PREDICTIVE ANALYTICS

On the Journey
Nudge Example

Fun Theory
● One of the largest public, two-year institutions in SC
● Primarily serving residents of Greenville County

Fall 2019 Headcount = 11,127

- 59% Female
- 59% Part-Time
- Average Age = 24 years old

16 to 1 Student to Faculty Ratio

~74% of students receiving financial aid
100+ Curricular offerings include:
Certificates, diplomas, and associate degrees
University transfer courses and associate degrees
Applied Baccalaureate in Advanced Manufacturing (Fall 2019)

Academic program offerings include:
Business, computer technology, health sciences, engineering technologies, advanced manufacturing technologies, and public service
Civitas Learning & Predictive Analytics
INFORMING ACTION ON DAY ONE OF A TERM

PREDICTIVE MODEL

\[ \text{82\%} \]

\[ \text{<=2.0 GPA TRIGGER} \]

\[ \text{21\%} \]
What is Predictive Analytics?

Predictive analytics is the use of historical data to determine the likelihood of future events in order to take action to affect the outcome.
Persistence Probability is the likelihood of a selected student to enroll in your institution in a future term and stay enrolled past your institution’s add/drop period.
Power in cross functional teams

DIAL Working Group
President’s Cabinet Sponsors
• VP for Student Services
• VP for Learning & Workforce Development

Members
• Business Process Analyst
• Director Institutional Research
• Dean, School of Academic Advancement (IFA)
• Assistant Dean, School of Academic Advancement (IFA)
• CIO
• Dean of Enrollment Services (IFA)
• Director of Business Office & Auxiliary Services (Beta Test Site Lead)
• Director of Information Services (Campaigns)
• Director of Center for Professional Excellence (Training, adoptions, and use rates)
• Dean, School of Education and Professional Studies (IFF)
• Dean, School of Arts and Sciences (Courses)

DIAL Working Group Purpose:
• To serve as a champion for Civitas encouraging use and adoption across the institution.
• To serve as a leadership team that provides communication, accountability, and initial direction for Civitas use.
• To serve as a source of information about the impact of Civitas to the President’s Cabinet.
• To inform student success initiatives to help leadership prioritize resources.
• Establish a continuous improvement process with implementation milestones and student success targets that monitors, evaluates, and reports results.
• To work with the vendor to stay current with system upgrades and to ensure our practices are in keeping with best in class Civitas users.

DIAL Working Group Goal:
The working group will function as an implementation team, focused on maximizing Civitas’ impact in support of Strategic Imperatives and Outcomes, Institutional Success Measures, and Institutional Objectives. The group will develop a structure and processes that will identify student needs or other areas of interest and communicate these findings with various offices, academic advisors, and committees.
Illume Students

OVERVIEW

ACTIVE FILTERS
Clear All
No filters selected

PERSISTENCE PREDICTION

Active Filter - 11,127
71%

All Students - 11,127
71%

Fall 2019 - Spring 2020

PREDICTION DISTRIBUTION - FALL 2019 - SPRING 2020

- Very Low: 3%
- Low: 14%
- Moderate: 21%
- High: 45%
- Very High: 17%

POWERFUL PREDICTORS

Powerful Predictors use historical data to show what variables are important to persistence for this group of students

- Highest Signal
- Lowest Signal

Average Number of Days Enrolled Before Start (Current Term)

Engagement (LMS) (2)
Academic Progress (10)
Area of Study (8)

Academic Performance (GPA) (5)
Enrollment (4)
Financial Aid (5)

Background/Demographics (4)
Custom (1)
Fall 2019: Learning from historical data

- 47% of our non-persisting students registered within 33 days before the start of the term
- 64% of our persisting students registered 33 days or MORE before the start of the term
African American Male Scholars Initiative

- President’s Persistence and Retention Commission found that African American Males were at the bottom of every success indicator reviewed by the team
- AAMSI is designed to provide advising services, lunch and learn sessions, and textbook vouchers to program participants
- Weekly updates of how likely their students are to persist on a group and individual basis paired with actions taken for in-process adjustments
- Estimate of the Treatment Effects using a regression-discontinuity design and Illume Impact
Understand the efficacy of your student success initiatives so you can allocate resources toward initiatives that work, and connect the right students to the right programs.

**Key Features**

- Measure intervention efficacy with statistical rigor
- See which interventions are more impactful for which types of students
- Get results within a few hours of data submission
Matching a student who participated in an initiative with a similar student who did not participate in the same initiative. This matching occurs on two dimensions:

1. Similar persistence probabilities of the students (persistence prediction) and
2. Similar probability of taking part in the initiative in question (propensity score)
2017 Academic Coaching

• In 2017 Academic Coaching was offered to (all/referred) students free of charge
• All students are eligible(?)
• Many students were referred to Academic Coaching by Advisors or Instructors

Research Question Impact is Measuring: Does providing scheduled and walk-in coaching improve persistence rates?
Analysis Results

The analysis shows an 8.5 % Lift in Persistence

Results met the .05 threshold for statistical significance with a p-value of <0.01 (golden)

There were 1,030 analyzed participants over the 3 terms

Lift in persistence is measured by comparing participating student persistence rates to those of comparable students, matched on prediction and propensity scores

Participants include all students that met with an Academic Coach one or more times in 2017
## Impact by Student Group

- **Overall:** 8.5% Lift
- **Completed Terms**
  - 0 terms: 10.43%
  - 1-3: 13.05%
- **FT v PT**
  - FT: 7.87%
  - PT: 8.71%
- **Gender**
  - Female: 9.15%
  - Male: 7.21%
- **Prediction Quartiles**
  - Bottom: 15.11%
  - Second: 8.73%

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**Note:** Results shown in blue meet the .05 p-value threshold for statistical significance.
Inspire for Advisor

Welcome, Kevin

Inspire for Advisors predicts a student's likelihood to persist at your institution. Apply filters to show students in specific prediction groups, or use any column heading to sort the list.

Filter by Persistence Prediction

<table>
<thead>
<tr>
<th>Filter by Persistence Prediction</th>
<th>VERY LOW</th>
<th>LOW</th>
<th>MODERATE</th>
<th>HIGH</th>
<th>VERY HIGH</th>
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<tr>
<td>VERY LOW</td>
<td><img src="image" alt="2" /></td>
<td><img src="image" alt="15" /></td>
<td><img src="image" alt="8" /></td>
<td><img src="image" alt="4" /></td>
<td><img src="image" alt="0" /></td>
</tr>
</tbody>
</table>

Assigned Advisors: [Remove]

Show

Enrolled students:

<table>
<thead>
<tr>
<th>Name</th>
<th>Enrolled This Term</th>
<th>Persistence Probability</th>
<th>Change</th>
<th>GPA</th>
<th>Last Enrolled Term</th>
<th>Next Enrolled Term</th>
<th>Advisor</th>
<th>Last Outreach</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td><img src="image" alt="1" /></td>
<td>2.00</td>
<td>-</td>
<td>Spring 2019</td>
<td>-</td>
<td>Fitch, Andrew</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td><img src="image" alt="1" /></td>
<td>0.00</td>
<td>-</td>
<td>Spring 2019</td>
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<td>Fitch, Andrew</td>
<td>-</td>
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<tr>
<td>Kyle</td>
<td>Yes</td>
<td><img src="image" alt="1" /></td>
<td>2.56</td>
<td>-</td>
<td>Spring 2019</td>
<td>-</td>
<td>Fitch, Andrew</td>
<td>-</td>
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<tr>
<td></td>
<td>Yes</td>
<td><img src="image" alt="1" /></td>
<td>0.00</td>
<td>-</td>
<td>Spring 2019</td>
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<td>-</td>
</tr>
</tbody>
</table>
Inspire for Advisor

Inspiration & Intervention Factors

These are personal factors that could make this student’s likelihood to persist higher or lower than average for continuing undergraduate students like them who currently take on ground courses at gvtc.

- **Inspiration**
  - Has completed more Blackboard discussion activities than 97% of classmates

- **Intervention**
  - Enrolled in sections an average of 3 days before section start this term
  - Has gone more consecutive days without Blackboard activity than 63% of classmates
  - Has withdrawn 12.00 credits at this institution
  - Calculated institution cumulative GPA is 2.56

- **Academic Background**

- **Outreach History** 0 recent communications
Inspire for Advisor

- Day 1 insights into students persistence likelihood
- Enables personal outreach to similar students at the same time
- Allows Advisors to be more Effective and Efficient
- Records outreach
- Serves Students BETTER
- Getting overwhelmingly positive feedback from faculty/advisors on ease of use, time savings, and student response
Sample Feedback - Students

• “I haven’t heard word like that since I came here I would like to just thank you for the words of encouragement. We need more instructors like you.”

• “Hello Michelle! Thank you so much! This spring semester has been tough. I had to deal with death, sicknesses, and alot of personal issues. This encouragement gave me a second wind. I really do appreciate it.”

• “Thank you, for the words of encouragement. I did not do it alone, the people at Greenville Tech made this journey a great one. I cannot express to you how much they had a part in helping me along the way. I wish there was a way that I can show them how much them being here means to me. My professors have been some of the most wonderful people, that I have had the pleasure of meeting. My thanks goes to you for making Greenville Tech the college that it is.”
Sample Feedback – Faculty/Staff

• “First time I have ever emailed all of my Advisees and received a response from every one of them.”

• “Inspire for Advisor is very intuitive to use. It makes it so easy to reach out to my students.”

• “Inspire is my favorite tool for communicating with my students. It makes it easy to personalize my outreach.”
College Algebra
MATH 133
Section #
56789
Credit Hours
3

Engagement Overview

Withdrawals  Very Low  Low  Average  High  Very High
0  7  5  3  12  3

Recommended Outreach

12 students have low engagement and have never been contacted

9 students have low engagement and a low grade average
Inspire for Faculty

College Algebra
MATH 1331
Section #
56789
Credit Hours
3

Engagement By Grade

Scarlett Jones
ID: 987654321
(512) 555-4321
scarlett.jones@institution.edu

Send Email Log Outreach

Engagement Score Current Grade
7.5 65%

View Student Details

See All Active Students

Very High
3
Scarlett's Top Engagement Factors

- In the 12th percentile for time spent on discussion board activities
- Was in the 15th percentile of time spent on discussion board activities last week
- Is in the 14th percentile for course material activity count
- Is in the 11th percentile for time spent on journal activities
- Is in the 13th percentile for discussion board activity count

Performance

<table>
<thead>
<tr>
<th>Engagement</th>
<th>Grade</th>
</tr>
</thead>
</table>

Outreach History 0 recent communications

There is no outreach history to display for this student
What are nudges?

Nudges are small pushes in the right direction that do not require prescribed actions, but encourage certain behaviors.

What is a nudge campaign?

A communication strategy (built upon a data-informed insight) that is designed to nudge a targeted group of students to achieve a specific, measurable outcome.
“If a student believes challenges cannot be overcome, or his abilities are fixed, he is less likely to push through the challenges he encounters along the way. … Telling students that the challenges they experience can be overcome, and that with effort, their abilities will grow, change students’ mindsets about challenges and, in turn, build resiliency.”

- David Yeager & Carol Dweck
Mattering

“An important part of being in a community is feeling the sense that you matter to the people in the community. …Telling students that their success matters to people at your college or university can positively influence their sense of belonging at your institution and encourage behavior leading to successful outcomes.”

– Nancy Schlossberg
Nudging Best Practices

**SHORT** – Just a few short sentences with one main idea

**PERSONAL & AUTHENTIC** – Conversational tone, include your ”voice” or personality

**POSITIVE & ENCOURAGING** – Use a combination of urgency, empathy or concern, hope, and encouragement to promote a growth mindset

**TIMELY & RELEVANT** – The right information at the right time for the right students (align intended result with appropriate timing)

**ACTION ORIENTED** – Include one, specific call to action
Subject Lines Matter!

PERSONAL – Use of “you”

FROM A FAMILIAR SENDER – A recognizable name

OPEN ENDED or URGENT – Time sensitive, Ask a Question

SHORT – 40 characters or less, 50 maximum

EYE CATCHING – Create urgency or inspire curiosity

SPECIFIC – Reflect the content

BRANDED – Reminder of the community
Hi <Student First Name>,

You’ve worked hard and done so well here. I wanted to send you a note to see how your semester is going. College can be challenging this time of year and even the most successful students can struggle. Common challenges for students include job commitments, family responsibilities, financial pressures, transportation issues, or a combination of these and other issues. Do any of these sound familiar to you?

If you are experiencing any of these issues, or other things, I am here to help!

I am proud of your progress and excited to support your continued success.

Sincerely,

<Advisor Name>
## Nudge Campaign Results

<table>
<thead>
<tr>
<th>Target Population</th>
<th>Spring 2018</th>
<th>Fall 2018</th>
<th>Spring 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>High GPA Low Persistence Prediction (bottom half)</td>
<td>+5.8% (+/- 0.5%)*</td>
<td>+5.0%</td>
<td>+6.2%</td>
</tr>
<tr>
<td>Online only Students &lt;+3.0 GPA low Persistence Prediction (bottom half)</td>
<td>-0.0%</td>
<td>+1.5%</td>
<td>+0.9%</td>
</tr>
<tr>
<td>Continuing Students (completed 4 or more terms) - Overall</td>
<td>NA</td>
<td>+4.8%</td>
<td>+2.2%</td>
</tr>
<tr>
<td>Business &amp; Technology</td>
<td>NA</td>
<td>+5.0%</td>
<td>+6.3%</td>
</tr>
<tr>
<td>Health &amp; Wellness</td>
<td>NA</td>
<td>+8.6%</td>
<td>+10.3%</td>
</tr>
<tr>
<td>Public Service, Arts &amp; Science</td>
<td>NA</td>
<td>+2.9%</td>
<td>-4.0%</td>
</tr>
<tr>
<td>New transfer (app type transfer, 0 terms completed), no GPA, no online only</td>
<td>-1.2%</td>
<td>+4.8%</td>
<td>+1.8%</td>
</tr>
<tr>
<td>African American Male</td>
<td>+3.9%</td>
<td>N/A</td>
<td>+9.7%</td>
</tr>
<tr>
<td>OVERALL</td>
<td>+3.6%</td>
<td>+4.03</td>
<td>+3.0%**</td>
</tr>
</tbody>
</table>
Setting up a nudge campaign

- **Purpose**
  - Why are we doing this campaign?

- **Goals**
  - What are we striving to achieve with this campaign?

- **Communication Strategy & Logistical Considerations**
  - How are we planning to communicate this nudge?
  - What logistical considerations do we need to account for?

- **Targeted Population**
  - What is the targeted population of students we are going to focus on?

- **List of student population**
  - Describe the steps for how to get the list of the student population.

- **Data & Insights**
  - Supported by data, why are we selecting this student population to focus on?

- **Execution Plan**
  - Draft the message(s) to be sent out, how often, by who, how, etc.

- **Learning**
  - A conclusion statement regarding the results of the campaign.

Adapted from Civitas Learning®
Now you try!

What targeted population of students could/should you focus on?

Why are you going to focus on this population of students?

What do we want to achieve with this nudge campaign?

How do you plan on communicating this nudge campaign?

Practice drafting the first communication to this population.
Lessons Learned

• Senior leader commitment REQUIRED
• Use of recommended Nudge Techniques
• High open rates
• Fear of overwhelming email response
• Training better by department
• Lacking dedicated resources to retention and persistence efforts
• Frequent college-wide updates are important
What’s Next?

• Keep momentum going
  • Continue Training push
  • Increasing communication across the college

• Retention department with resources dedicated to utilizing Civitas insights weekly

• Creating area specific ownership

• Incorporate data insights into Institutional Objectives & key performance indicators

• Brainstorming ways to use Inspire for Advisor to increase student survey response rates
Questions?

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