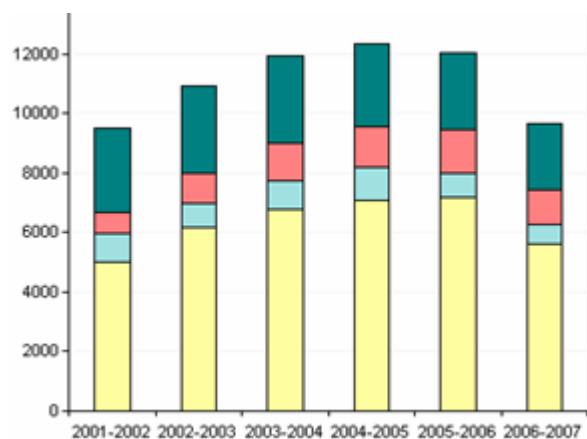


Data-driven Decision Making: Three Case Studies



November 16, 2008

Michael Taft





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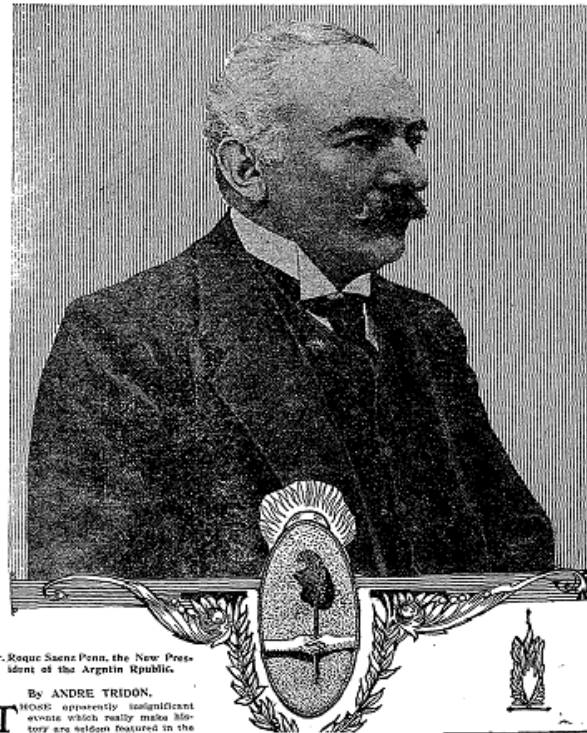
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EUROPE FLIRTS WITH ARGENTINA TO WIN HER RICH TRADE

The Recently Elected President Is Very Favorable to Transatlantic Countries--American Shipping May Suffer.

An Avowed Enemy of the Monroe Doctrine, President Pena Advocates "Latinism" as Against "Anglo-Saxonism."

President Saenz Pena and Premier Briand of France.



Dr. Roque Saenz Pena, the New President of the Argentin Republic.

By ANDRE TRIDON.

THOSE apparently insignificant events which really make history are seldom featured in the press; the merely spectacular too frequently crowd the essential out of the public's sight. Let a riot disturb the streets of Buenos Ayres and the type will proclaim the fact. But let Argentina demonstrate the stability of her institutions and the self-control of her inhabitants as she did when she elected her new president, Dr. Roque Saenz Pena, and the papers will be silent on the subject.

The many reasons the United States should watch developments very carefully in Argentina. First of all, the

largest city south of the equator, and subtending the Western Hemisphere in its entirety, the largest south of St. Louis.

Buenos Ayres is now to all practical purposes the metropolis of Latin Amer-



The Infanta Isabella of Spain, who visited Argentina recently with Court Attendants.

Roque Saenz Pena is persona gratia in France, Italy, and Spain. One has only to peruse the addresses of the King of Italy, the King of Spain, and the President of France when the President-elect of Argentina visited them before departing for Buenos Ayres last month to see that in all these "salutes" there was more than mere "talk."

In France, in Italy, and especially in Spain he was received with that type of cordiality which governments encourage broadly when advantageous arrangements of a commercial nature have been concluded. The relations between Spain and Argentina have been exceptionally friendly during the past five years.

On May 25 Argentina celebrated the

fourth Argentina's allegiance to the Latin spirit and to "Miser Spain."

The French papers gave much prominence to the declaration he made in Paris and according to which "The Republic which is now definitely organized on a secure basis has in the course of its intellectual and material development looked toward closer and closer relations with the countries of Europe."

In this connection, we must also quote a paragraph from a speech he delivered in Paris on Oct. 10, 1908, at a gathering of South Americans, in which the presence of the Ambassadors and Consuls of several South American republics lent a special significance: "Latinism," he said then, "is Chris-



It takes **3 clicks** to get a newspaper article
about Argentina **written in 1917**

Getting basic retention information from most ERPs?
Could be **hours or days**

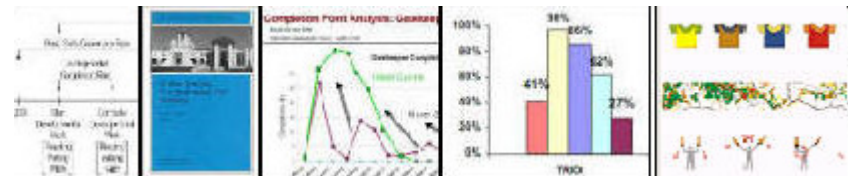
Outline

- About ZogoTech
- Typical Data Challenges
- Retention / Student Success Case Studies
 - Metropolitan Community College
 - Southwest Texas Junior College
 - University of the Incarnate Word
- Questions

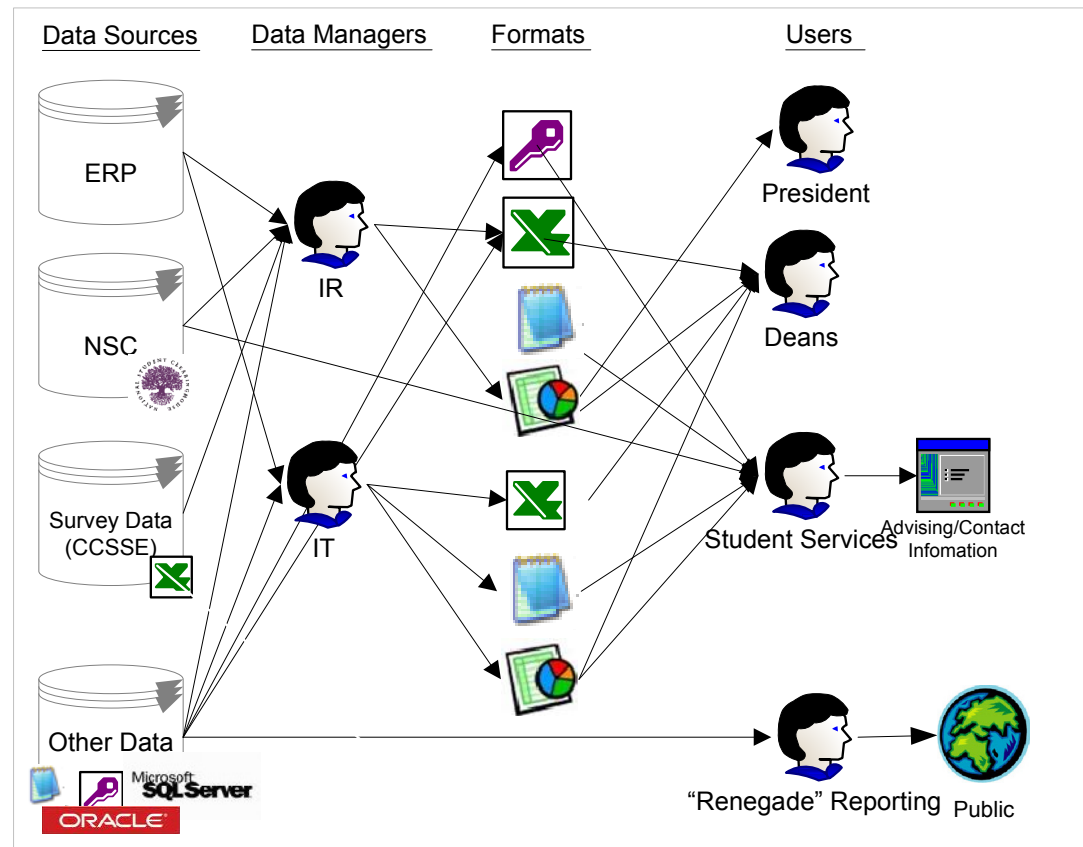
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About ZogoTech

- Based in Dallas
- Exclusively Higher Education
- Developed in conjunction with schools
- Emphasis on customer

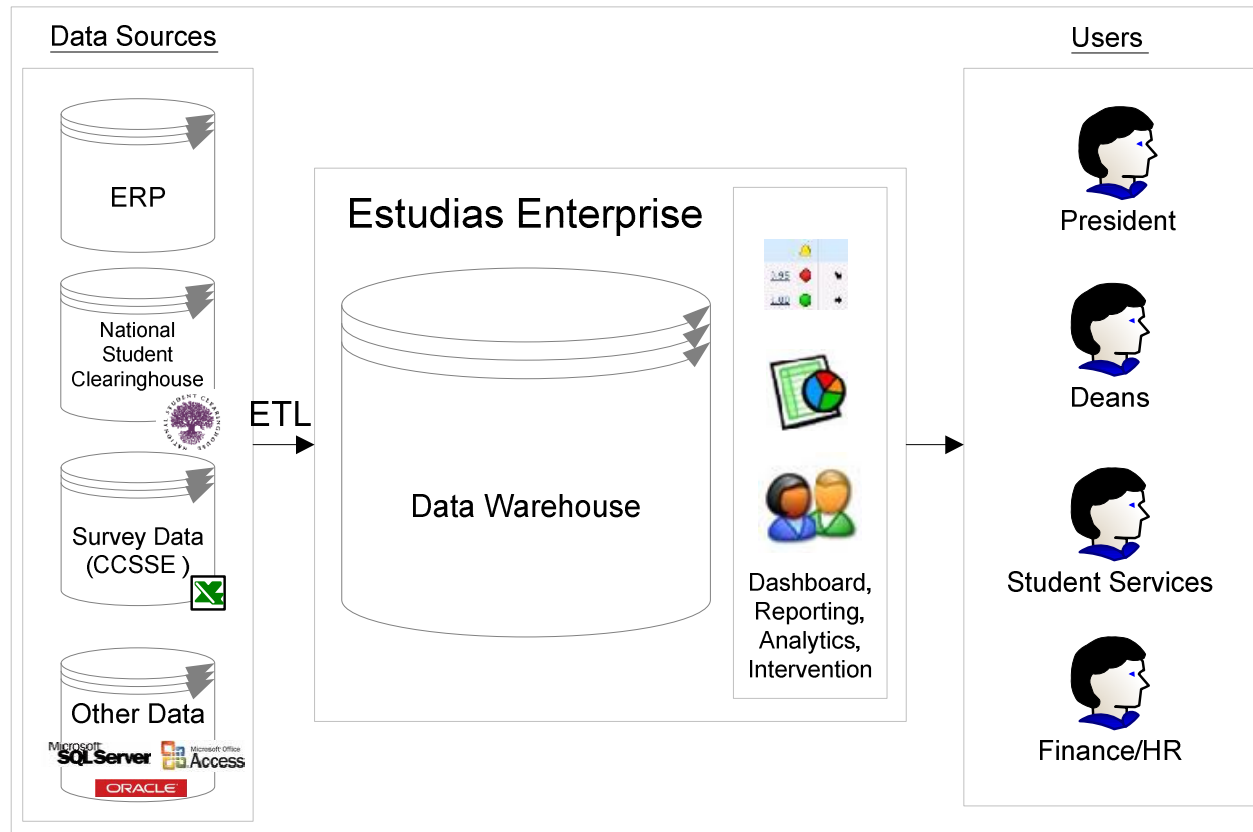


Typical Data Flow



- IR, IT overwhelmed with requests > Delays > Renegade Reporting
- Inconsistent and Changing Data, Data Silos

Estudias Data Flow



- IR, IT Control ETL process, data dictionary (pipe / faucet)
- One version of the truth, End user access



Metropolitan Community College

- PeopleSoft
- Community College
- 18,000 students / semester
- Need: Reliable data, quickly



Need

- Reporting against live database
 - Data always changing
 - Lack of confidence
 - Performance
- Lots of ad-hoc requests
- No data dictionary
- Gathering instead of analyzing data
- Not easy to drill-down

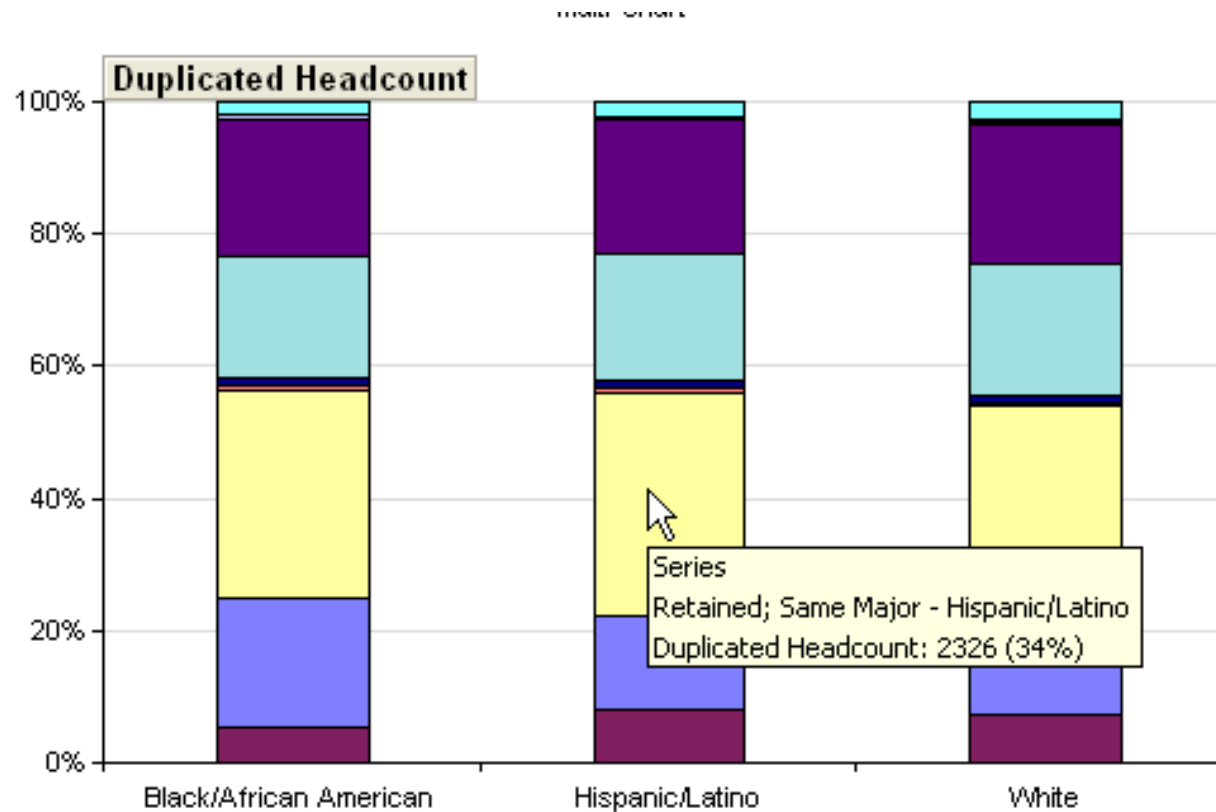
Demo: OLAP Tables

- Interactive
- Filter by Ethnicity, Gender, etc.
- Longitudinal cohort comparisons

					Academic Year ▾	
					☒ 2005-2006	
Division ▾	Department	Subject ▾	Level	Course Nu	Success Rate (A-C, P, IP)	
☒ Applied Science					73.42%	
☒ Business Administration					57.65%	
☒ Developmental Education					46.64%	
☒ Health & Human Services					72.10%	
☒ Humanities & Fine Arts					56.45%	
☒ Public Safety & Emergency Service					62.35%	
☒ Science & Math	☒ Biology				50.11%	
	☒ Chemistry				54.11%	
	☒ Engineering				58.49%	
	☒ Geology				0.00%	
	☒ Mathematics	☒ MATH	☒ 1	☒ 1314	40.55%	
				☒ 1316	44.87%	
				☒ 1324	48.00%	
				☒ 1325	63.49%	
				☒ 1332	53.38%	
				☒ 1330	68.04%	
				☒ 1351	75.00%	
				Total	45.60%	
			☒ 2		52.49%	
			Total		46.48%	
	Total				46.48%	
	☒ Physics				66.67%	
	Total				49.24%	

Above: Course Success by division. Drill down to see by department, subject, course number. Note that success rate in freshman MATH classes (Level 1) increases steadily by course number except for a drop in MATH 1332. (The brave can also drill down by faculty)

Example: How many students from fall 2006 continued enrollment in spring by gender, ethnicity?



Example: Does Penn Valley have fewer course offerings this fall as compared to last fall and if so, what disciplines?

Location Building and Room ▾			
Penn Valley			
		Academic Year ▾	
		⊕ 2006-2007	⊕ 2007-2008
Division ▾	Course Number ▾	Total Class Sections	Total Class Sections
⊕ PV English		69	63
⊕ PV Child Gr	⊕ 101	16	5
	⊕ 110	14	10
	⊕ 113	14	8
	⊕ 121	11	7
	⊕ 132	13	5
	⊕ 149	8	7
	Total	76	42
⊕ PV Mathematics		58	59
⊕ PV ESL		56	49
⊕ PV Art		52	49

Example: The percentage of unsuccessful Math 40 grades as compared to the percentage of all unsuccessful Math course grades for fall 2006 for Longview.

Location Building and Room ▾	Division and Department ▾	Term ▾
Longview	All Division and Department	FA
Drop Column Fields Here		
Course Number ▾	Success Rate (A-C, P, IP)	Total Class Size
⊕ 20	52.16%	301
⊕ 40	50.00%	784
⊕ 100	36.67%	60
⊕ 102	96.55%	29
⊕ 110	50.59%	423
⊕ 110R	58.02%	81
⊕ 115	45.83%	48
⊕ 119	37.93%	58
⊕ 120	57.19%	278
⊕ 120R	18.75%	16
⊕ 130	46.88%	64
⊕ 141	57.14%	7
⊕ 150	41.67%	24
⊕ 175	15.38%	13
⊕ 180	60.58%	104
⊕ 190	31.03%	29
⊕ 210	92.00%	25
Grand Total	51.49%	2344



Southwest Texas Junior College

- Datatel Colleague
- Community College
- Achieving the Dream, Title V
- 5,000 Students / semester

- Need: Decrease time to degree

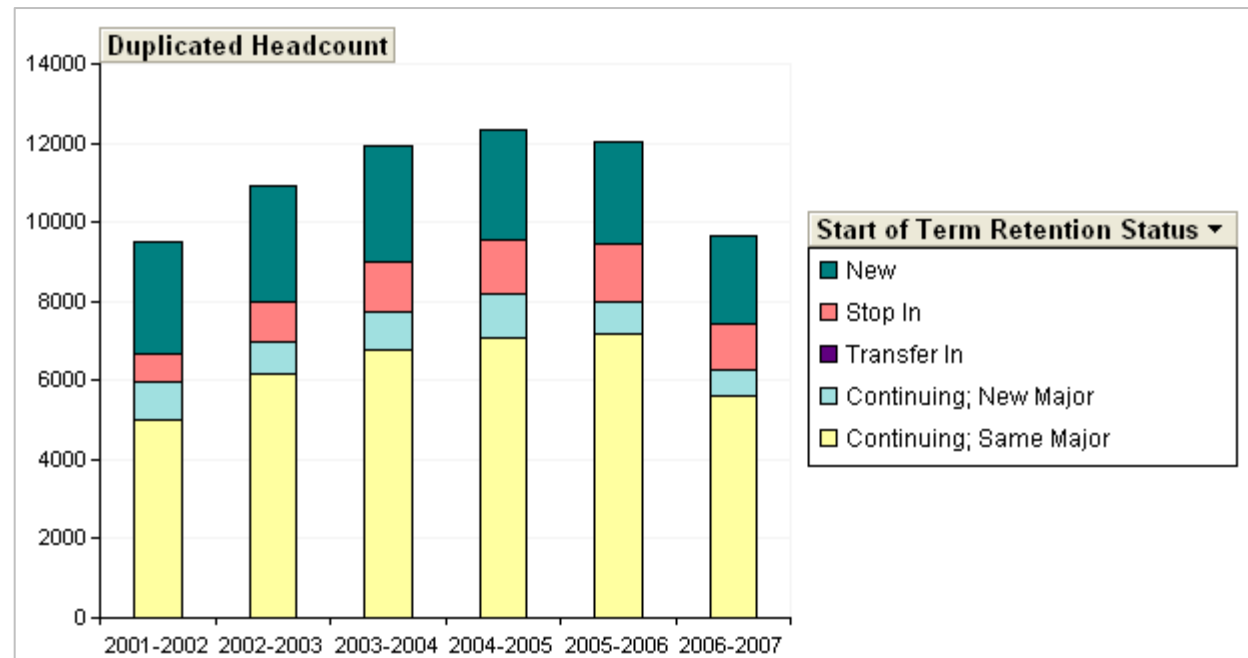


Challenges

- Want to be data-driven, but no data!
 - Longitudinal studies
 - Remediation analyses
 - Need programmer
- Other data
 - National Student Clearinghouse
 - Surveys

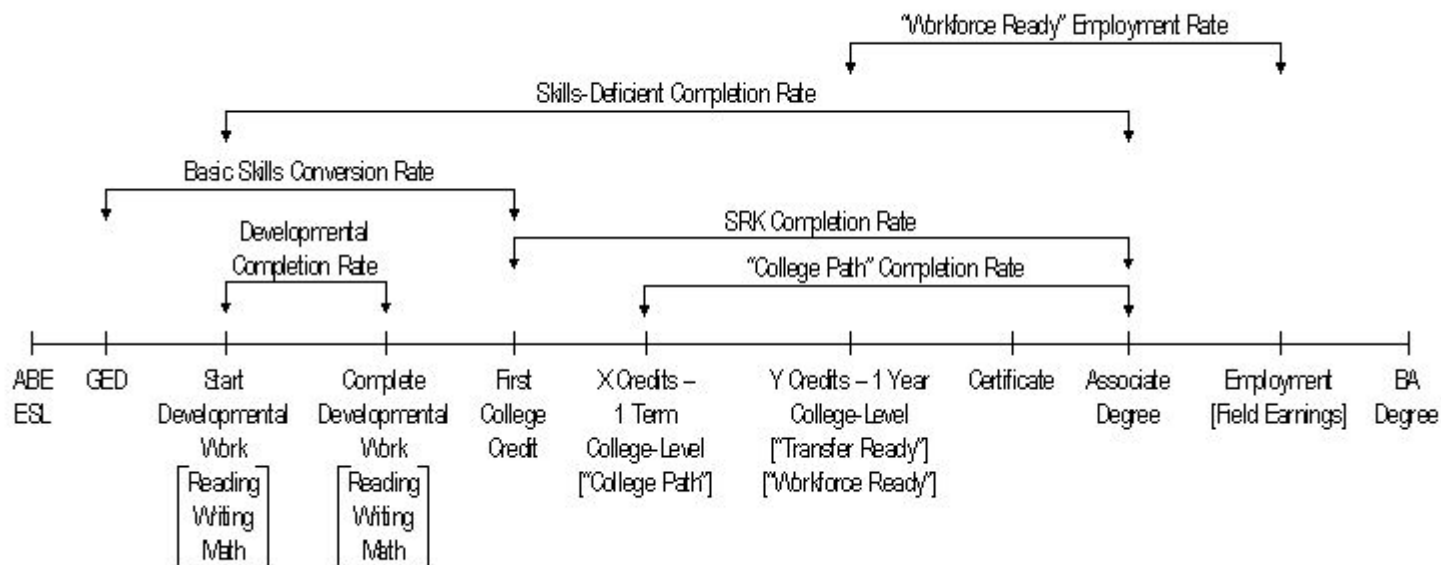
OLAP Charts

- Web-based, dynamic reporting / analysis
- Drag and Drop
- Pre-built for Higher Education



Above: Incoming student status. Via National Student Clearinghouse integration, students are automatically classified as Transfer Ins. Stop Ins are computed automatically by looking at previous semester enrollment. Note in this school the number of stop-ins has increased significantly since 2001, reflecting national trends.

Completion Point Background



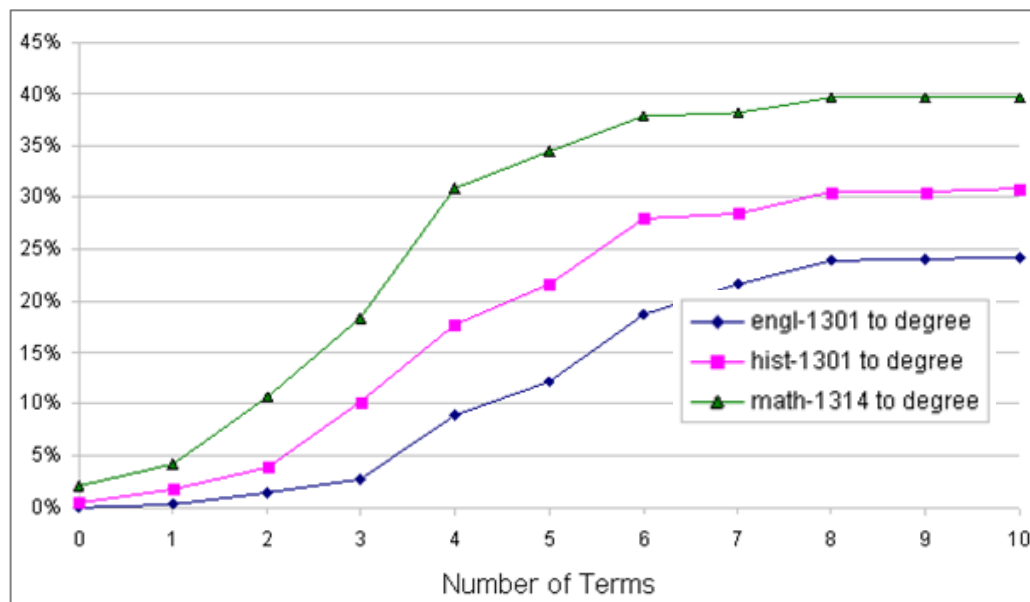
Peter Ewell's Progression Measures -- but how to obtain these rates?

Time Series Analyses

Conditional Probabilities

Sample Scenarios

- Probability student will graduate in 4 years once a student passes class X?
- Probability of success in class X if student completed class Y?
- Probability of achieving a degree given that student received a given score on a admissions test?



Above: Southwest Texas Junior College, an AtD school, used Completion Point Reporting to show the correlation between suspected gatekeeper classes and graduation. Within 4 terms of completing College Level math (in green) 30% of students have graduated

Remediation Analysis

Starting Cohort ▾						
FA		Latest Math Sublevel ▾				
		Level 0	Level 1	Level 2	Pre-Gateway	Post-Gateway
FTIC Math Sublevel ▾	Duplicated Headcount	Duplicated Headcount	Duplicated Headcount	Duplicated Headcount	Duplicated Headcount	Duplicated Headcount
Level 0	39.49%	26.82%	18.20%	12.03%	3.46%	
Level 1		28.77%	24.21%	37.34%	9.68%	
Level 2			40.39%	18.61%	41.00%	
Pre-Gateway				49.74%	50.26%	
Post-Gateway					100.00%	
Grand Total	5.34%	13.16%	18.09%	34.28%	29.13%	

Above: Shows which level of Math students started in on left (FTIC Math Level) versus where they are now on top (Latest Math Level)



University of the Incarnate Word

- SCT Banner
- Private University
- 8,000 Students / year

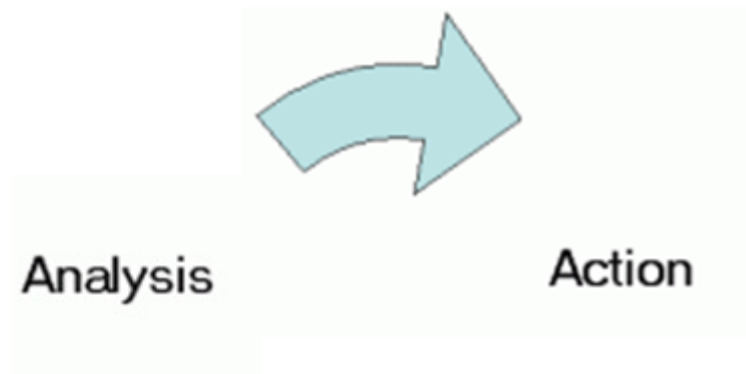
- Objective: Interventions



Challenges

- Ad-hoc queries
 - Who is at-risk?
- Action / Intervention
- Data silos
 - Many intervention programs
 - Dispersed data
 - Assessment?

Actionable Information



Ad-hoc Query and Reporting

- No query language to learn
- Click to combine higher-level concepts to build query

The screenshot shows a software window titled "Student Navigator" with a close button (X). Below the title bar, it says "Available Student Groups" and has a dropdown menu set to "Custom (Multiple Groups)". There are several icons for actions: an envelope, a document, a person, a bar chart, a pie chart, and a right-pointing arrow. Below these icons, it says "Total Selected: 474" and "Create a report based on selected student". Below this is a list of filters with checkboxes:

<input type="checkbox"/>	Received F or WF for all classes (by t	
<input type="checkbox"/>	Receiving Financial Aid (by term)	
<input type="checkbox"/>	Receiving Financial Aid (by term, by s	
<input checked="" type="checkbox"/>	Retained (term to term)	
<input checked="" type="checkbox"/>	Retaking Class (by term)	2007sp
<input type="checkbox"/>	With < 50% financial need met (by ye	
<input checked="" type="checkbox"/>	With Cumulative Credits < X	45
<input type="checkbox"/>	With Cumulative Credits >= X	
<input checked="" type="checkbox"/>	With Cumulative GPA < X	2.5
<input type="checkbox"/>	With Cumulative GPA >= X	
<input type="checkbox"/>	With Maximum Test Score (by test, s	
<input type="checkbox"/>	With Minimum Test Score (by test, s	

Above: Identifying students who may be at risk: there are 474 students who are retaking a class, have < 45 credits and have < 2.5 GPA. Click to contact these students, run a report, etc.

Student Engagement

- Culture of Evidence
- ex: At-risk intervention
- ex: Students who withdrew by major

Student Navigator

Available Student Groups

Increased Credits in Current Term

Total Selected: 97

Class Enrollments

Student ID	Name	Term	Class-ID
300960	Abel, Aaron	2006FA	ENGE-24
		2006FA	MATH4
260978	Alvarez, Randy	2006FA	MATH4
		2006FA	ENGE-0
211619	Andrews, Tammy	2006FA	ENGE-1
114066	Bagdon, Walter	2006FA	ENGE-1
200395	Balint, Patricia	2006FA	ACCT-2
402000	Banner, Gloria Jean	2006FA	CDEG-1
		2006FA	CDEG-2
		2006FA	CDEG-1

Email Composition Window:

This message has not been sent.

To: [Empty]

Cc: [Empty]

Bcc: Aaron.Abel@college.edu; Randy.Alvarez@college.edu; Tammy.Andrews@college.edu; Walter.Bagdon@college.edu; Patricia.Balint@college.edu; Gloria.Banner@college.edu; Robin.Baza@college.edu; Diane.Beil@college.edu

Subject: Significant increase in credits

Dear Student,

We have noticed that you have significantly increased your enrolled credits from last semester. Congratulations on your enthusiasm. This is a big jump and we want to help you make this coming semester as successful as possible.

Please see an advisor as soon as possible to discuss the best ways to handle this increase course load.

Above: Identify students who may be at-risk because they have significantly increased their course load. Click the email button to contact them and record those contacts in a central location.

Student Engagement

- Noel-Levitz retention variables
- Computed At-risk indicators
- Other information easily accessible in tabs
- Consolidate data silos

The screenshot displays a student profile for Aaron Abel. The profile is organized into several sections:

- Header:** Student name "Aaron Abel" and a small icon.
- Tabs:** General Info (selected), Contacts, Group, Address, Classes, Tests, Financial Aid, Degrees, NSC.
- Photo:** A portrait of a young man with curly hair.
- Demographics:** White, Non-Hispanic M
- Academic Info:** Major: PREVN, Age: 38, Student ID: 7600960, SSN (link).
- Alerts:** A section with a warning icon and the text "At-risk indicators and other pertinent information about the student". It contains a table of alerts:

Alert
Student has at least 6 more registered credits than in previous long term
Student is currently enrolled in one or more developmental classes
Student has < 50% financial need met for current academic year
- Academic Summary:** Start Term / End Term: 2004SP / --, GPA: 1.936, Admission Basis: High School Graduate, Credits: 40.

Gives advisors / faculty easy access to data to make data-driven decisions on an individual student basis (note: all information here is randomized)

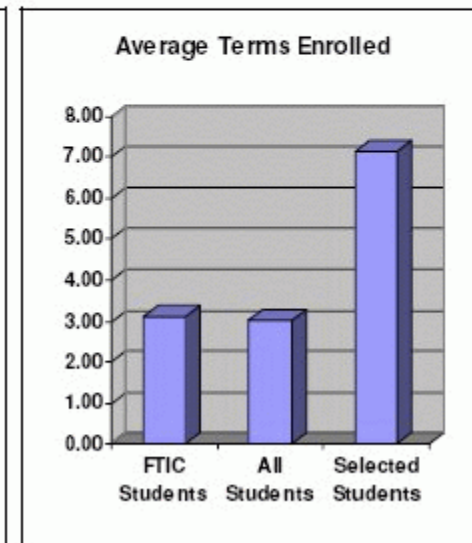
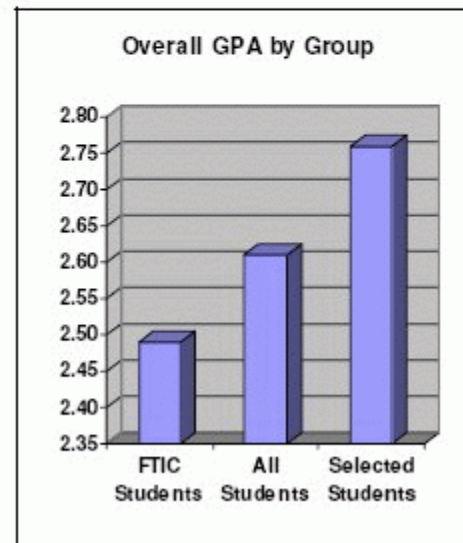
Actionable Information



Assessment

- Compare Intervention efforts
- Show measurable success

Student Group	Count	GPA (Overall)	Average Terms Enrolled	Major Change Frequency
FTIC Students	9,511	2.49	3.12	0.38
All Students	19,450	2.61	3.01	0.40
Selected Students	2,140	2.76	7.13	0.18





This shows that the students served by this department had a higher GPA, were retained longer and changed their majors less frequently than two other comparison groups ('First Time in College' and 'All Students'). This can be used to show the impact of tutoring or other intervention programs, for example

Questions and Answers

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