



PAR Framework Review and Summary

Ellen Wagner, chief strategy officer,
PAR Framework

Beth Davis, managing director
PAR Framework



Data Are Changing Everything



Data and Evidence-based Decision-making in Higher Ed

Analytics have ramped up everyone's expectations of personalization, accountability and transparency.

Academic enterprises cannot live outside the institutional focus on tangible, measurable results driving IT, finance, recruitment and other mission critical concerns.

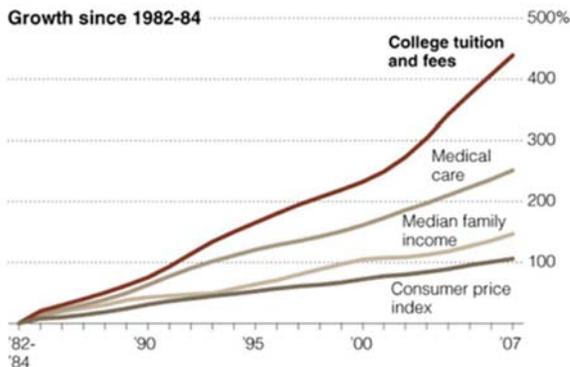
Costs and Completion Rates

The New York Times

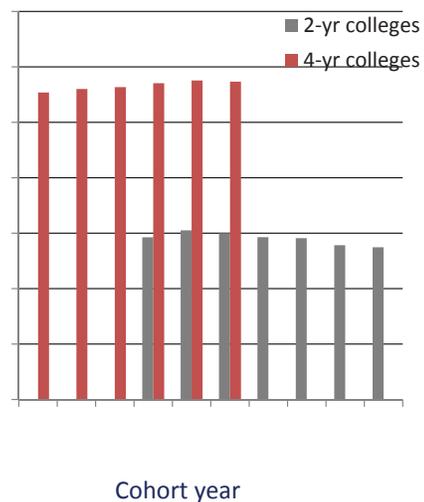
December 3, 2008

Soaring College Tuitions

College tuition continues to outpace median family income and the cost of medical care, food and housing.



Graduation rates at 150% of time

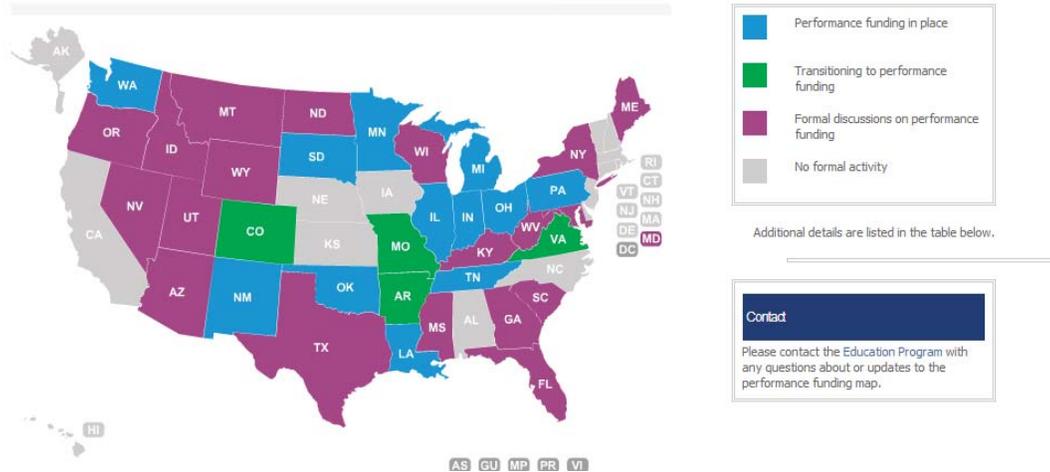


Performance Based Funding

Performance Funding for Higher Education

February 2013

Typically, colleges receive state funding based on how many full-time equivalent students are enrolled at the beginning of the semester. That model provides incentives for colleges to enroll students—but not necessarily to help them graduate. Many states are reconsidering the enrollment-based funding model and instead are allocating money to colleges based on the number of students who complete courses and degrees.



<http://www.ncsl.org/issues-research/educ/performance-funding.aspx>

Institutional Accountability



College Affordability and Transparency Center College Scorecard

College Scorecards in the U.S. Department of Education's College Affordability and Transparency Center make it easier for you to search for a college that is a good fit for you. You can use the College Scorecard to find out more about a college's affordability and value so you can make more informed decisions about which college to attend.

To start, enter the name of a college of interest to you or select factors that are important in your college search. You can find scorecards for colleges based on factors such as programs or majors offered, location, and enrollment size.

TYPE OF COLLEGE ▲

Search Institution

Search for a college by name...

Choose from the following options to begin searching for colleges of interest to you by:

College Location Type of College My Area of Interest Popular Criteria

<http://www.whitehouse.gov/issues/education/higher-education/college-score-card>

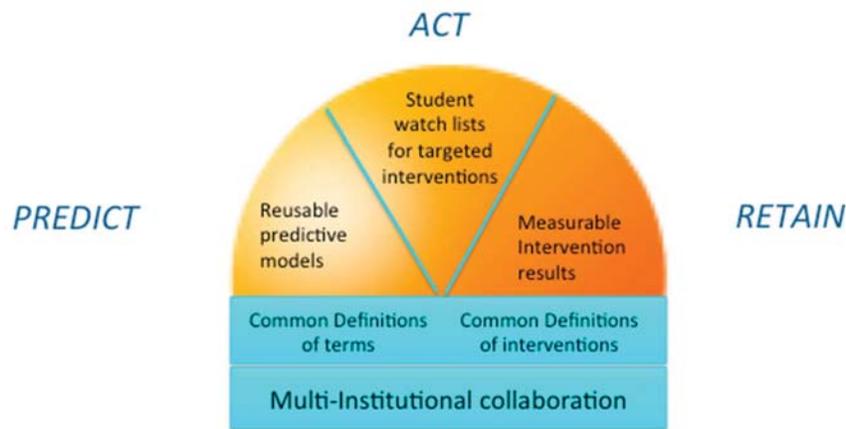
While Big Data raise expectations,
student data drive big decisions in .edu



PAR Framework video

- https://www.dropbox.com/s/jksxbc6uac4n1rg/PAR_pre-delivery.mp4

PAR Framework



Scalable, cross-institutional improvements that support each individual student's success

parframework.org

PAR
FRAMEWORK

PAR Outputs

Identify

Show how institutions compare to their peers in student outcomes, by scaling a **multi-institutional database** for benchmarking and research purposes.

Target

Identify which students need assistance, by using **in-depth, institutional specific predictive models**.

Models are unique to the needs and priorities of our member institutions based on their specific data.

Treat

Determine best ways to address weaknesses identified in benchmarks and models by scaling and leveraging a member, data and literature validated framework for examining interventions within and across institutions (**SSMx**)

parframework.org

PAR
FRAMEWORK

Beth Davis
Managing Director
PAR Framework

PRELIMINARY UND FINDINGS FROM PAR, SPRING, 2014

parframework.org

PAR
FRAMEWORK

Rapid Results

- Data Delivery
 - First data meeting 1/24
 - Preliminary data provided by 2/18
 - Final data expected 3/24
- Early discovery
 - UND course catalog
 - Basic student information file
 - *Did not include financial aid, credentials*

parframework.org

PAR
FRAMEWORK

With limited data set and in less than 1 week

Identified

- The key gatekeeper courses
- With over 70% accuracy the likelihood students will succeed in college level courses *
- 10 most predictive factors known about student at entry.

* Accuracy will increase when data is complete, reaches 80-90+% for many scenarios

parframework.org

PAR
FRAMEWORK

Predictions

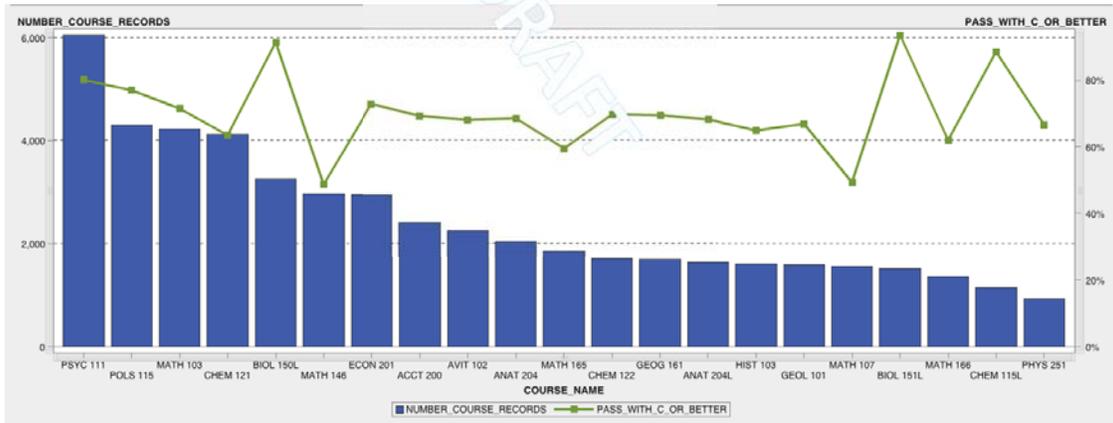
- Everyone who started fall 2013.
- A prediction of them taking one of the courses.
- Representative of early success in a college level course.

parframework.org

PAR
FRAMEWORK

Course name and course success

Key factors include:
 HS GPA
 HS credits by exam
 Transfer Credits
 Race
 Gender



HS GPA >3.8



Demographics that impact student success



Risk Factors

- Students who had a GPA between 0 and 2.66 failed the gateway courses 57% of the time.

ATTRIBUTE_VALUE	FAIL_RATE	RISK_RATIO_WITHIN_ATTRIBUTE
HS_GPA_NOT_SPECIFIED_(0 2.656]	0.57	7.26
GED_INDICATOR_Y	0.51	1.77
RACE_DESC_Black or African American	0.46	2.08
RACE_DESC_American Indian or Alaska Native	0.46	2.04
HS_GPA_NOT_SPECIFIED_(2.656 3.011]	0.45	5.78
RACE_DESC_Two or more races	0.41	1.83
RACE_DESC_Native Hawaiian or Other Pacific Is..	0.37	1.66
HS_GPA_NOT_SPECIFIED_(3.011 3.27]	0.37	4.72
RACE_DESC_Hispanics of any race	0.36	1.62
ETHNICITY_DESC_Hispanic	0.36	1.24

Risk ratios

- The factors where variation impacts student success and by how much

AGE_AT_START <=19	1
AGE_AT_START >19	1.28

- Students with a HS GPA not specified are 4X less likely to succeed in college level courses

HS_GPA_NOT_SPECIFIED_	4.09
HS_GPA_NOT_SPECIFIED_(0 2.656]	7.26
HS_GPA_NOT_SPECIFIED_(2.656 3.011]	5.78
HS_GPA_NOT_SPECIFIED_(3.011 3.27]	4.72
HS_GPA_NOT_SPECIFIED_(3.27 3.636]	3.46
HS_GPA_NOT_SPECIFIED_(3.636 3.69]	2.86
HS_GPA_NOT_SPECIFIED_(3.69 3.885]	1.85
HS_GPA_NOT_SPECIFIED_(3.885 4.09]	3.42
HS_GPA_NOT_SPECIFIED_(4.09 4.28]	1

Watchlist

PAR anonymized ID Risk they will not succeed in college level course 1st, 2nd and 3rd most important factors contributing to risk

PAR_STUDENT_ID	RISK_SCO.	FACTOR_1	FACTOR_2	FACTOR_3
70009678870a14456b89a7d93e14a...	0.866	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Black or African American	AGE_AT_START >19
deb8e1da1abc31e95d2f3a3d92fa14...	0.866	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Black or African American	AGE_AT_START >19
ef3216fcbdb5e668eb6b95100b78994...	0.862	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Black or African American	AGE_AT_START >19
2ecdbce78e96af36e9d1e4a2c29f23...	0.837	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_American Indian or Alaska Native	AGE_AT_START >19
9c9f2c20d4d4b2600038effa800099d0...	0.832	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Hispanics of any race	ETHNICITY_DESC_Hispanic
aa861ce492bc3317c8abd05908f8a1...	0.807	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Two or more races	AGE_AT_START >19
51a84d72719404522f0ce0ed9adaf...	0.796	RACE_DESC_Black or African American	HS_GPA_NOT_SPECIFIED_(2.656 3.011]	AGE_AT_START >19
2056dad93d18e080c071eed7eb05d6...	0.781	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Black or African American	GENDER_DESC_Male
b144e7234a864705010294a906606...	0.781	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_American Indian or Alaska Native	GENDER_DESC_Male
7340e1c67e83e324e9f52df8d3a32...	0.781	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Black or African American	GENDER_DESC_Male
ac3f76d6c3ee693b6e117e9d2e367...	0.756	RACE_DESC_American Indian or Alaska Native	HS_GPA_NOT_SPECIFIED_(2.656 3.011]	AGE_AT_START >19
8351e04f19e973d53a5a3ba0e110...	0.755	RACE_DESC_Black or African American	HS_GPA_NOT_SPECIFIED_(2.656 3.011]	AGE_AT_START >19
91bb71c0b7b741da992a37c01e0fa...	0.755	RACE_DESC_Black or African American	HS_GPA_NOT_SPECIFIED_(2.656 3.011]	AGE_AT_START >19
d4c07062e2a30206112d6a98357e85...	0.753	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Two or more races	AGE_AT_START >19
52731b586a1e33b62156d10a052...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	AGE_AT_START >19	GENDER_DESC_Male
0281b0ca070ba8d256f9db048d5f...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	AGE_AT_START >19	GENDER_DESC_Male
35ca8ec31b43ceeb864a2a7590a1b6...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	AGE_AT_START >19	GENDER_DESC_Male
a8128e95f4fa2a9b0849d0a746ab...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Two or more races	GENDER_DESC_Male
a490ed7a1b6725651ad999894095c...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	AGE_AT_START >19	GENDER_DESC_Male
d821b2289b9f2a9ae75719ccc9c0cb...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	AGE_AT_START >19	GENDER_DESC_Male
309677991b3bd810b4831b76e698...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	AGE_AT_START >19	GENDER_DESC_Male
e5716a5c79346f4b4ac935bb21c00...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Two or more races	GENDER_DESC_Male
6a08cb2eb3e490a06783656d6a45...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	AGE_AT_START >19	GENDER_DESC_Male
bff7c0f0947d9d9c0f951bda49394...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	RACE_DESC_Two or more races	GENDER_DESC_Male
342bdce8624562f9c7c0eaf3f10c...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	AGE_AT_START >19	GENDER_DESC_Male
4cd255aecd2548a8a42a07be159b9...	0.743	HS_GPA_NOT_SPECIFIED_(0 2.656]	AGE_AT_START >19	GENDER_DESC_Male
78d291873863982bad15f7be38b78d...	0.733	RACE_DESC_American Indian or Alaska Native	HS_GPA_NOT_SPECIFIED_(3.011 3.27]	AGE_AT_START >19

DISCUSSION

Performance metrics

Informed decision-making for
Student Success Systems



OUR APPROACH

- Progress can be made quickly
- Graduation rates are everyone's responsibility
- We need data-based approaches and
- Proactive/prevention systems
- Focus part of your time on students through systems and processes that provide efficient, accurate, and integrated support
- And part of your time on at-risk students, identified through custom systems

EFFICIENT, ACCURATE AND INTEGRATED SYSTEMS

- Online Catalog
- Standard Schedule
- Communications Strategy
- Degree Audit/Planner
- One Stop Student Services Center

SYSTEMS/STRUCTURAL CHANGES (EXAMPLES)

- “Major” selection
- 120-90-75-60 Initiative
- Four year graduation plans

PROACTIVE INTERVENTION WITH AT-RISK STUDENTS

- Faculty Early Alert System
- Advisor CRM (Client Relationship Management)
 - Advisor Utilization
- Departed Student Outreach
- Advanced Data Analysis

ASSESS “AT-RISK”/DEVELOP INTERVENTIONS

- Partnership between Academic Affairs, Student Affairs and Financial Affairs
- Faculty involvement in all phases
- Student involvement in all phases
- Dean and Chairs involvement in all phases



EXAMPLES

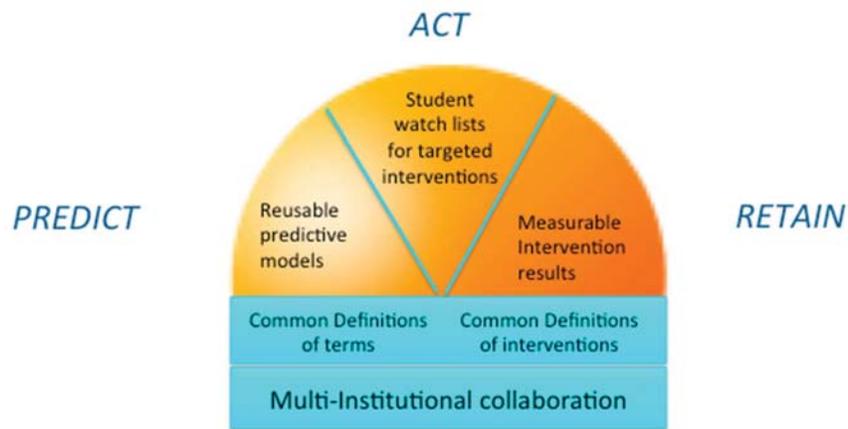
- Undergraduate research
- Internships
- Service learning
- Study abroad
- Undergraduate scholarships/fellowships
- Honors experiences

The Predictive Analytics Reporting (PAR) Framework

- PAR is a national, non-profit multi-institutional collaborative focused on institutional effectiveness and student success.
- PAR is a **“big data” analysis effort** using **predictive analytics** to identify drivers related to loss and momentum and to inform **student loss prevention**
- PAR member institutions **voluntarily contribute de-identified student records** to create a single federated database.
- Descriptive, inferential and predictive analyses have been used to create **benchmarks**, institutional **predictive models** and to map **student success interventions to predictor behaviors**



PAR Framework

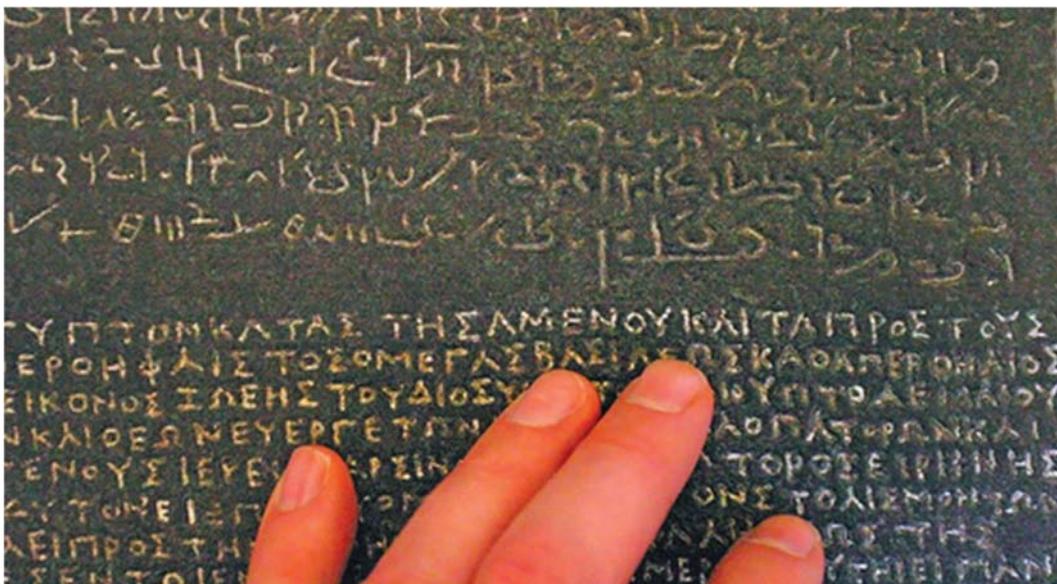


Scalable, cross-institutional improvements that support each individual student's success

parframework.org

PAR
FRAMEWORK

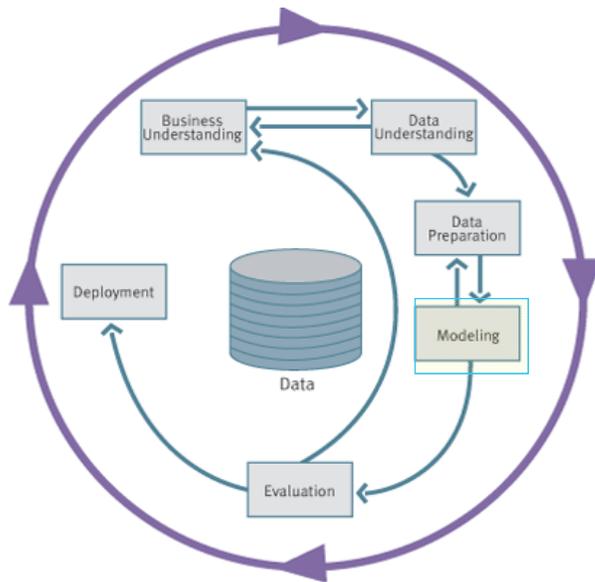
Common Definitions Lead to Shared Understanding



parframework.org

PAR
FRAMEWORK

Analysis/Modeling Process



- Analysis and model building is an **iterative process**
- Around **70-80%** efforts are spent on data exploration and understanding.

Structured, Readily Available Data

- Common data definitions = reusable predictive models and meaningful comparisons.
- Openly published via a cc license @ <https://public.datacookbook.com/public/institutions/par>

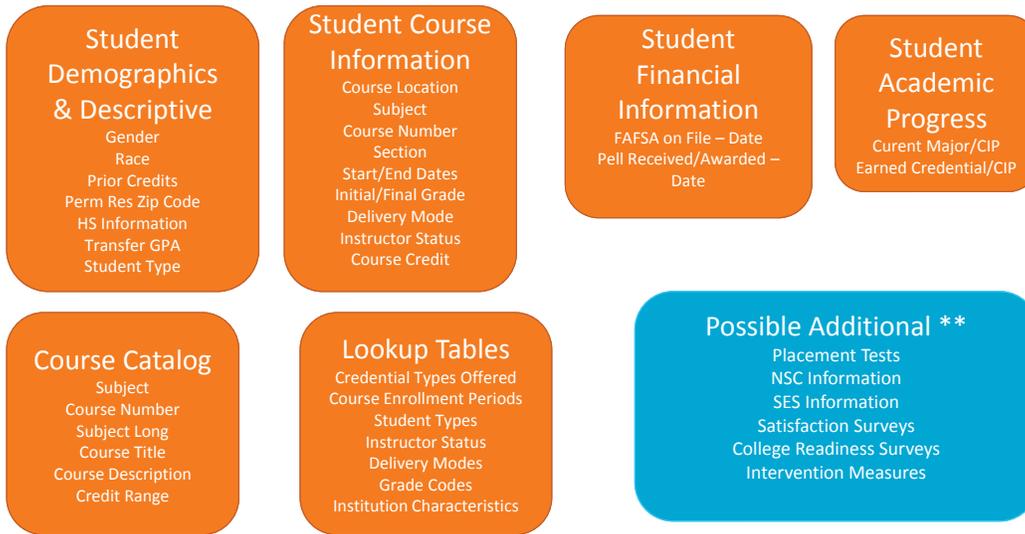
Community Contributors

ORGANIZATIONS

An organization focused on Higher Education

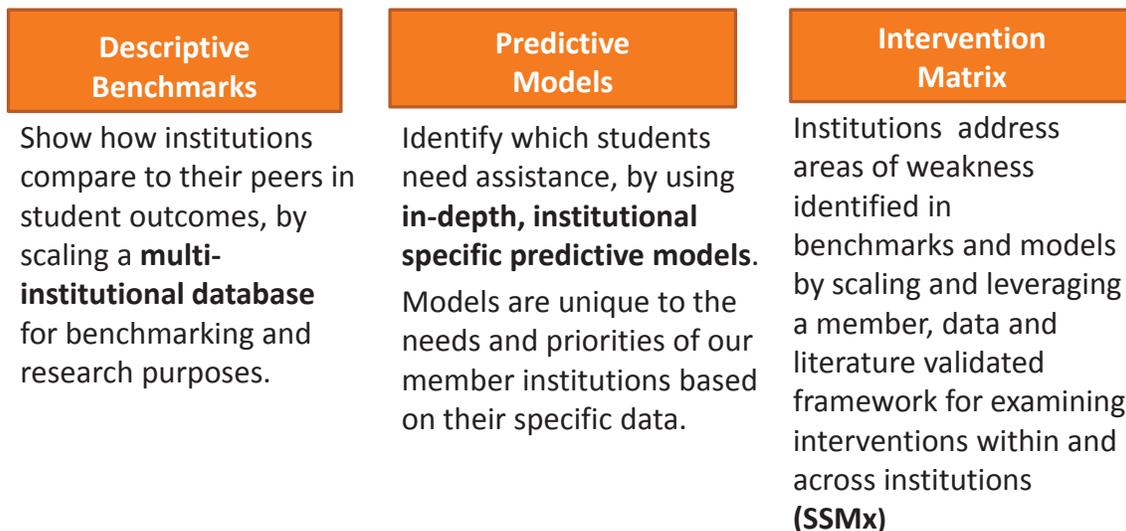
	Achieving the Dream	FILES (4)	TERMS (73)	REPORTS (2)
	Common Data Set	FILES (0)	TERMS (137)	REPORTS (0)
	IPEDS	FILES (0)	TERMS (18)	REPORTS (0)
	Maryland Higher Education Commission	FILES (0)	TERMS (63)	REPORTS (0)
	Middle States Commission on Higher Education	FILES (0)	TERMS (23)	REPORTS (0)
	Predictive Analytics Reporting Framework	FILES (3)	TERMS (0)	REPORTS (0)

PAR Data Inputs

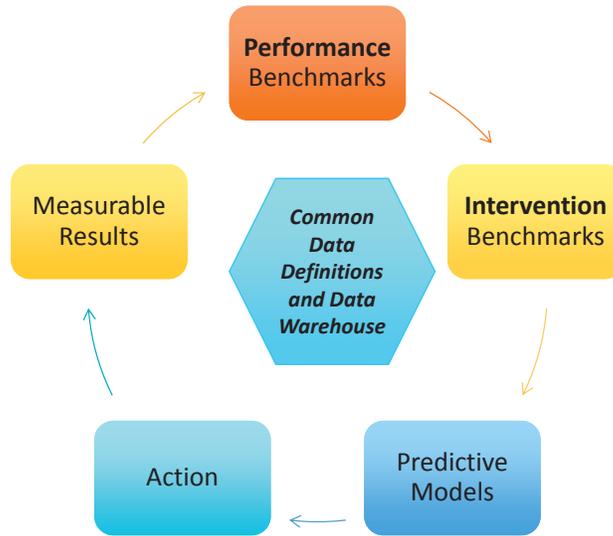


** Future

PAR Outputs



Feedback loops for enabling institutional performance improvements



Scalable cross institutional improvements enabled by
Collaboration via PAR

parframework.org



Home | PAR CC Entry Cohort Comparison v1 | Log Off

File Help

Introduction | Enrollment at Entry | Demographics | Readiness | Credit Ratio | Successful Credits | Unsuccessful Credits | First-Year Retention | Second-Year Retention

PAR Framework

Entry Cohort Comparison

Entering Class of 2009-10
PAR Community College (Sample data for demonstration purposes only)
Version 1.2; November 19, 2013

This report follows the fictional PAR Community College's entering class of 2009-10 for their first two years, and compares these students with similar students at other on-ground, primarily associate-granting institutions within PAR, and to students at institutions in all other PAR sectors.

Entry Attribute Comparison
Students' attributes at entry are described in the Enrollment at Entry, Demographics and Readiness tabs above. Definitions for each attribute can be found by clicking first on the object of interest, and then clicking on the information icon "(i)" at the top of the object's window.

Outcomes Comparison Drilldown
Six student outcome measures are displayed in this report: credit ratio its components -- successful and unsuccessful credits; first and second-year retention; and completions. Selecting one of the outcome tabs above will open a section of the report that allows users to select a combination of student attributes to drill down into to see how the your institution compares for that sub-population.

Note: University of Phoenix' campuses and online associate programs are represented here by a sample due to the large size of these institutions. Each sample is approximately the same size as the next-largest institution in its sector, resulting in a 10% sample of students at onaround campuses, and a 60% sample of students in

Comparison used throughout this report

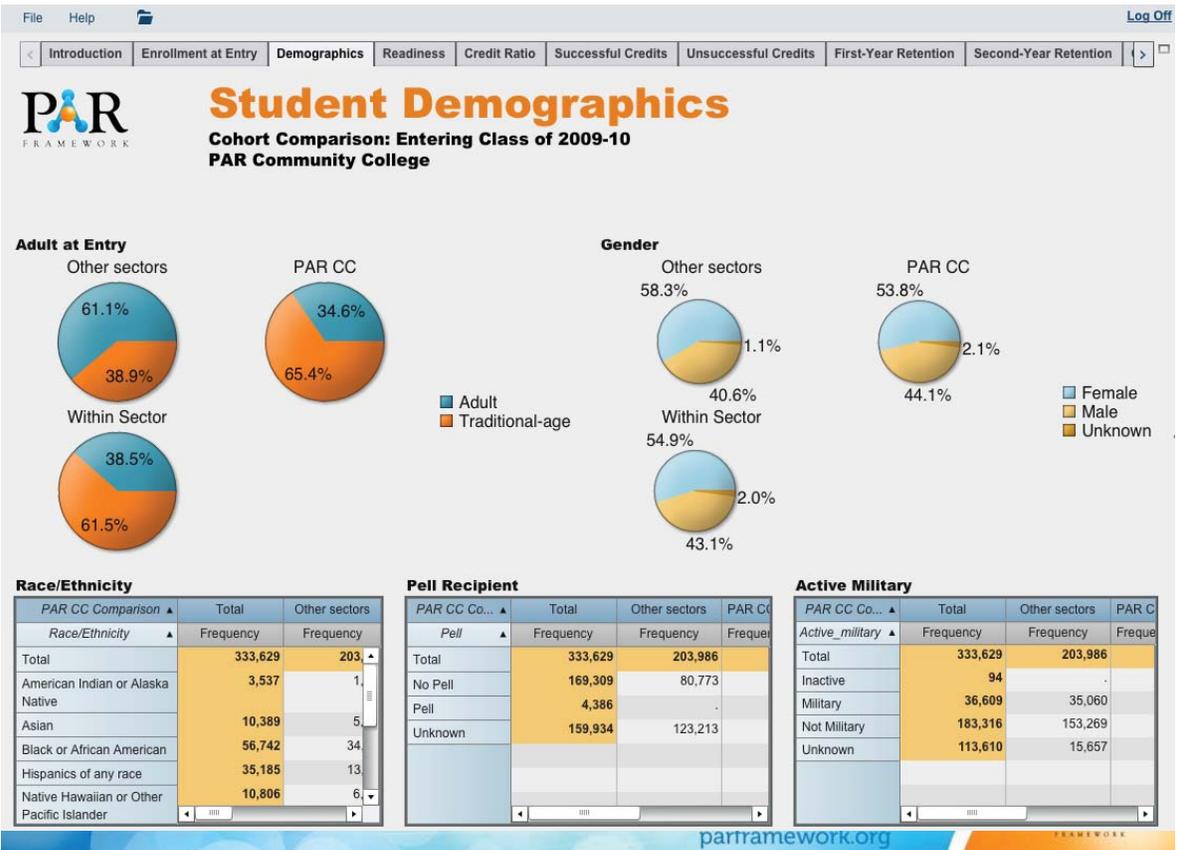
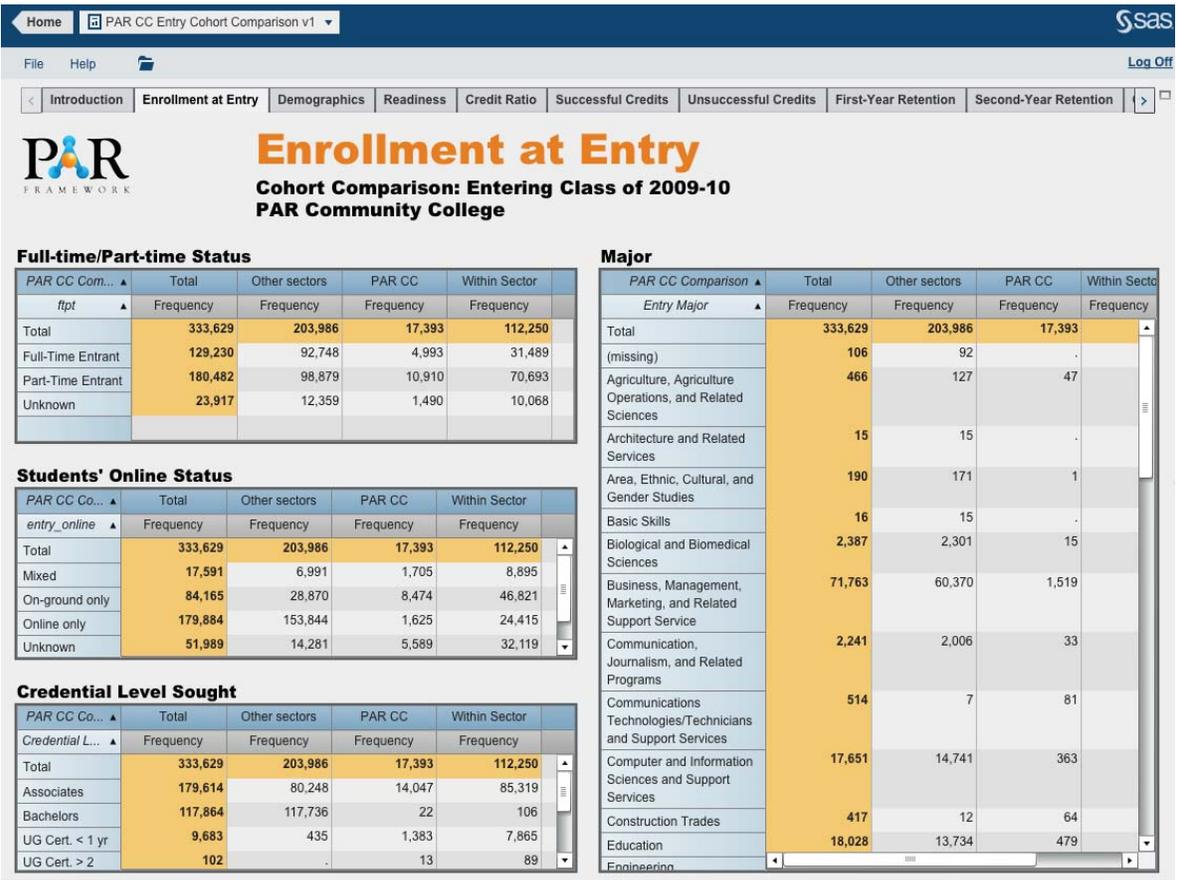
Other sectors 203,986 61.1%	PAR CC 17,393 5.2%
Within Sector 112,250 33.6%	

Select a sector to filter institutions at right

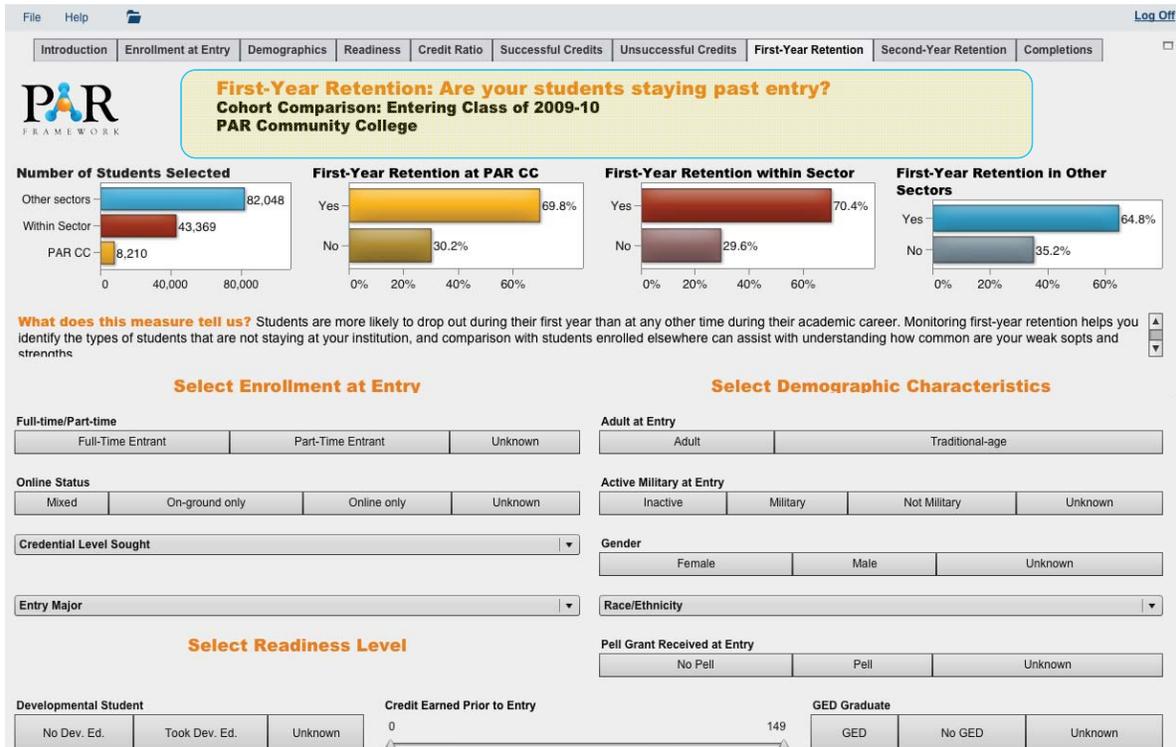
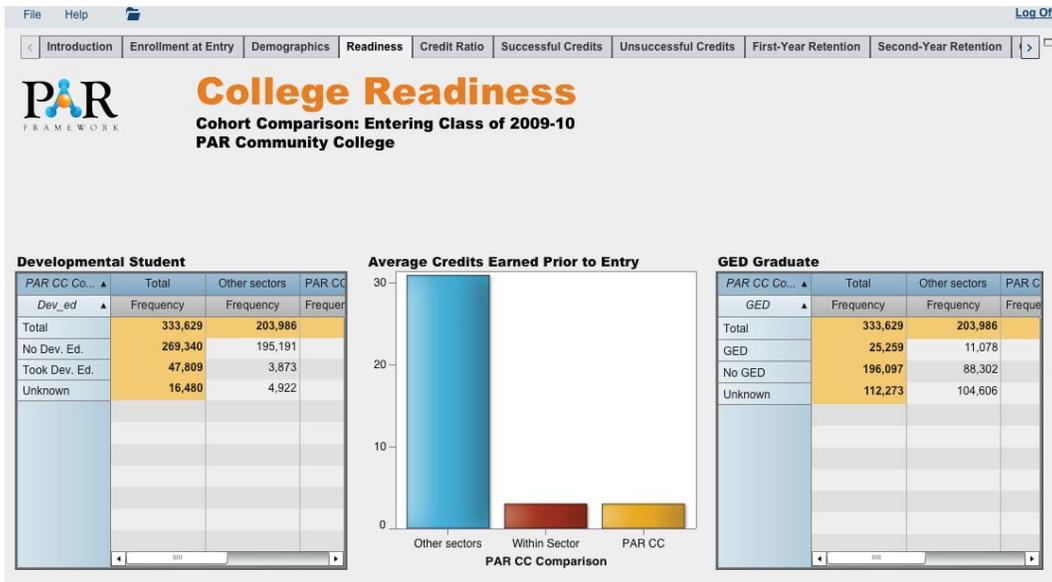
On-ground, Primarily Associates	On-ground, Primarily Bachelor's	Online Only, Primarily Associates	Online Only, Primarily Bachelor's
---------------------------------	---------------------------------	-----------------------------------	-----------------------------------

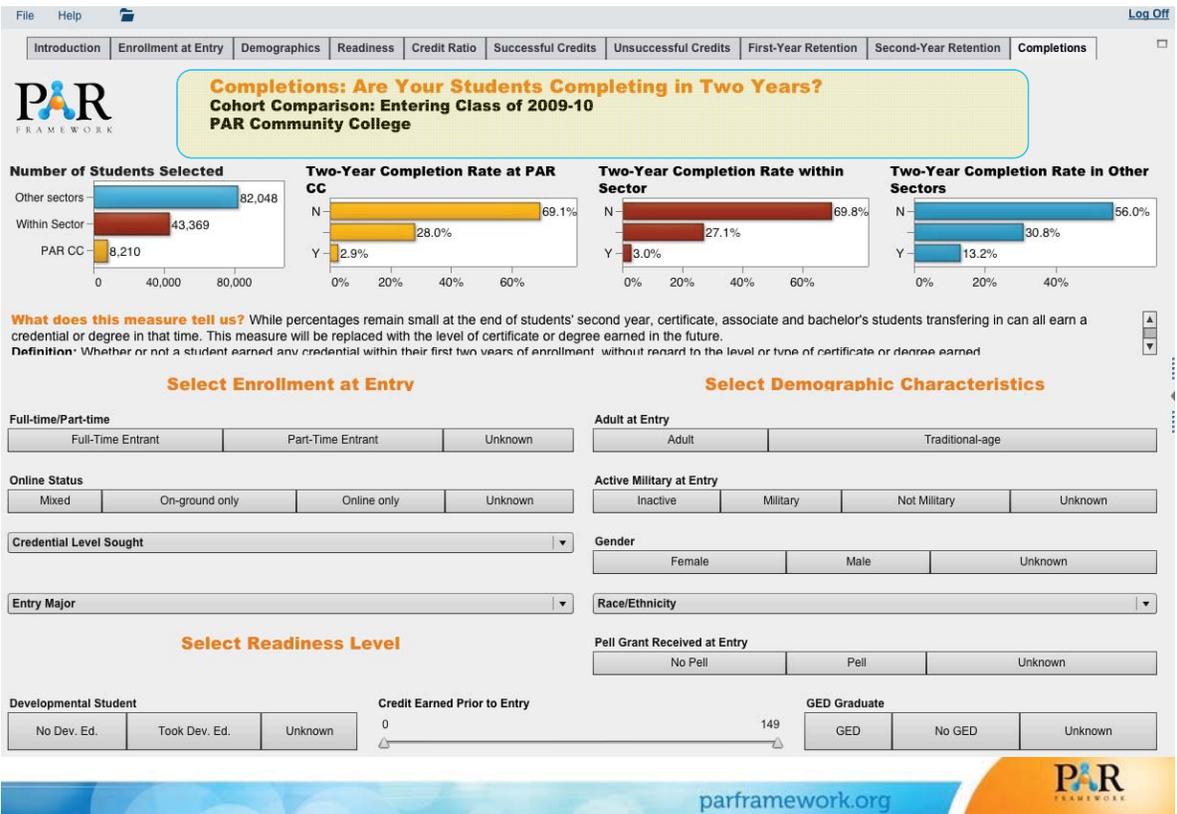
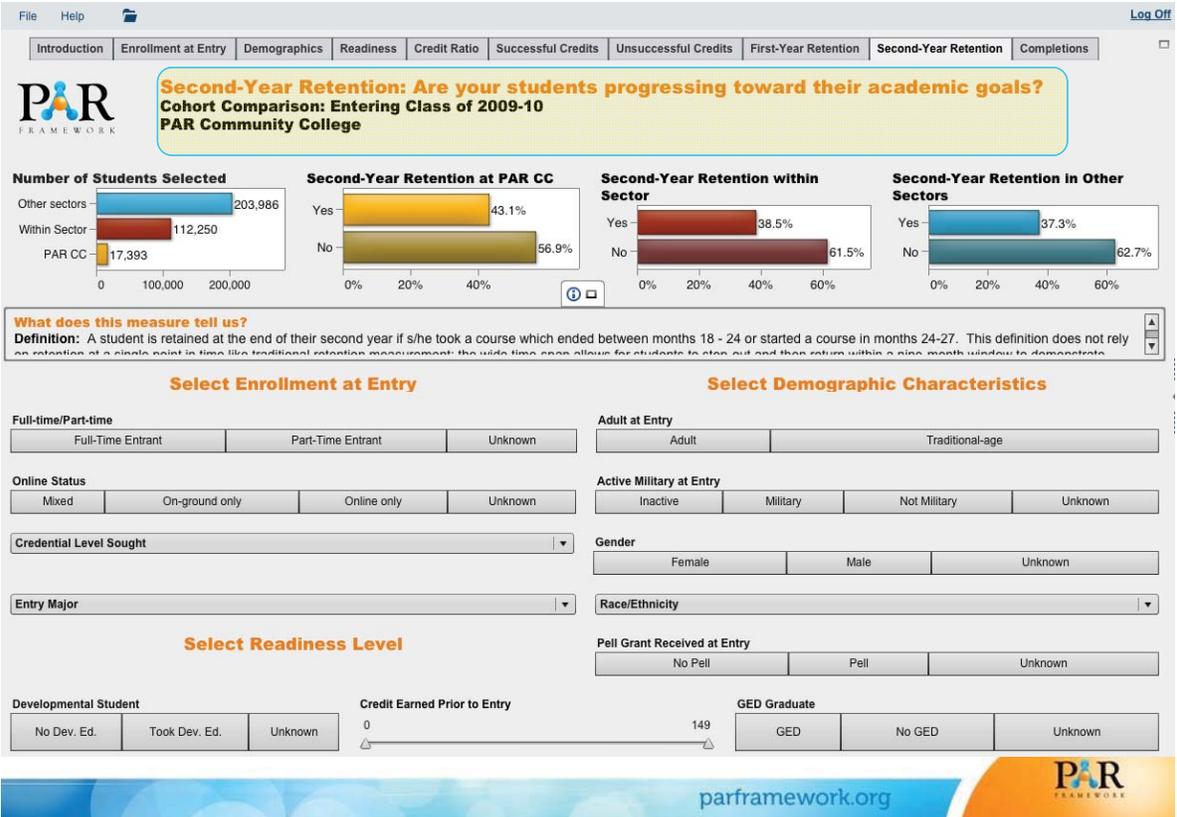
Institutions included by size of 2009-10 entering cohort

Ashford University	University of Maryland University College	Troy University	Secular Community College	Universities of Hawaii
University of Phoenix Online Associate Programs	Lone Star Community College	University of Central Florida	Broward Community College	Hawaii Community Colleges
Colorado Community College System	Rio Salado Community College	American Public University System	Western Governors University	Capella University
				University of Phoenix Physical Campuses
				PAR Community College



Benchmarking in risk factor areas





PAR Student Success Matrix (SSMx)

Literature-based tool for benchmarking student services

PREDICTORS <small>lit/lex + research literature regulor + partner experience bold + PIC findings</small>	CONNECTION <small>application to enrollment (advising to enrollment)</small>	ENTRY <small>completion of gateway courses (beginning of class)</small>	PROGRESS <small>entry into program to 75% of requirements complete (middle of class)</small>	COMPLETION <small>of course of study & credential w/ market value (end of class)</small>
learner characteristics				
learner behaviors				
academic integration				
social/psychological integration				
other learner support				
course/program characteristics				
instructor characteristics/ behaviors				

- 600+ total interventions submitted
- Ability to compare among all 16 PAR institutions
- Basis for institutional intervention field tests
- Publically available, over 1,000 downloads since June 2013

<https://par.datacookbook.com/public/institutions/par>

parframework.org



Student Success Framework

Identified 38 distinct functional categories of interventions

- Mapped >600 interventions to functional categories for easy benchmarking and comparisons

Literature and partner validated predictors reveal 80 risk factors

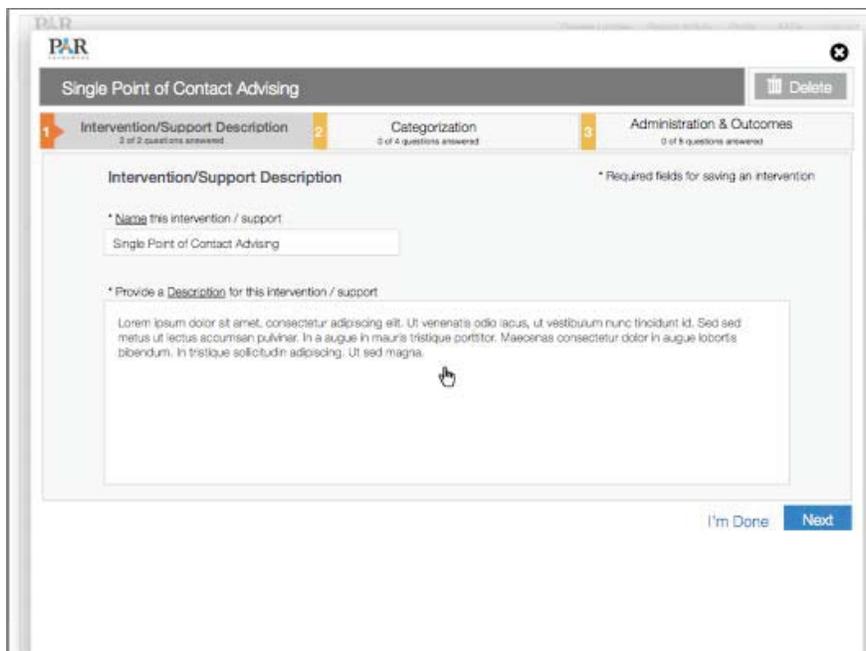
- Tying interventions to the predictive factors enables insight into how to best apply institutional resources

parframework.org



SSM^X ONLINE APPLICATION

- level of intervention (student, course, section, program, institution, . . .)
- focus (audience)
- delivery channels
- impact (# students affected)
- results measurement (outcomes, if available)
- Return on Investment (ROI)



The screenshot displays the PAR Framework online application interface. The main heading is "Single Point of Contact Advising" with a "Delete" button. Below the heading is a progress bar with three steps: 1. Intervention/Support Description (2 of 2 questions answered), 2. Categorization (0 of 4 questions answered), and 3. Administration & Outcomes (0 of 8 questions answered). The current step is "Intervention/Support Description".

Intervention/Support Description * Required fields for saving an intervention

* Name this intervention / support
Single Point of Contact Advising

* Provide a Description for this intervention / support
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut venenatis odio iaculis, ut vestibulum nunc tincidunt id. Sed sed metus ut lectus accumsan pulvinar. In a augue in mauris tristique porttitor. Maeenas consectetur dolor in augue lobortis bibendum. In tristique sollicitudin adipiscing. Ut sed magna.

I'm Done **Next**

PAR
Single Point of Contact Advising

1 Intervention/Support Description 2 of 2 questions answered

2 Categorization 0 of 4 questions answered

3 Administration & Outcomes 0 of 8 questions completed

Categorization

What predictors of success or risk is Single Point of Contact Advising/Holistic Advising aimed at addressing?

Leamer Characteristics

<input type="checkbox"/> Prior Academic Record	<input type="checkbox"/> Age	<input type="checkbox"/> First Time in College
<input type="checkbox"/> Grit/Motivation/Achievement Beliefs	<input type="checkbox"/> Pell Eligible	<input type="checkbox"/> Transfer Students
<input type="checkbox"/> Technical Skills	<input type="checkbox"/> Gender	<input type="checkbox"/> Special SubGroup (ESL, Disabled, etc.)
<input type="checkbox"/> Race	<input type="checkbox"/> Foreign Student	<input type="checkbox"/> Other (Describe)
<input type="checkbox"/> Ethnicity	<input type="checkbox"/> Military Status	<input type="text"/>

Leamer Behaviors

<input type="checkbox"/> Ongoing GPA	<input type="checkbox"/> Online Registration	<input type="checkbox"/> Predictor of risk 1
<input type="checkbox"/> Credit Ratio	<input type="checkbox"/> Course Performance (Attendance/ log ins, assignment completion, engagement time on task, discussion participation, access of materials, in-course assessments)	<input type="checkbox"/> Predictor of risk 2
<input type="checkbox"/> Course Withdrawals	<input type="checkbox"/> DevEd Outcomes	<input type="checkbox"/> Predictor of risk 3
<input type="checkbox"/> Study Environment/Computer Access	<input type="checkbox"/> DevEd Courses Taken	<input type="checkbox"/> Other (Describe)
<input type="checkbox"/> Course Load	<input type="checkbox"/> Major	<input type="text"/>
<input type="checkbox"/> Participation in Orientations, Tutorials, Student success courses	<input type="checkbox"/> Participation in 1st Year experience*	
<input type="checkbox"/> Study Habits		

Academic Integration



PAR
Single Point of Contact Advising

1 Intervention/Support Description 2 of 2 questions answered

2 Categorization 2 of 4 questions answered

3 Administration & Outcomes 0 of 8 questions completed

At what level(s) is Single Point of Contact Advising/Holistic Advising delivered?

Student Level

Section Level

Course Level

Department Level

Program Level

Local Campus/Specific Location Level

Institution-wide Level (Policies)

Institution-wide Level (Initiatives)

Other

During what phases of the Academic Cycle is Single Point of Contact Advising/Holistic Advising delivered?

Connection Application to enrollment advising to enrollment <input checked="" type="checkbox"/>	Entry Completion of gateway courses (beginning of class) <input checked="" type="checkbox"/>	Progress Entry into the program to 75% of classes complete. <input checked="" type="checkbox"/>	Completion Of the course of study & credential with market value <input checked="" type="checkbox"/>
--	---	--	---

Back I'm Done Next



PAR Framework Debbie Langley Profile PAQI Log out

[Tips](#) [Add an intervention](#)

20
Total Interventions

20
Draft Incomplete

0
Completed Not verified

0
Verified by Admin

Predictor Categories Drafts Connection Entry Progress Completion

Learner Characteristics 3 interventions 1 3 2 1 0

Predictor Category Description
Predictors that pertain to student attributes or characteristics that are descriptive of the student, such as first time student, prior GPA, first generation college, socio-economic status, students with disabilities, academic level. These predictors pertain to characteristics that a student enters your institution with that either can't be changed (part of the student's history or More

Common predictors for this category
Prior Academic performance and aptitude/preparation (e.g. HSGPA, Transfer GPA, Similar past GPAs, ACT/SAT scores, content knowledge and skills, Needs DevEd-Performance on Placement Tests)
Grit/Motivation/Achievement Beliefs- Achievement beliefs, self More

Prior Academic Performance

Interventions	Connection	Entry	Progress	Completion
Intervention Name	✓	✓		

Military Status

Interventions	Connection	Entry	Progress	Completion
Intervention Name	✓	✓		



Summary, Conclusions



Thank You



parframework.org

PAR
FRAMEWORK