



Employing the Power of Predictive Analytics to Change Student Trajectories

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Agenda

Join the backchannel conversation <u>@brightbytes</u>on Twitter

- A Welcome & Introductions
- B Manatee County School District Overview
- C Predictive Analytics vs. Threshold Early Warning Office
- D Effectively Changing Student Trajectories
- Next Step: Whole Child
 - Q & A

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Welcome and Introductions



Kathy R. Haugan, NCSP

MTSS and PBIS Coordinator Manatee County Public Schools

Kathy R Haugan is a graduate of the University of Wisconsin. She is a Nationally Certified School Psychologist and a Florida DOE certified and Licensed School Psychologist with 30 years of experience. She has served as the Student Services Supervisor, Lead School Psychologist, and Response to Intervention Specialist.

B Manatee County Overview

Manatee County Schools Overview

- Population of Manatee County 385,571
- 4th Largest School District in Florida
- Approximately 7000 employees
- 49,000 Students 49% female, 51% male, 16% ESE, 84% Non-ESE, 13% ELL, 87% Non-ELL
- 61 schools- 31 Elementary, 8 Middle, 7 High schools, 1 K-8th School); 13 Charter Schools
- District Grade of B
- 81% graduation rate





Predictive Analytics vs. Threshold Early Warning System

Examples of Predictive Analytics



Threshold Models Traditional Early Warning Systems

Have Not Improved Outcomes



- Reactive Approach
- Research-based (Balfanz)
- Systematic, consistent criteria
- Dichotomous yes/no
- Later identification higher grades
- Few risk indicators
- Static One-Size-Fits-All
- Limited accuracy- false positives

Predictive Analytics

High School Graduation & Postsecondary Readiness

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

unded in 1946 1800+ Employees



Making the Move to Predictive Analytics

A key piece to predictive analytics: Using district-specific data metrics to predict risk for Manatee students



Brooke 5th Grader **Overall Risk** Is High

NOTE: Brooke would <u>not</u> have been identified using traditional models:

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

		SINGLE BRIGHTBYTES P CUT POINT MODE		S PREDICTIVE DEL	
(TIMEFRAME IS PRIOR 12 MONTHS)	DATA INDICATOR MODEL		RISK LEVEL	OVERALL DOMAIN RISK	
Attendance Rate	97.0%		Moderate		
Total Absent in First 30 Days	4		High	High	
Tardy Rate	3%	Not Detected	High		
Chronic Absent	No		Low		
# of Major Behavioral Incidents	0	Not Dotoctod	Low		
# of Minor Behavioral Incidents	2	Not Delected	High	nigii	
Average Course (GPA)	2.5		High		
Courses Passed	98.0%		Low		
Summative Assessment: Math*	Slightly Below	Not Dotostod	Low	Link	
Summative Assessment: Reading*	Far Below	Not Detected	High	High	
Summative Assessment: Science*	Below		High		
Summative Assessment: Social Studies*	Below		High		

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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.



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Locally-Defined Indicator Risk Thresholds



The threshold met or exceeded by at least **70%** of historical students missed the educational milestone.

The threshold range within which **40- 69%** of historical students missed the educational milestone.

LOW RISK

The threshold range within which **0-39%** of historical students missed the educational milestone.

CONFIDENTIAL

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.



• 3.0 GPA

- 93.1% attendance rate
- No minor behavioral incidents
- No major behavioral incidents

• 2.8 GPA

- 91.8% attendance rate
- No minor behavioral incidents
- No major behavioral incidents

• 2.5 GPA

- 89.0% attendance rate
- One minor behavioral incidents
- One major behavioral incidents

• 1.8 GPA

- 89.0% attendance rate
- Four minor behavioral incidents
- Two major behavioral incidents

Bridging the Gap



How does Predictive Analytics Work?

State-of-the-art predictive analytics

Draws upon multiple data points spanning the domains of academics, attendance, behavior, and demographics

Customized to districts & grade levels

Looks at actual dropouts in the district and, using available data across all domains, fits the best predictive models that would have predicted those dropouts. Such predictive models are then applied retroactively to students still in the district.



Q Earlier identification Middle and elementary

Greater accuracy

Minimizes false positives/negatives

Timeliness

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Real-time district data; promotes the effectiveness of existing services and supports

STUDENT SUCCESS FRAMEWORK

REREAVEDARACIEE

- Biestasevosarjusinor
- Bettlænvinnenste Manjuberteork
- Gootdies y Croues Redekrals
- **Correspondents** stellet mitions
- College Lent carse & Lespaen sions
- **Contiscipation**ces: Expulsions





Data Management/Integration





STUDENT SUCCESS Comprehensive Dashboards to Highlight Target Areas

 Easily see which schools need the most support 2

2. Quickly identify target areas of greatest need

Performance Image: Construction of the section of	View Performance >	View Attendance >	View Behavior >
Performance Attendance Behavior Image: Stress of the stress o	 35% High Risk, 8750 students <i>7</i> 38% Medium Risk, 9500 students <i>7</i> 25% Low Risk, 6250 students 31 2% Unavailable Risk, 500 students → 	 24% High Risk, 6000 students ≯ 21% Medium Risk, 5250 students → 48% Low Risk, 12000 students ≥ 7% Unavailable Risk, 1750 students → 	 ● 15% High Risk, 3750 students → ● 21% Medium Risk, 5250 students ● 63% Low Risk, 15750 students № ● 1% Unavailable Risk, 250 student
Performance Image: Constraint of the school graduation Image: Instraint of the school graduation Image: Constraint of the school graduation Image: Instraint of the school graduation Image: Constraint of the school graduation Image: Instraint of the school graduation Image: Constraint of the school graduation Image: Instraint of the school graduation Image: Constraint of the school graduation Image: Instraint of the school graduation Image: Constraint of the school graduation Image: Constraint of the school graduation Image: Constraint of the school graduation Image: Instraint of the school graduation Image: Constraint of the school graduation Image: Constraint of the school graduation Image: Constraint of the	POSTSECONDARY READINESS	POSTSECONDARY READINESS	POSTSECONDARY READINESS
	Performance (1)	Attendance (1)	Behavior I I I I I I I I I I I I I I I I I I
	Dashboard Trends Risk Prediction Comp	oare	
Dashboard Trends Risk Prediction Compare	Student Success		Apple Blossom Scho

GRADUATION RATE AND POSTSECONDARY READINESS





INSIGHTS

- 1. Quick Wins
- 2. Game Changers
- 3. Innovators



RISK PREDICTION Access Aggregate Reports with Advanced Filters

3

- See your organization's risk allocation at a glance
- 2. Filter by specific demographics
- Identify individual students - as early as first grade

STUDENT PROFILE

- 1. Areas of Opportunity
- 2. Basic Information
- 3. Domain and Indicator risk levels
- 4. Trends
- 5. Concerns
- 6. Intervention

Risk Levels 🕘 High Risk 🥚	Medium Risk	🔵 Low Risk 🛛 🔘 Risk Unavaila	ble		Show M
Overall High School Graduation High Risk, Level 9	Risk 7	Overall Postsecondary Re High Risk, Leve	el 7 7	Basic Information	
Areas of Opportunity HIGH SCHOOL GRADUATION	í	Areas of Opportunity POSTSECONDARY READINESS	i	sсноо∟ Apple Blossom High Scho	ool
ATTENDANCE Attendance to Date	•	PERFORMANCE Lab Sciences		GRADE AGE GENDER E 10 16 Female V ADDITIONAL INFORMATION	THNICITY White
BEHAVIOR Behaviors: Minor	•	PERFORMANCE SAT/ACT	9	LIMITED ENGLISH PROFICIENCY	Y 504
PERFORMANCE Current Courses GPA	۲	ATTENDANCE Chronic Absenteeism	٩		
Performance		Attendance		Behavior	
		\checkmark		(!)	
SUCCESS INDICATORS HSG	PSR	SUCCESS INDICATORS	HSG PSR	SUCCESS INDICATORS	HSG
Coursework	MED	First 30 Days	LOW LOW	Behaviors: Minor	HIGH
Advancea Coursework N/A	MED	Attendance to Date	HIGH	Behaviors: Major	MED

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Effectively Change Student Trajectories



KIL

Identifying all at-risk students 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?

The Pipeline: Ways of Falling through the Cracks



Manatee: Intervention & Data Collection Documentation

The Intervention Module from Clarity is used rather than paper documentation for the 4-step Problem Solving Process and documenting Intervention.

 Intervention and Data Collection Documentation

 1
 Tier 2 (Targeted)
 Tier 3 (Intensive)

 Intervention Focus; (Check ONLY the Areas that are Targeted for Intervention):

 2
 Mathematics Calculation
 Reading Fluency Skills
 Reading Comprehension
 Phonological Processing

 2
 Mathematics Problem Solving
 Oral Expression
 Written Expression
 Behavior

 3
 Hypothesis: The problem is occurring because
 3

BCHOOL DISTRICT OF MANATEE COUNTY

tervention: (Specify intervention and amount	of time provided.)		
erson Providing Intervention: 5	Grade	Level: 8	-
		-	

New Problem Solving e-Worksheet

4-step Problem Solving Cycle:

- What is the problem?
- Why is it occurring-hypothesis?
- What is the intervention?
- Is it working?

SCHOOL		
Amukta High		
STUDENT	STATUS	
Christopher Crooks 5558	•	
TIER Optional		
Select the Tier		
CATEGORY		
Academic Performance - ELA Academics		
SERVICE	SERVICE PROVIDER Optional	
Select a service	Select a Service First	•
START DATE END DATE	RECOMMENDED SESSION FREQUENCY	
MM/DD/YYYY		•
RECOMMENDED SESSION DURATION		
Selected: 5 minutes		
MIN: 5 minutes	MAX: 180 min	utes
PLAN HYPOTHESIS/GOAL		P
Student should be scoring 850-1100 to be proficient and curr Student will reflect on year of reading growth equal to 75 po	ent grade level students should be scoring 900-1150. ints on the SRI	*



AT-A-GLANCE DASHBOARDS

Upload Artifacts & Datasets

Overview

e.g., Student Work Samples, Observation Information

				14 Requests for Plans	s Have Responses	
		·—		6 Intervention Plans Show Me	Were Completed	
OPEN CONCERNS	T4. REQUESTS INTE FOR PLANS	TVENTION COMPLETE	2 LETE AS			
Activity Log						
All Concerns P	lan Requests Interventio	on Plans				
Q	TOTAL: 111	는 Download CSV	+ Add Concern	+ Add Plan Request	+ Add Intervention Pla	n
STUDENT NAME	CATEGORY	PHASE	LAST UPDATED			
Murphy Adams	Attention Problems Social/Emotional	٣	Concern Open	Mar 10, 2018 Shanice Jones	Details	>
Adonis Blackwell	Nonsuicidal Self Injury Social/Emotional	*	Plan Request Pending	Mar 10, 2018 Maryann Weather	Details	>
Koushik Chwdavarapu	Sadness Social/Emotional	1	Intervention Plar	Feb 22, 2018 Louis Decklan	Details	>
Younis Davila	Sadness Social/Emotional	1	Complete	Feb 12, 2018 Julian McKee	Details	>
Holly Highlander	Sadness Social/Emotional	٣	Intervention Plar	Feb 22, 2018 Julian McKee	Details	>
Joseph Guerrero	Insubordination/defiance Behavior	٠	Plan Request Closed	Mar 15, 2018 Maryan Weather	Details	>
Renee Jenkins	Vision - Health Screen Health Services	*	Concern Closed	Mar 9, 2018 Raph Jameson	Details	>
Gino Iannucci	Relationship skills Social/Emotional	1	Plan Request Closed	Mar 15, 2018 Maryan Weather	Details	>
Christopher Lombardia	Anxiety/Fear Social/Emotional	1	Plan Request In Progress	Feb 22, 2018 Raph Jameson	Details	>
Alamandria Kleinfeld	Anxiety/Fear Social/Emotional	٠	Concern Open	Mar 10, 2018 Shanice Jones	Detoils	>
Judith Umbertson	Traumatic Experience Academics	٣	Concern Closed	Mar 9, 2018 Ralph Jameson	Details	>

Nouncations

Data-Driven Innovation

- Early Insights Provides Personalized Risk Data.
- Student Success allows for filtering by demographics to easily analyze risk level.
- Intervention progress monitoring with fidelity.
- Provides a digital transformation of our four step problem solving process
- Data graphically shared with parents
- Reduction in lost data



TRENDS & AT-A-GLANCE VIEWS

Understand Intervention Effectiveness



Rolling Out Manatee's Early Insights System

A phased-in approach:

- Year 1 Districtwide introduction of BrightBytes.
- Three schools piloted Student Success as an Early Warning System.
- Year 2 District MTSS Teams aligned the Manatee County's problem solving process to Intervention Module.
- Yr 3 Trained Intensive Support Teams on the Student Success Module and Intervention Module for Tier 3 only.
- Yr -4 All schools use Early Insight Suite to identify at-risk students, connect students to services and monitor their process.
 - Introducing Whole Child/SEL



Addition of "Whole Child"



SEL, SCHOOL CLIMATE & CULTURE

Students need to be prepared for the challenges and opportunities of life outside of school. This means understanding their comprehensive needs and moving beyond focusing on academic achievement to ensure each student is healthy, safe, supported, and engaged.

IMMEDIATE INSIGHTS

Easily determine if students feel favorably across key areas, and identify indicators in need of improvement.



1,687 Student Responses | Data updated on Sep 15, 2018

STUDENT ROSTER

Capture a holistic picture of student favorability across all four domains.

Whole	e Child				Am	utka High 📘
Dashboard	Student Ro	ster Item Analysis	Response Rates		L≟ Captur	e 📥 Filter
VIEWING: WI	hole Child Ov	erview V				
	GRADE	SEL	ENGAGEMENT	SAFETY	ENVIRONMENT	
Bayer Constance	9th	Least Favorable	Least Favorable	Favorable	Most Favorable	>
Bode Dameon	9th	Favorable	Favorable	Favorable	Favorable	>
Brown Jamie	9th	Favorable	Favorable	Favorable	Favorable	>
Centers Monica	9th	Most Favorable	Most Favorable	Most Favorable	Most Favorable	>
Mante Gregoria	9th	Favorable	Favorable	Favorable	Favorable	>
Miller Sylvan	9th	Least Favorable	Least Favorable	Least Favorable	Most Favorable	>
Roob Abigail	9th	Favorable	Favorable	Favorable	Favorable	>
Shields Darrion	9th	Favorable	Least Favorable	Least Favorable	Favorable	>
Turcotte Rylan	9th	Most Favorable	Most Favorable	Most Favorable	Favorable	>
Williams Derek	9th	Favorable	Favorable	Favorable	Least Favorable	>

Return on Investment

- Identification of risk across multiple indicators.
- Standardization of Intervention documentation across district.
- Issues and trends are easily identifiable

- We can intervene as early as first grade
- All Manatee educators work toward helping students graduate
- From grade 1 through high school, we all have the same mission

Learn More

Timely, Personalized Risk Predictions and Interventions

AIR

QQ Bright**Bytes**

Thank You!

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