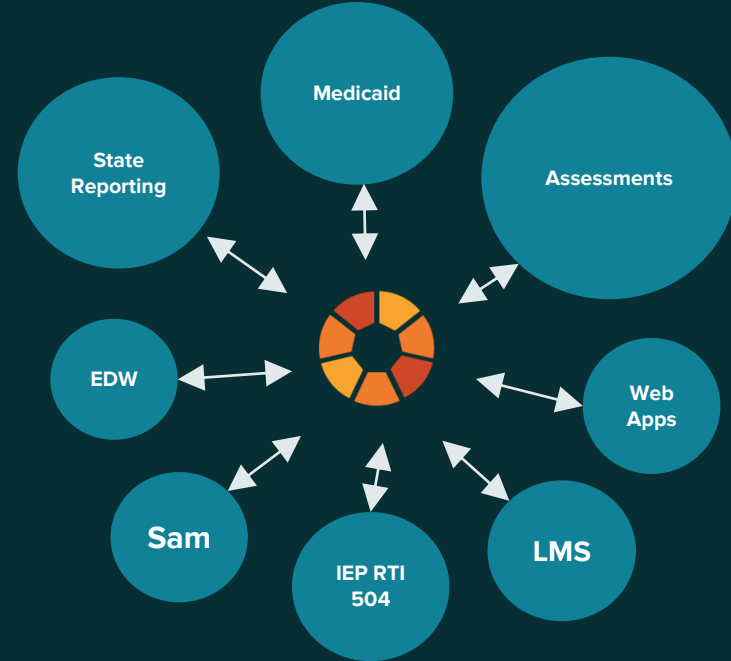


The District Data Integrator (DDI)

Before DDI



After DDI



Analysis of Integrations

Iterative Replacement of
Integrations

Monitoring and Maintenance

The Early Insights Suite

Identify, Connect & Monitor



BRIGHTBYTES RESEARCH PARTNER

The American Institutes For Research (AIR)

Founded in 1946
1800+ Employees

MISSION:

To conduct and apply the best behavioral and social science research and evaluation towards improving people's lives, with a special emphasis on the disadvantaged.



Identification: Past & Present

FIRST GENERATION Threshold Model

Research-based

Systematic, consistent criteria

Dichotomous yes/no

Later identification - higher grades

Few risk indicators

Static one-size-fits-all

Limited accuracy- false positives

Single Indicator

NEXT GENERATION Predictive Analytics

→ Research-based

→ Customized, flexible criteria

→ Draws upon multiple dynamic data points

→ Early identification- middle & elementary grades

→ Many risk indicators based on historical data & grade level

→ Real-time district data

→ Greater accuracy minimizes false positives/negatives

→ Over 30 Indicators

Common Early
Warning
Indicators for On-
time High School
Graduation



Course Performance



Attendance



Behavior



THE PROBLEM

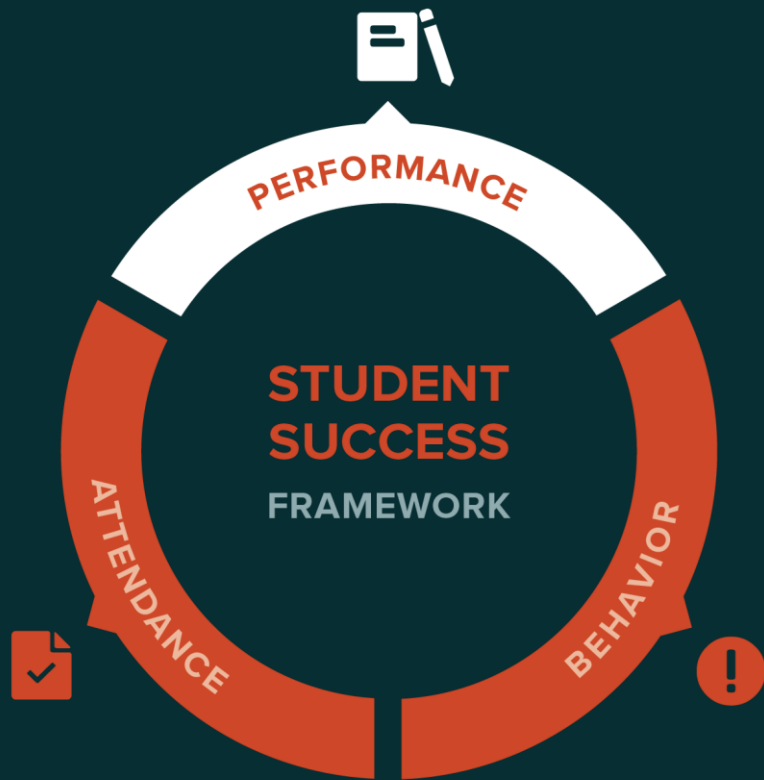
The Preparation Gap for On-Time Graduation and College Readiness

- Large numbers of freshmen enter college unprepared each year, destined for remediation classes that teach material they should have learned as high schoolers.
- The on-time graduation rate for college students who begin in remediation is around 10 percent.
- Students graduating with a state's standard high school diploma need remedial coursework at higher rates than those with the advanced diploma.

STUDENT SUCCESS FRAMEWORK

PERFORMANCE

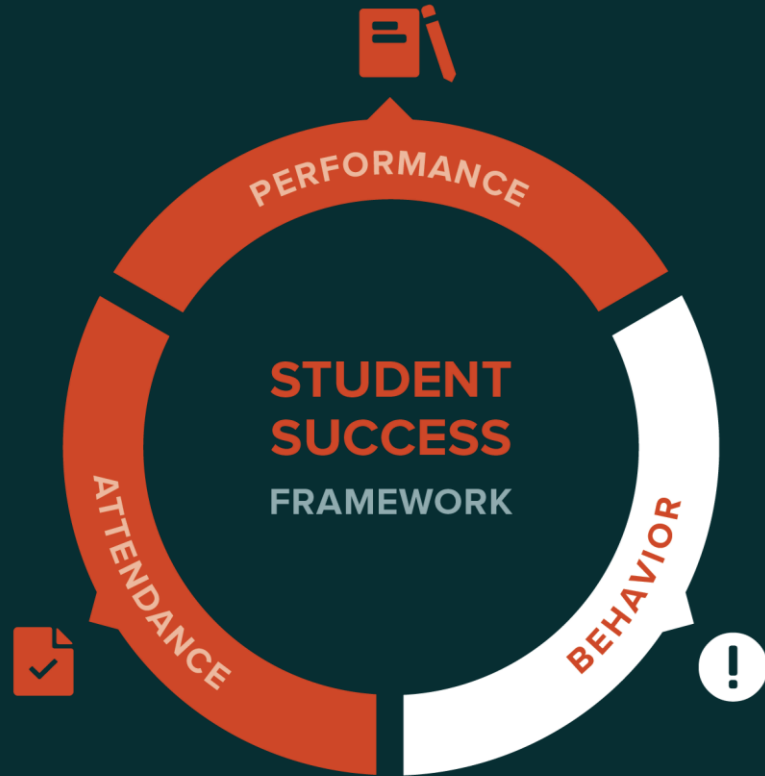
- Coursework
- Advanced Coursework
- Gateway Coursework
- Assessments
- College Entrance Exam Participation



STUDENT SUCCESS FRAMEWORK

BEHAVIOR

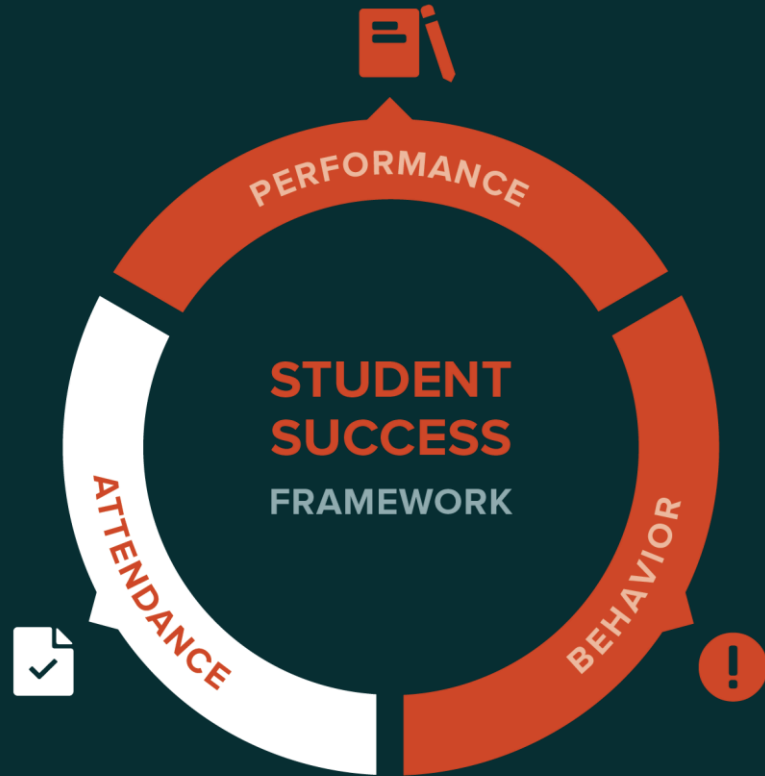
- Behaviors: Minor
- Behaviors: Major
- Consequences: Referrals
- Consequences: Detentions
- Consequences: Suspensions
- Consequences: Expulsions



STUDENT SUCCESS FRAMEWORK

ATTENDANCE

- First 30 Days
- Attendance To Date
- Tardies
- Chronic Absenteeism



Single Cut Point Indicator Vs. Predictive Analytics



Brooke
5th Grader
Overall Risk Is High

NOTE: Brooke would not have been identified using traditional models:

1. Brooke is in 5th grade
2. Brooke wouldn't have been detected on a single indicator cutpoint model

RISK INDICATORS (TIMEFRAME IS PRIOR 12 MONTHS)	STUDENT DATA	SINGLE CUT POINT INDICATOR MODEL	BRIGHTBYTES PREDICTIVE MODEL	
			RISK LEVEL	OVERALL DOMAIN RISK
Attendance Rate	97.0%	Not Detected	Moderate	High
Total Absent in First 30 Days	6		High	
Tardy Rate	5.8%		High	
Chronic Absent	No		Low	
# of Major Behavioral Incidents	0	Not Detected	Low	High
# of Minor Behavioral Incidents	3		High	
Average Course (GPA)	2.11	Not Detected	High	High
Courses Passed	98.0%		Low	
Summative Assessment: Math*	Slightly Below		Low	
Summative Assessment: Reading*	Far Below		High	
Summative Assessment: Science*	Below		High	
Summative Assessment: Social Studies*	Below		High	

A NEW WAY TO ORGANIZE &
UNDERSTAND DATA...

**Communicated
through
spreadsheets**



**Visually
communicated**



A NEW WAY TO ORGANIZE &
UNDERSTAND DATA...

**Data floats
without context
or research**



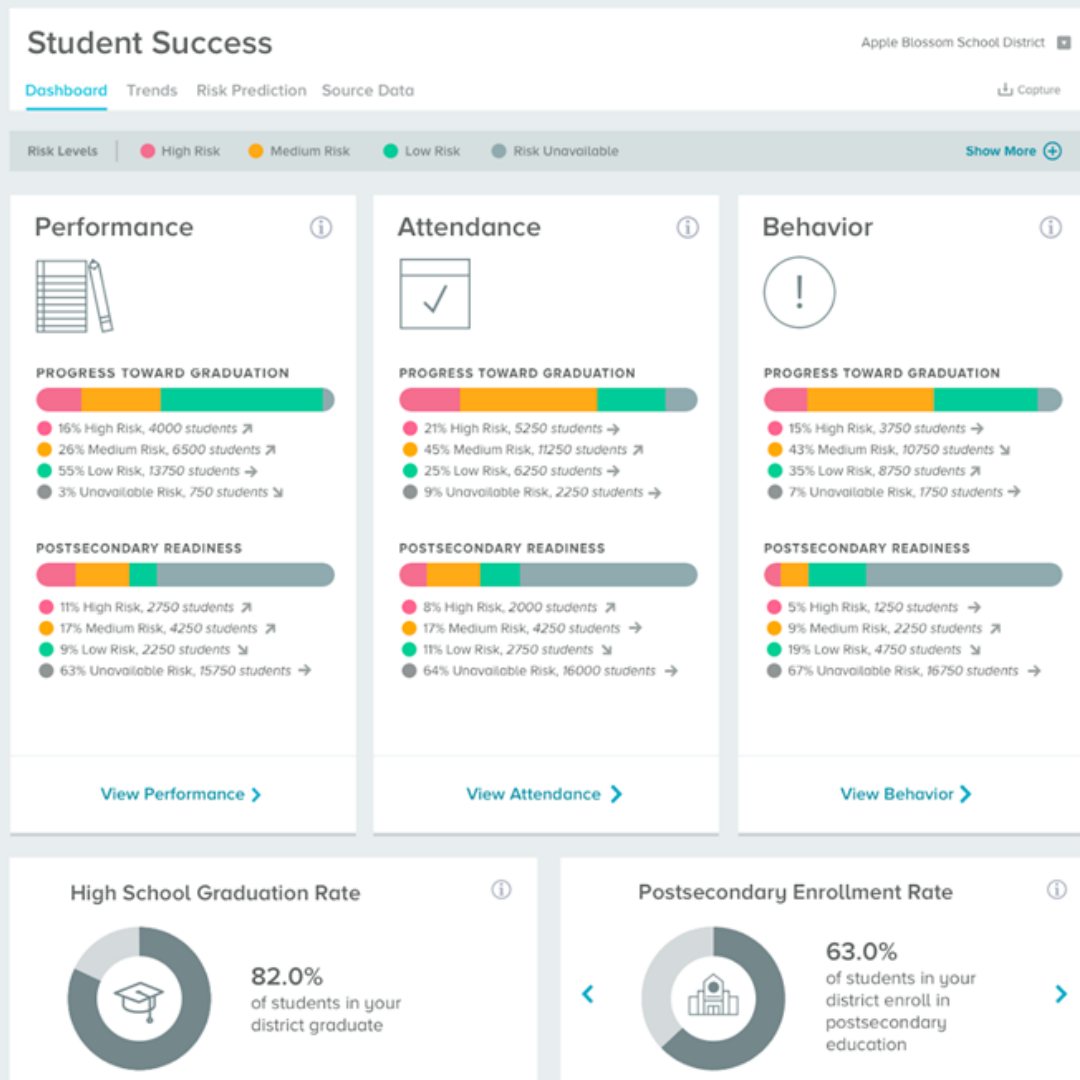
**Analysis is
research based**



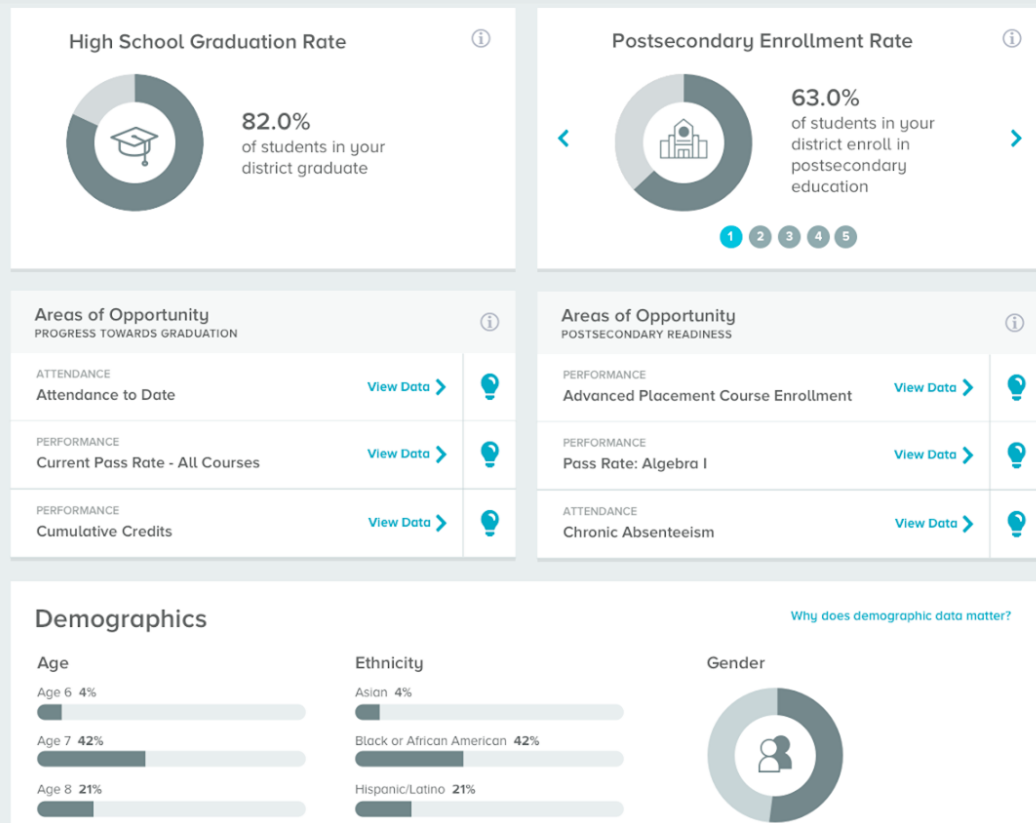
STUDENT SUCCESS

Comprehensive Dashboards to Highlight Target Areas

1. Easily see which schools need the most support
2. Quickly identify target areas of greatest need



GRADUATION RATE & POSTSECONDARY READINESS



STUDENT SUCCESS

Attendance to Date

Quick Wins

Game Changers

Innovators

Quick Win

<< < 1 of 7 > >>

Create Attendance Response Teams

Save PDF

Share via email



Address chronic attendance issues using dedicated response teams. For each grade level, create a small team that includes teachers, administrators, and other school personnel. Have the teams use the Early Warning data to identify students in their assigned grade who are at risk for attendance.

Next, ask them to divide up the high and moderate risk students. Each member will work directly with their assigned students and their families to identify and record potential causes for students' chronic absenteeism.

(Adapted from "[Stepping Up the Pace](#)")

Arm Attendance
Response Teams with
Tools and Strategies >

INSIGHTS

1. Quick Wins
2. Game Changers
3. Innovators

Student Success

East Bridge High School

Dashboard Trends **Risk Prediction** Compare

Capture Filter

Risk Levels | High Risk Medium Risk Low Risk Risk Unavailable

Show More

Progress Towards Graduation

Postsecondary Readiness

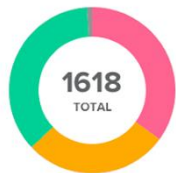
VIEWING: Coursework: Current Courses GPA

1

2



Total Risk Prediction for Your Students



35% High Risk
566 Students

28% Medium Risk
453 Students

36% Low Risk
582 Students

1% Unavailable Risk
16 Students

Breakdown By Grade



Breakdown By Student

Q

TOTAL STUDENTS: 1618

FIRST NAME	LAST NAME	GRADE	OVERALL RISK LEVEL	INDIVIDUAL RISK LEVEL
Lucy 8873	Abraham	10th	High Risk, Level 7	HIGH
Richard 2298	Adams	8th	High Risk, Level 7	HIGH
Wendy 8873	Alston	12th	High Risk, Level 7	HIGH
Warren 1203	Barr	9th	High Risk, Level 7	HIGH
Glen 4495	Bender	10th	High Risk, Level 7	HIGH
Christine 7642	Briggs	12th	High Risk, Level 7	HIGH
Douglas 2093	Buckner	11th	High Risk, Level 7	HIGH
Josephine	Campbell	8th	High Risk, Level 7	HIGH

Filter

Grades
Selected: PreK - 12

Ethnicity
☐ American Indian or Alaska Native
☐ Asian
☐ Black or African American
☐ Hispanic or Latinx
☐ Native Hawaiian or Other Pacific Islander
☐ White
☐ Two or more races

Gender
☐ Male ☐ Female

504 Status
☐ Yes ☐ No

Special Education
☐ Yes ☐ No

Limited English Proficiency
☐ Yes ☐ No

Mobility
☐ Yes ☐ No

Reset

Cancel Save

3

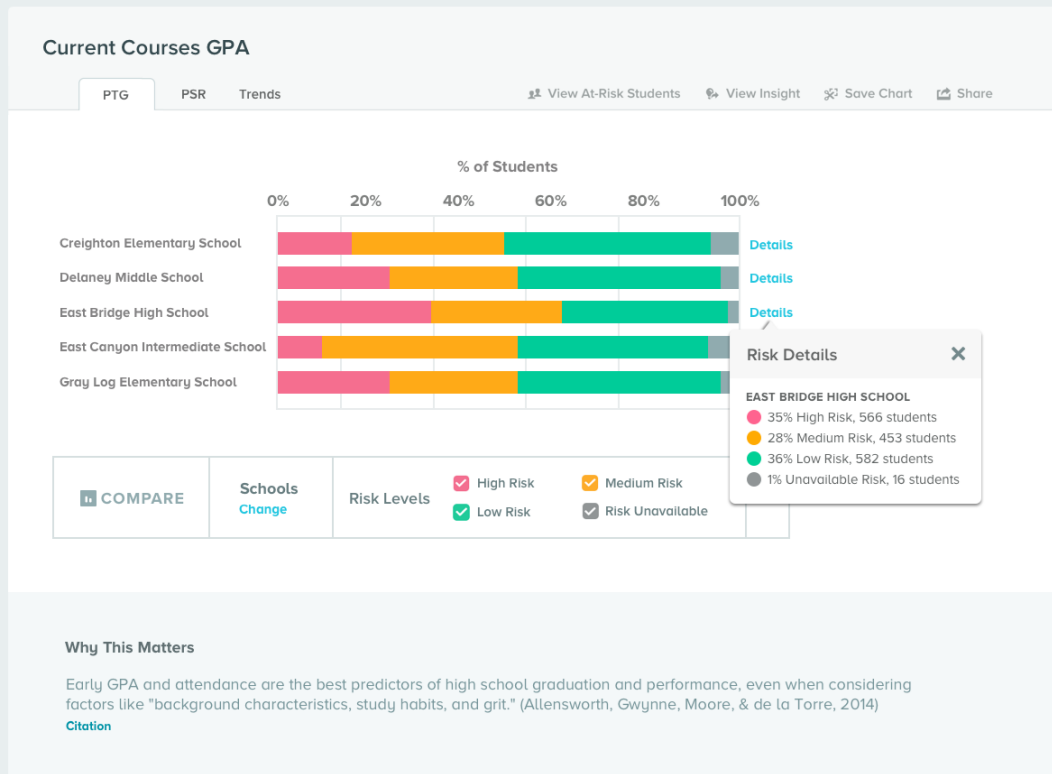
RISK PREDICTION

Access Aggregate Reports with Advanced Filters

1. See your organization's risk allocation at a glance
2. Filter by specific demographics
3. Identify individual students as early as first grade
4. Notify Administration and Guardians

DRILL DOWN ON SUCCESS INDICATORS IN DOMAINS

1. Percentage of Risk
2. View Students
3. Risk Details
4. Compare
5. Research



Current Courses GPA

PTG

PSR

Trends

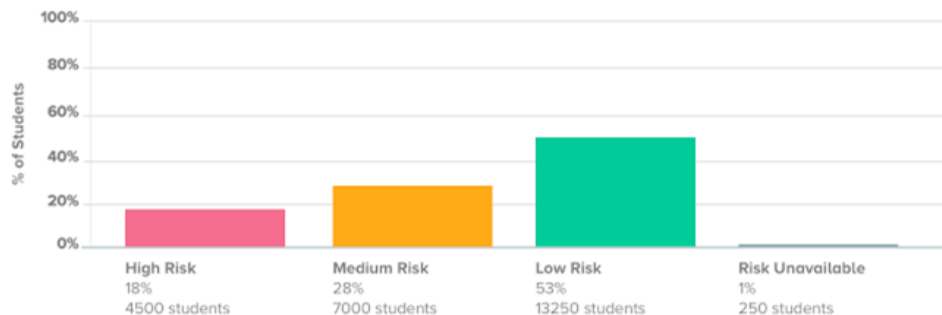
View At-Risk Students

View Insight

Save Chart

Share

PROGRESS TOWARDS GRADUATION RISK LEVELS



COMPARE



✓ No Comparison

Postsecondary Readiness

Cohort

Schools

ESA

California

Why This Matters

Early GPA and attendance are key factors in high school graduation and performance, even when considering factors like "background characteristics" (Allensworth, Gwynne, Moore, & de la Torre, 2014)

Citation

SIDE-BY-SIDE RISK LEVELS COMPARISONS

1. Cohorts
2. Students
3. Service Agencies
4. State

Student Success

Apple Blossom School District

Dashboard Trends Risk Prediction Compare

Capture Filter

Risk Levels High Risk Medium Risk Low Risk Risk Unavailable

Show More

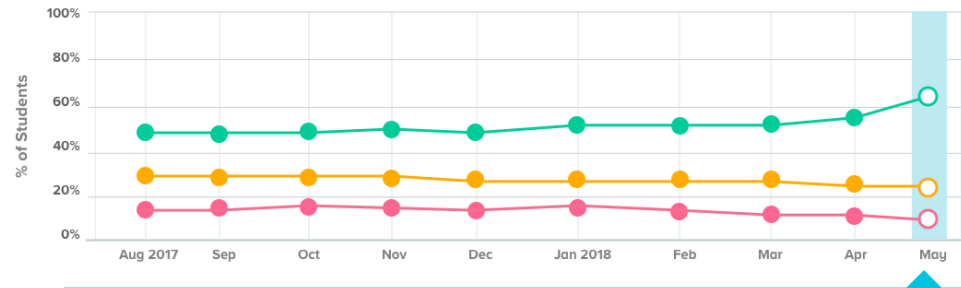
Progress Toward Graduation

Postsecondary Readiness

Risk Level Trends

VIEWING: Overall

Save Chart Share



SELECTED DATE: May 10, 2018 SCHOOLS: 6

High Risk

10% 2400 Students

Down 2% since last update

Medium Risk

21% 5,040 Students

Down 2% since last update

Low Risk

61% 14,640 Students

Up 3% since last update

Risk Level by School

TOTAL COLLECTED: May 10, 2018 TOTAL STUDENTS: 24,000 Download CSV

SCHOOL	HIGH RISK	MEDIUM RISK	LOW RISK	RISK UNAVAILABLE	
Pear Tree Middle School	14%	26%	51%	9%	Details
Vale High School	13%	24%	54%	9%	Details

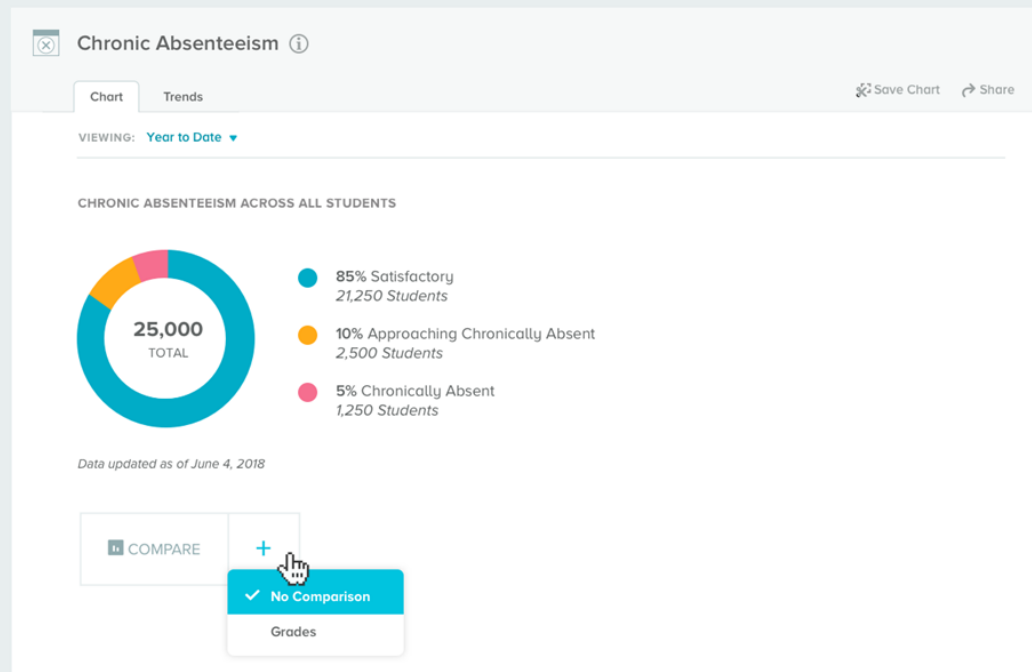
SCHOOL LEVEL - TRENDS OVER TIME

Track site-level progress with access to trend data across the organization

CONTEXT CARD

Explore source data
in context with
relevant research

Source Data



Breakdown By School

Search Schools TOTAL SCHOOLS: 5 Download CSV

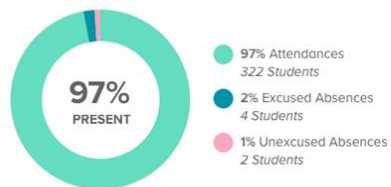
SCHOOL NAME		% OF STUDENTS WITH HIGH PTG RISK	CHRONICALLY ABSENT STUDENTS ▼
West Canyon High School	<div><div></div></div>	10%, 823 Students	217
Gray Log High School	<div><div></div></div>	12%, 1214 Students	144
East Bridge High School	<div><div></div></div>	42%, 680 Students	81
North Lake High School	<div><div></div></div>	13%, 924 Students	65
Delaney Middle School	<div><div></div></div>	39%, 234 Students	32

DEEP VISIBILITY INTO RELEVANT DATA

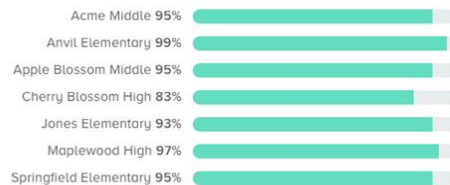
Easily understand how
risk is calculated with
visibility into relevant
source data across the
district

VIEWING: Today ▾

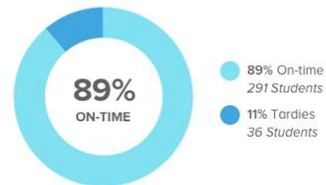
District Attendance Summary



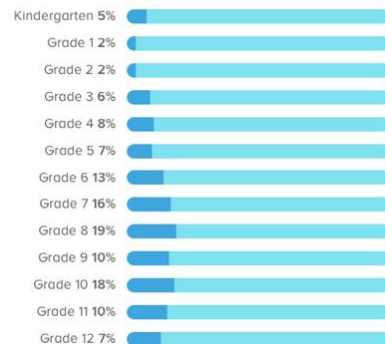
Attendance by School



District Tardies Summary



Tardies by Grade Level



Focus Areas



First 30 Days >



Attendance to Date >

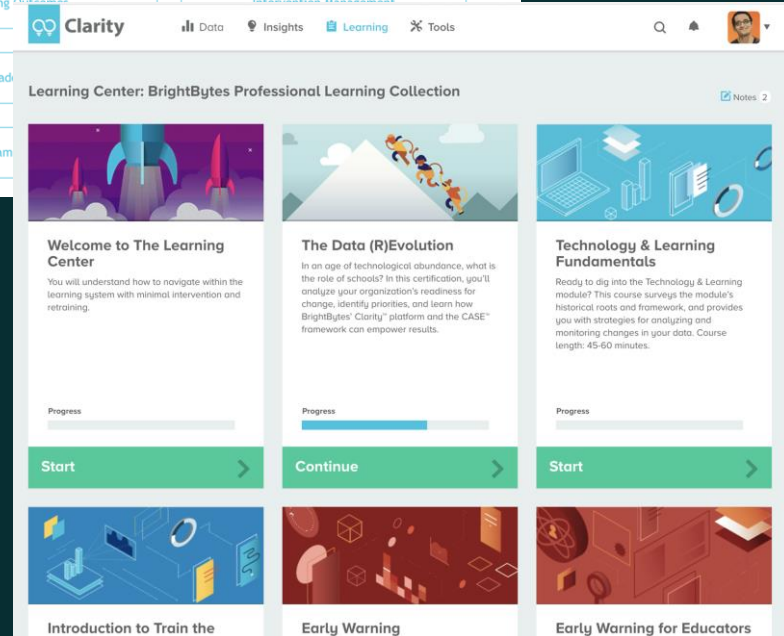
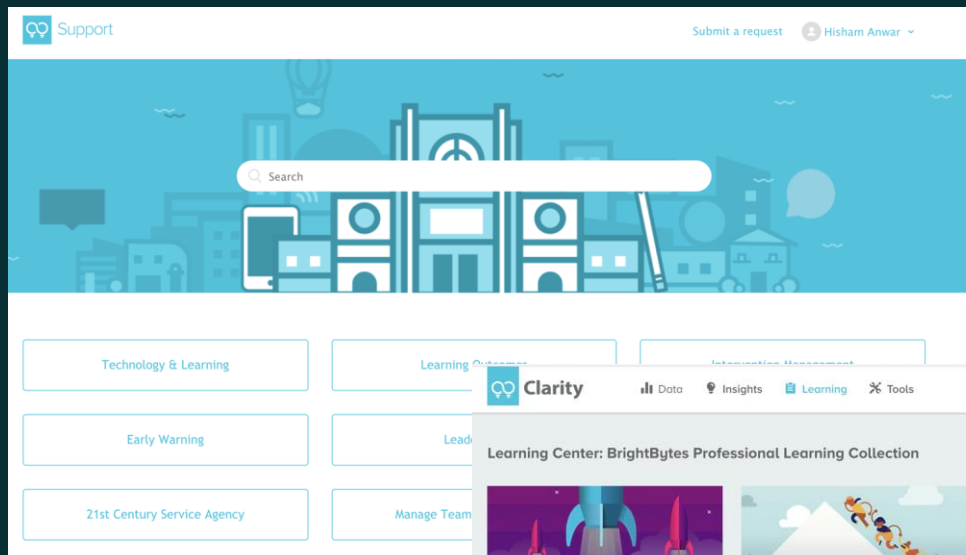


Tardies >



Chronic Absenteeism >

Embedded Support & Training



REPORTS

Access a personalized report unique to every organization with easy-to-read infographics for quick decision-making.

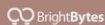
The Context

The Importance of HSG & PSR Milestones

Receiving a high school diploma and enrolling in postsecondary education are two incredible individual milestones, with numerous benefits for students. Graduates are more likely to earn higher salaries, gainful employment, and stay out of prison (Jette Promise Alliance, 2017). Research also suggests that education levels lead to longer, healthier lives (Hummel & Chang, 2016).

This reality creates an interesting challenge for us: as we seek these milestones, students often need support. Earlier this support is implemented, the better. We suggest that educators should focus on developing "college mindset" in students as early as possible (Gronau, Bragdon, DePaulo, Fox, & Ingram, 2019; Institutes of Research, 2013).

The Student Success module uses a research-based framework to predict the risk of students not meeting milestones, and helps educators provide support it's too late. It customizes its predictions based on district's data, giving you powerful insights into the every student in your school.



Student Success Summary Report for Apple Blossom District

Risk prediction based on data from [DATE] to [DATE]

Information displayed reflects data from [DATE] to [DATE]

District Snapshot

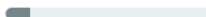
Demographics are immutable: they cannot be changed and therefore are not factored into the predictive models. We want the model inputs to be those factors that can be changed by the actions of stakeholders to positively impact student outcomes. Still, demographics play a very important role when it comes to understanding the stories your data tell; this is why they are included here.



Special Education / Individual Education Plan (IEP)

Although rates vary widely from state to state, the U.S. Department of Education reports that 62% of high school students in Special Education programs graduate from high school on time (Education Week Research Center, 2015).

13% of students



FRL

While research has shown that family poverty levels are related to dropout risk, school and community poverty (though often overlooked) also contribute to the dropout crisis (Rumberger, 2013).

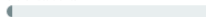
55% of students



504 Status

Section 504 is a civil rights law designed to ensure that children with learning impairments have equal access to an education. Unlike the related IDEA (Individuals with Disabilities Education Act), 504 does not require schools to create an individualized education program (IEP) (Office for Civil Rights, 2014).

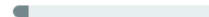
3% of students



Limited English Proficient (LEP)

Research from the National Center of Education Statistics shows that students with limited English proficiency (LEP) have a 62% graduation rate within their 4-year cohorts (National Center for Education Statistics, 2015).

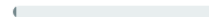
7% of students



Mobility

Students moving from one school to another (for reasons other than grade promotion) are more likely to demonstrate a "wide array of negative behavioral and educational outcomes, including dropping out of high school" (DeLuca, Estacion, & Gasper, 2012).

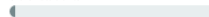
2% of students



Homeless Youth

A study of 3rd- through 8th-grade students in a large, urban school district found that student homelessness and high rates of residential mobility present "substantial risk for lower academic achievement" (Cullis et al., 2013). For more information see the [McKinney-Vento Homeless Assistance Act](#).

3% of students



EARLY INSIGHTS | [#]



Bridging the Gap

How are you...



Accurately identifying
all students at risk
along the K-20
continuum?



Ensuring students are
connected to the right
services and support at the
right time?

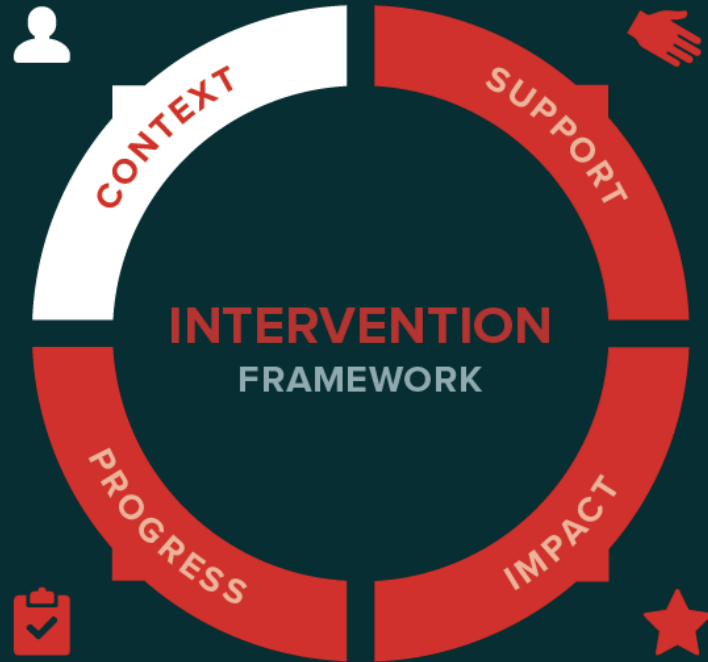


Monitoring efficacy of
programs and student
progress?

INTERVENTION FRAMEWORK

CONTEXT

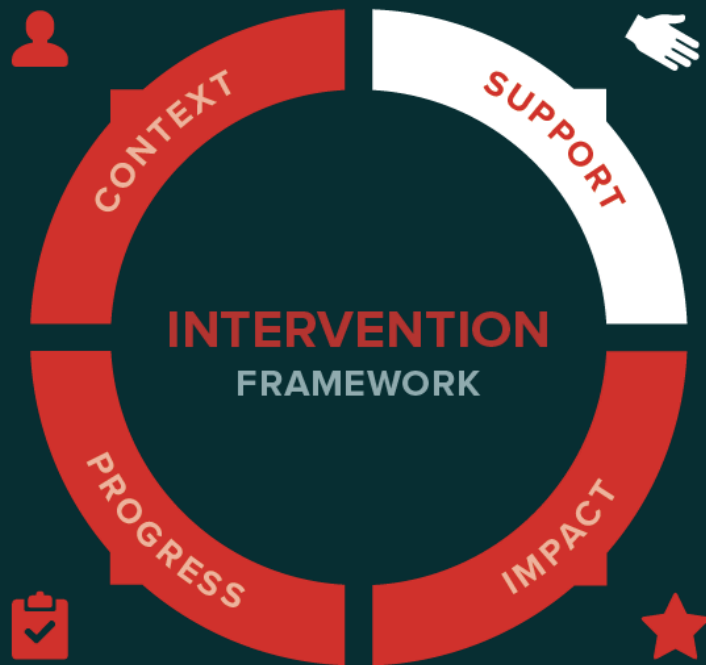
- Summary - Concerns & Referrals
- Concerns - Escalated



INTERVENTION FRAMEWORK

SUPPORT

- Resources Utilized
- Connected Referrals



INTERVENTION FRAMEWORK

PROGRESS

- Services - Completed
- Process Summary



INTERVENTION FRAMEWORK

IMPACT

- Students Actively Receiving Services
- Students who Recently Completed Services
- Standardized Measurements

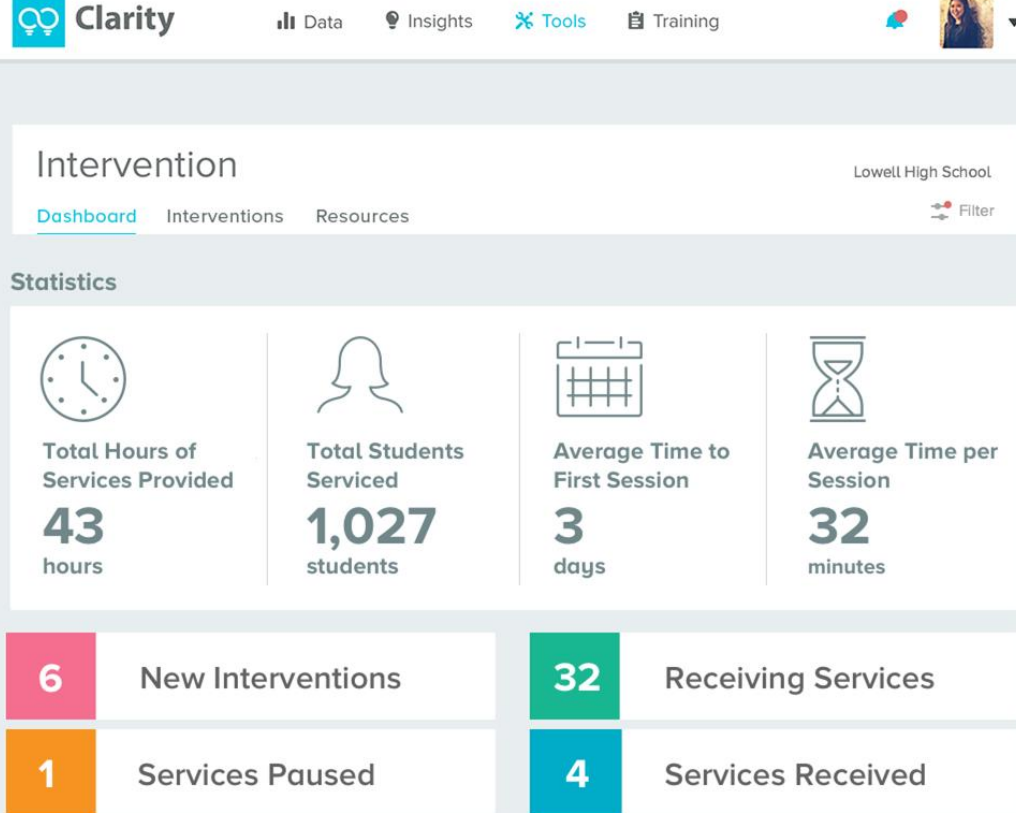




AT-A-GLANCE DASHBOARDS

Create the Right
Support for Students

Ensure proper
resource allocation



STUDENT PROFILE

1. Areas of Opportunity
2. Basic Information
3. Domain and Indicator Risk Levels
4. Trends
5. Concerns
6. Intervention

Clarity

Data
Insights
Learning
Tools

Lucy Abraham 8873

[Student Success](#)
[Trends](#)
[Concerns](#)
[Interventions](#)

Capture
 Calendar

Risk Levels
 ● High Risk
● Medium Risk
● Low Risk
● Risk Unavailable
[Show More](#)

Overall Progress Towards Graduation Risk
High Risk, Level 7

Overall Postsecondary Readiness Risk
High Risk, Level 7

Areas of Opportunity

PROGRESS TOWARDS GRADUATION

ATTENDANCE Attendance to Date	
BEHAVIOR Behaviors: Minor	
PERFORMANCE Current Courses GPA	

Areas of Opportunity

POSTSECONDARY READINESS

PERFORMANCE Lab Sciences	
PERFORMANCE SAT/ACT	
ATTENDANCE Chronic Absenteeism	

Basic Information

SCHOOL
 Apple Blossom High School

GRADE 10	AGE 16	GENDER Female
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ETHNICITY
American Indian or Alaskan Native

ADDITIONAL INFORMATION
LIMITED ENGLISH PROFICIENCY

504 STATUS

Performance

SUCCESS INDICATORS	PTG	PSR
Coursework	HIGH	MED
Advanced Coursework	N/A	MED
Gateway Coursework	N/A	HIGH
Assessments	MED	MED
College Entrance Exams Participation	N/A	HIGH

Attendance

SUCCESS INDICATORS	PTG	PSR
First 30 Days	LOW	LOW
Attendance to Date	HIGH	MED
Tardies	HIGH	MED
Chronic Absenteeism	MED	HIGH

Behavior

SUCCESS INDICATORS	PTG	PSR
Behaviors: Minor	HIGH	LOW
Behaviors: Major	MED	MED
Consequences: Referrals		View Data
Consequences: Detentions		View Data
Consequences: Suspensions		View Data
Consequences: Expulsions		View Data

STUDENT PROFILE DATA

Explore source data
that informs risk level

SOURCE DATA

Attendance: Lucy Abraham



Attendance - First 30 Days
High Risk



Overall Risk Level
Medium Risk

VIEWING: Current Month ▼

Attendance Rates

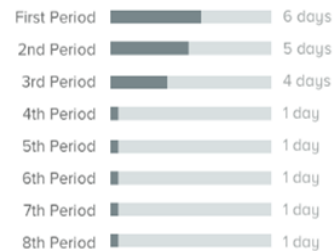
[View Insights](#)



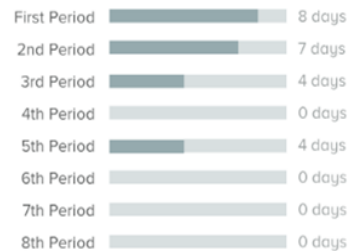
Attendance by Period



ABSENCES











TARDIES



ADDING RESOURCES

Provide Resource Mapping

Select appropriate resources and determine contacts for each intervention effort

 **Clarity**  Data  Insights  Learning  Tools   

[← Intervention Tool](#)

New Resource

RESOURCE NAME

SELECT RESOURCE TYPE

☒ Internal Resource ☐ External Provider

CATEGORY(IES)

Contacts

You may designate both Clarity team members and non-Clarity team members as contacts for this resource.

CLARITY TEAM MEMBERS

NON-CLARITY TEAM MEMBER

TITLE/ROLE	EMAIL	PHONE
<input type="text" value="Enter title/role of contact"/>	<input type="text" value="Enter email address"/>	<input type="text" value="Enter phone number"/>

[+ Add Additional Contact](#)

ADDITIONAL INFORMATION

NEW INTERVENTIONS

Assign Interventions to
Students Easily

Refer students for the
most beneficial services

STUDENT

Lucy Abraham

STATUS

TIER *Optional*

Select the Tier

CATEGORY

Inappropriate Language Behaviors

SERVICE

Select a service

SERVICE PROVIDER *Optional*

Select a Service First

START DATE

MM/DD/YYYY

END DATE

MM/DD/YYYY

RECOMMENDED SESSION FREQUENCY

RECOMMENDED SESSION DURATION

Selected: 5 minutes

MIN: 5 minutes

MAX: 180 minutes

PLAN HYPOTHESIS/GOAL

Student is to be compliant and do what they are expected to do.

The Process of Slipping Away



Students
Identified as
At-Risk

Students
Connected
to Support
Services

Students
that
Complete
Support
Services

Monitor to Ensure Outcomes

How are you...



Accurately identifying
all students at risk
along the K-20
continuum?



Ensuring students are
connected to the right
services and support at the
right time?

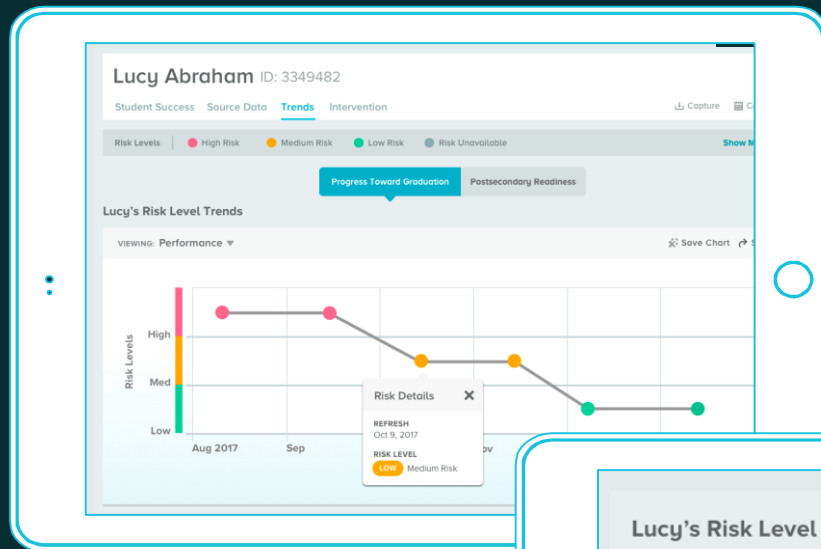


Monitoring efficacy of
programs and student
progress?

TRENDS & AT-A-GLANCE VIEWS

Understand Intervention Effectiveness

Drill down to
change over time
at the micro level



Set goals and
measure progress
at the student
level

The screenshot shows a dashboard titled 'Lucy's Risk Level Breakdown'. It contains a table with three columns: 'INDICATOR', 'AUG 2017', and 'SEP'. The table lists four indicators: 'First 30 Days', 'Attendance to Date', 'Tardies', and 'Chronic Absenteeism'. Each indicator has a corresponding risk level for August 2017 and September, represented by colored buttons (Med, High, Low, Med, Low, Low, Low, Med).

INDICATOR	AUG 2017	SEP
First 30 Days	MED	HIGH
Attendance to Date	LOW	MED
Tardies	LOW	LOW
Chronic Absenteeism	LOW	MED



STUDENT PROFILE

Explore Intervention History

Lucy Abraham SCHOOL **Apple Blossom High School** GRADE **10** AGE **16**

Profile Trends Interventions

Lucy's Interventions

LAST UPDATED	CATEGORY	RESOURCE	STATUS	
Aug 31, 2016	Fighting		 New Intervention	0
Aug 19, 2016	Bullying, Harassment	Coach	 Receiving Services	1
Aug 11, 2016	Change in Academic Performance	Achieve 3000 Reading	 Receiving Services	1

NOTES & HISTORY

Review Intervention Plans & Concerns

View the history of past intervention requests and efforts

Required for Approval [Edit](#)



SCHOOL

Amukta Elementary

STATUS

● Approved



STUDENT

[Lucy Abraham 3849](#)



PLAN REQUEST CATEGORY

Skipping/Missing Class Attendance



WHAT DOES SUCCESS LOOK LIKE?

COMING TO CLASS

Timeline

REQUEST

CONCERN



Request approved

Dec 20, 2018 at 11:44 AM



Request completed

Dec 20, 2018 at 12:00 AM



Request approved

Dec 7, 2018 at 9:15 AM



Request Made by St. Joseph Demo Account

Aug 14, 2018 at 12:13 PM

CATEGORY

Skipping/Missing Class

WHAT DOES SUCCESS LOOK LIKE?

COMING TO CLASS

The 21st Century Learning Suite

Plan and Measure Technology Investments to Drive Student Learning Safely



TECHNOLOGY
& LEARNING

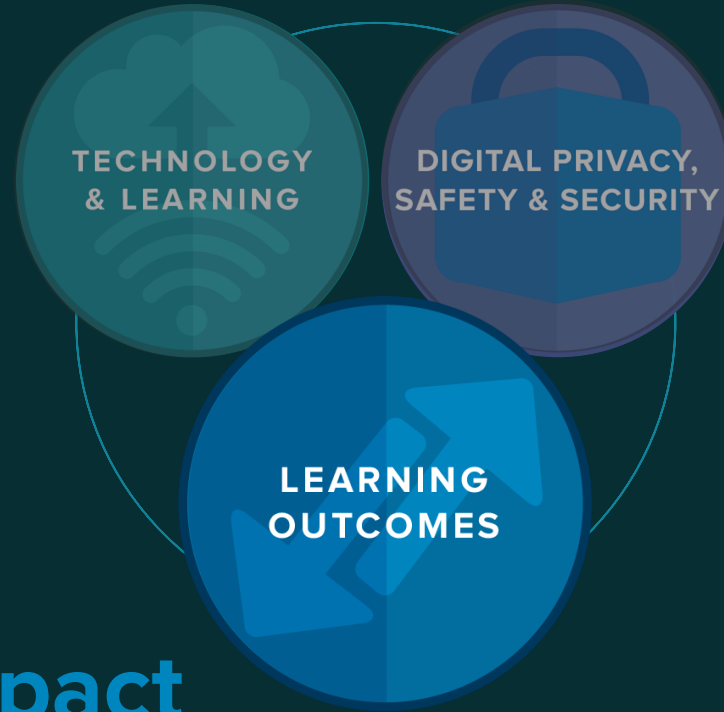
DIGITAL PRIVACY,
SAFETY & SECURITY

LEARNING
OUTCOMES

Measure and Monitor the Efficacy of Your Ed Tech

Pedagogy

Safety



Impact

Challenges of 21st Century Learning



\$13B

Total Ed Tech Investment



37%

Of Purchased Apps Are Never
Activated



353

Public School Cybersecurity
Attacks in 2018

**BRIGHTBYTES
RESEARCH PARTNER**



LEAD RESEARCHER

DR. RYAN S. BAKER

*Associate Professor, Teaching, Learning, and Leadership
Division Graduate School of Education, University of
Pennsylvania, Director of the Penn Center for Learning
Analytics*



- Served as founding president of the International Educational Data Mining Society
- Currently co-lead of the Big Data in Education spoke of the NSF Northeast Big Data Hub
- Developed automated detectors that make inferences in real-time about students' affect and motivational and meta-cognitive behaviors



Q&A