American Psychological Association Education Learning Conference Learning Analytics

Dr. Linda L. Baer

September 13, 2014

Learning in a Digital World
Washington, DC • September 13-16, 2014

Education Leadership Conference


DATA ARE CHANGING
EVERYTHING

Challenge: How do you find the student at risk?



http://www.youthareawesome.com/wp-content/uploads/2010/10/wheres-waldo1.jpg

Challenge: How do you find the student at risk?



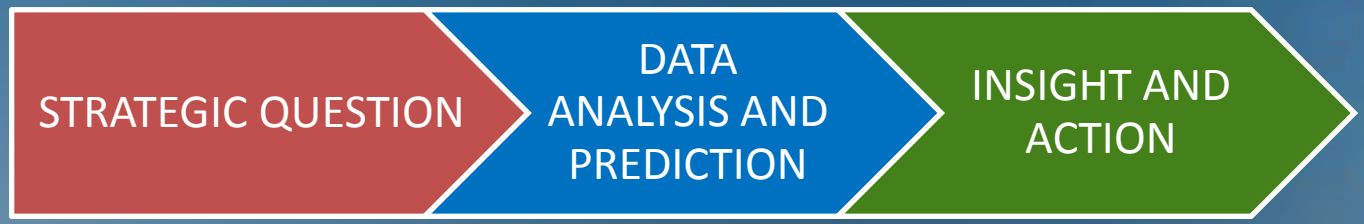
http://www.youthareawesome.com/wp-content/uploads/2010/10/wheres-waldo1.jpg

Where are you?

How do you know if students are learning?

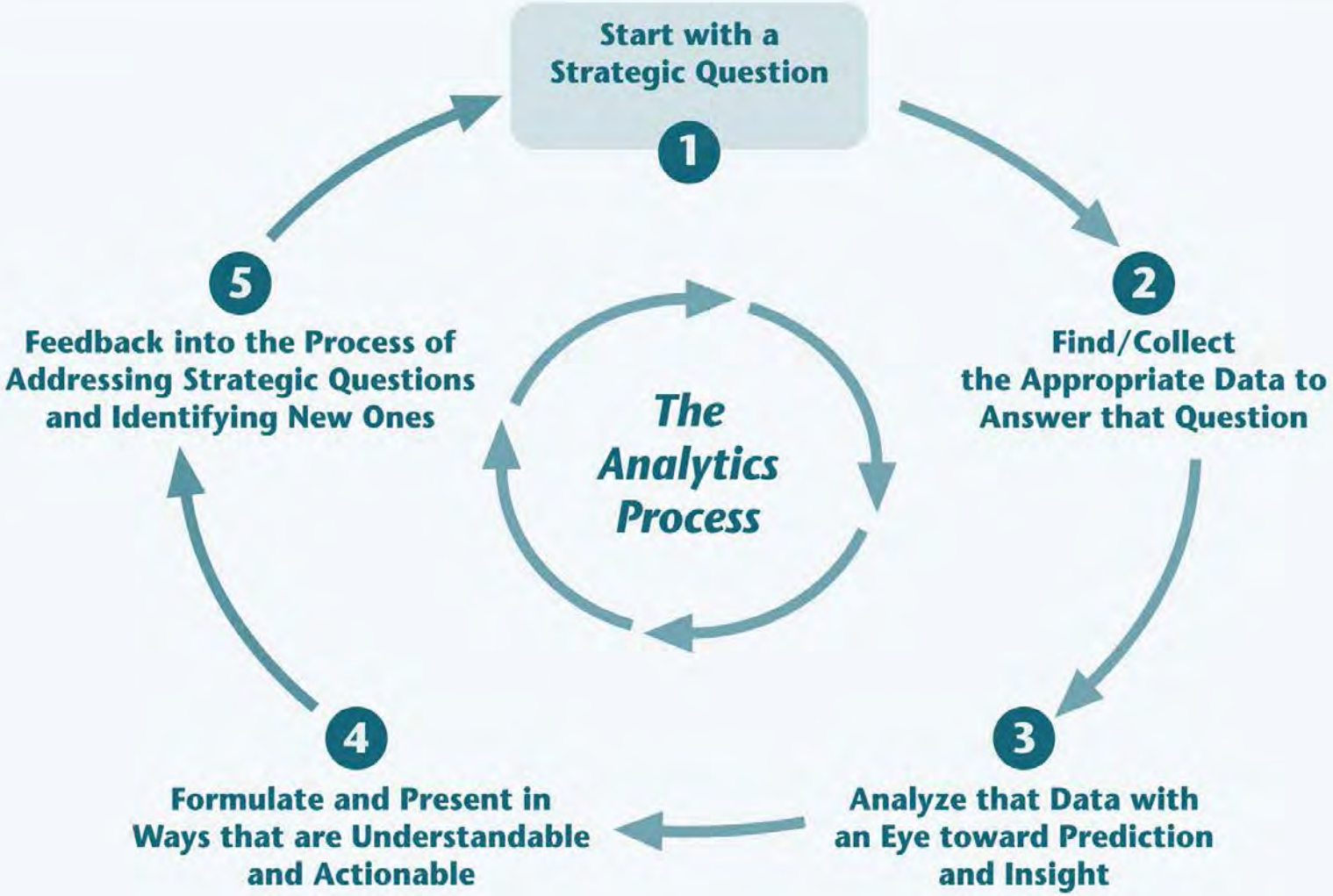
- Measurement and learning outcomes
- Competencies
- Use of tools to track
- Action and interventions
- Ongoing assessment

ANALYTICS



http://www.educause.edu/library/resources/2012-ecar-study-analytics-higher-education

The Analytics Process



ECAR ©2012

Definitions and Terms

- ***Course-level:*** learning trails, social network analysis, discourse analysis
- ***Educational data-mining:*** predictive modeling, clustering, pattern mining
- ***Intelligent curriculum:*** the development of semantically defined curricular resources
- ***Adaptive content:*** adaptive sequence of content based on learner behavior, recommender systems
- ***Adaptive learning:*** the adaptive learning process (social interactions, learning activity, learner support, not only content)

Siemens and Long, Penetrating the Fog, EDUCAUSE review, September 2011

Worksheet 1
Defining Your Current Problem

Briefly explain your current problem:

Give it a code name (just for fun):

What about this problem lends itself to an analytics solution process?

Who would benefit if the problem were solved?

What is your role in the problem/solution?

Who has tried to solve this before? Were they successful? Why or why not?

What resources ($) may be available to you and others?

Linda L. Baer & Donald Norris 2014 Copyright

Worksheet 2
Environmental Scan

Write the *Problem Statement*:

What data do you have?

What data do you need? Gap between what you have and what you need?

Who can get the data?

List criteria for completion/success:

-
-
-
-
-
-
-
-
-

What research, assessment, and analysis will you do?

-
-
-
-
-
-
-
-
-

What campus team will need to be involved?

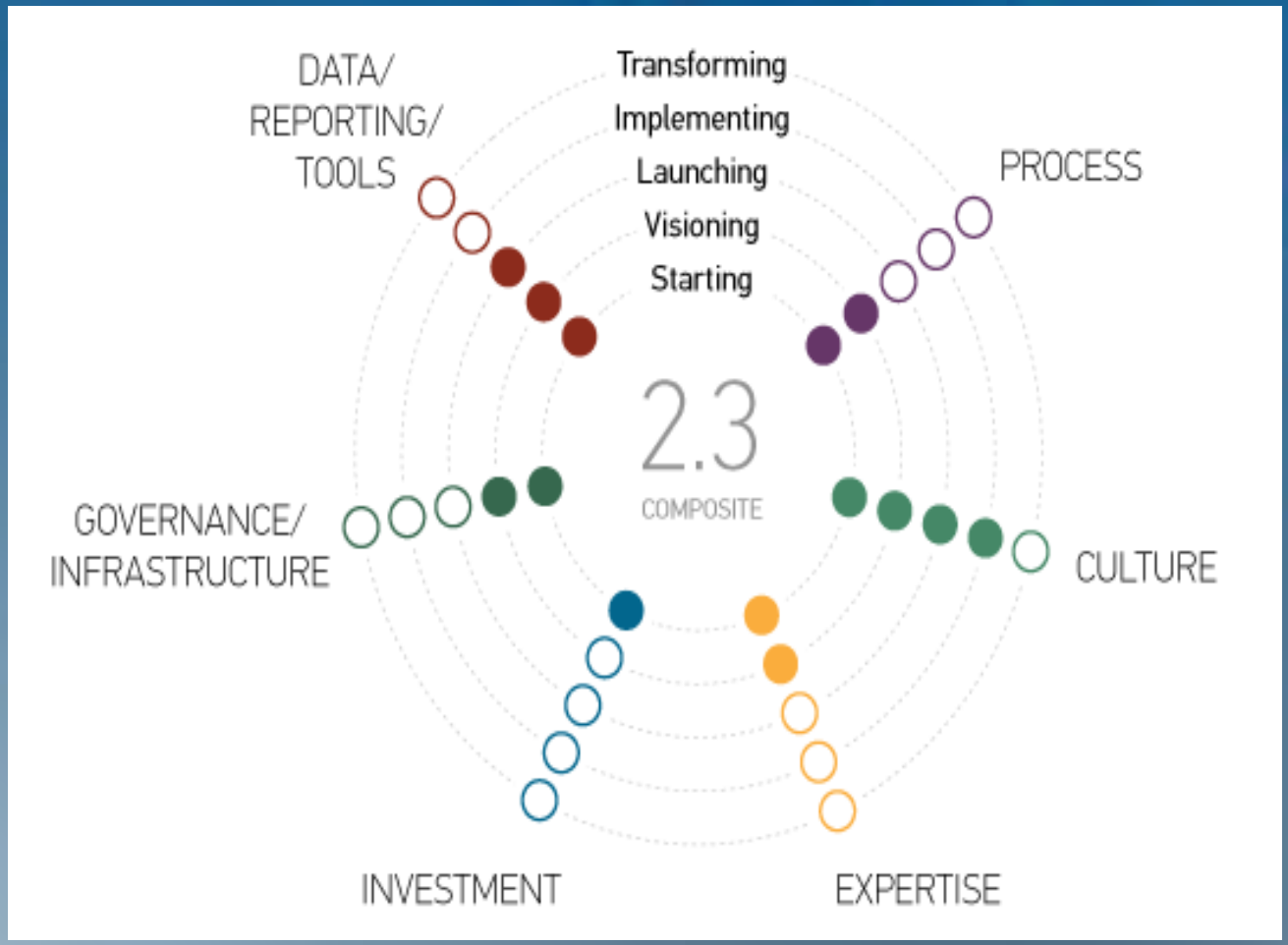
-
-
-
-
-
-
-
-
-

Linda L. Baer & Donald Norris 2014 Copyright

Understanding Your Institution's Analytics Maturity Index

- What is your analytics maturity index?
  - Leadership
  - Technology and Infrastructure
  - Policies, Processes and Practices
  - People. Skills, and Values
  - **Culture and Behavior**
  - Investment

Analytics Maturity Index



http://www.educause.edu/ecar/research-publications/ecar-analytics-maturity-index-higher-education

STUDENT SOLUTION TOOLS

- Emerging now are a set of rapidly developing technology tools to support students as they progress through a course and program.
- Depending on the individual student's understanding of specific ideas, concepts, and operations, these tools have the capacity to
  - Personalize the learning experience for every student
  - Chart individual pathways through course materials
  - Enable interventions from faculty, advisors and mentors
  - Improve student progress and success

The market is immature, but multiple solutions are emerging in each application category

	Education Planning	Counseling and coaching	Risk Targeting and Intervention	Transfer and Articulation
Legacy ERP/SIS/LMS	ellucian, ORACLE PeopleSoft, JENZABAR, Blackboard, Desire2Learn Innovative Learning Technology, Moodle			
Vendor point solutions	connectedu EDUCATION & CAREER MANAGEMENT, campuscruiser, campuslabs Data Driven Innovation	Microsoft Dynamics CRM	Starfish retention solutions, INTEGRAL, hobsons, CIVITAS LEARNING	parchment credentials unleashed, NUVENTIVE
Homegrown point solutions	eAdvisor; *Sinclair's MAP*; *Valencia's LifeMap*; *Austin Peay's Degree Compass*	STUDENT SUCCESS PLAN; *Central Piedmont's Online Student Profile*	course Signals; *WICHE's Predictive Analytics Reporting*	
Direct-to-student	connectedu EDUCATION & CAREER MANAGEMENT, myEdu		PERSISTENCE +PLUS	CollegeTransfer.Net

Higher Education Analytics Landscape

Institutional Analytics (HR, Finance, Enrollment)
(Blackboard, COGNOS)

Student Success Analytics

"Retention CRM" Analytics

(Starfish EARLY ALERT and Starfish CONNECT, Hobsons)

At-Risk Student Predictive Analytics

(Noel-Levitz, Mapworks, EAB, J. Gardner, Campus Labs, PAR, CIVITAS Learning)

Instructional Analytics

(Knewton, MyLabs, ALEKS)

Program Effectiveness Analytics

(Starfish INSIGHT v.1)

Starfish INSIGHT v.2-v.3

Adapted from Presentation by David Yaskin, President Starfish at IPAS Conference 2014

CIVITAS LEARNING

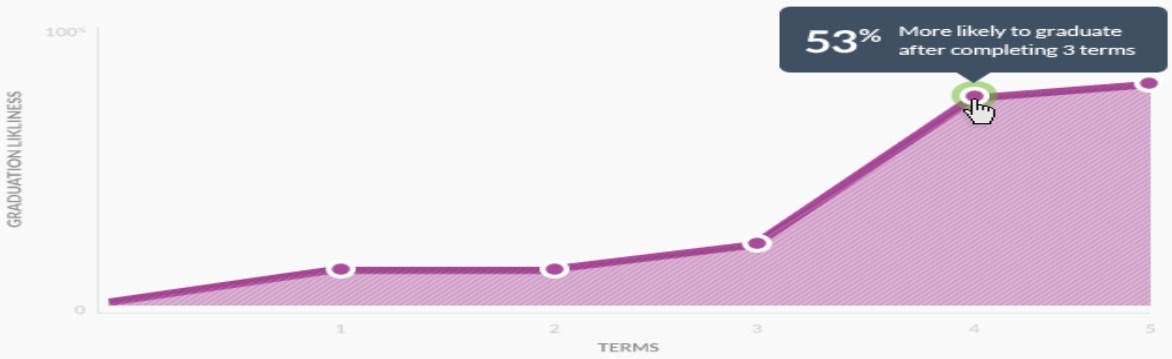
Graduation

Dashboard | Cluster | Segment

Fall 2012 Cohort

Term Completion | Credits Earned | Consecutive Terms | Credit Hours Per Term >

Momentum Points



Key Student Clusters

Successful Clusters	Graduation Probability
Slow and Steady	91%
1st Time 1st Term	48%
Treading Water	19%

2014 Graduation Forecast

ON TIME GRADUATION ▲ 2.0%

150% GRADUATION ▲ 1.2%

2012	2013	2014
4,949 GRADUATES	5,210 GRADUATES	5,529 GRADUATES

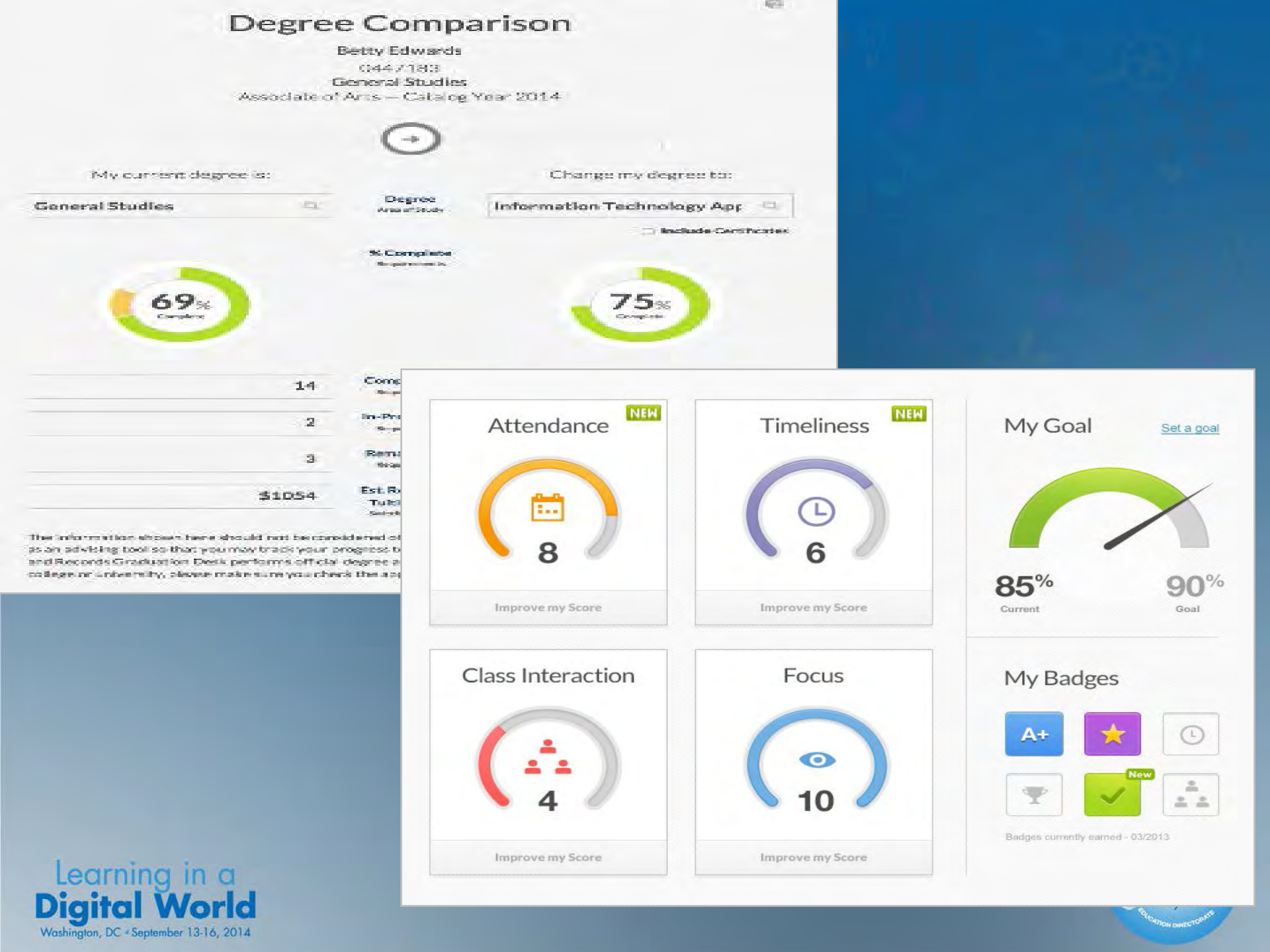
Insights

53% **More likely to graduate:** Full-time students that do not work during the term

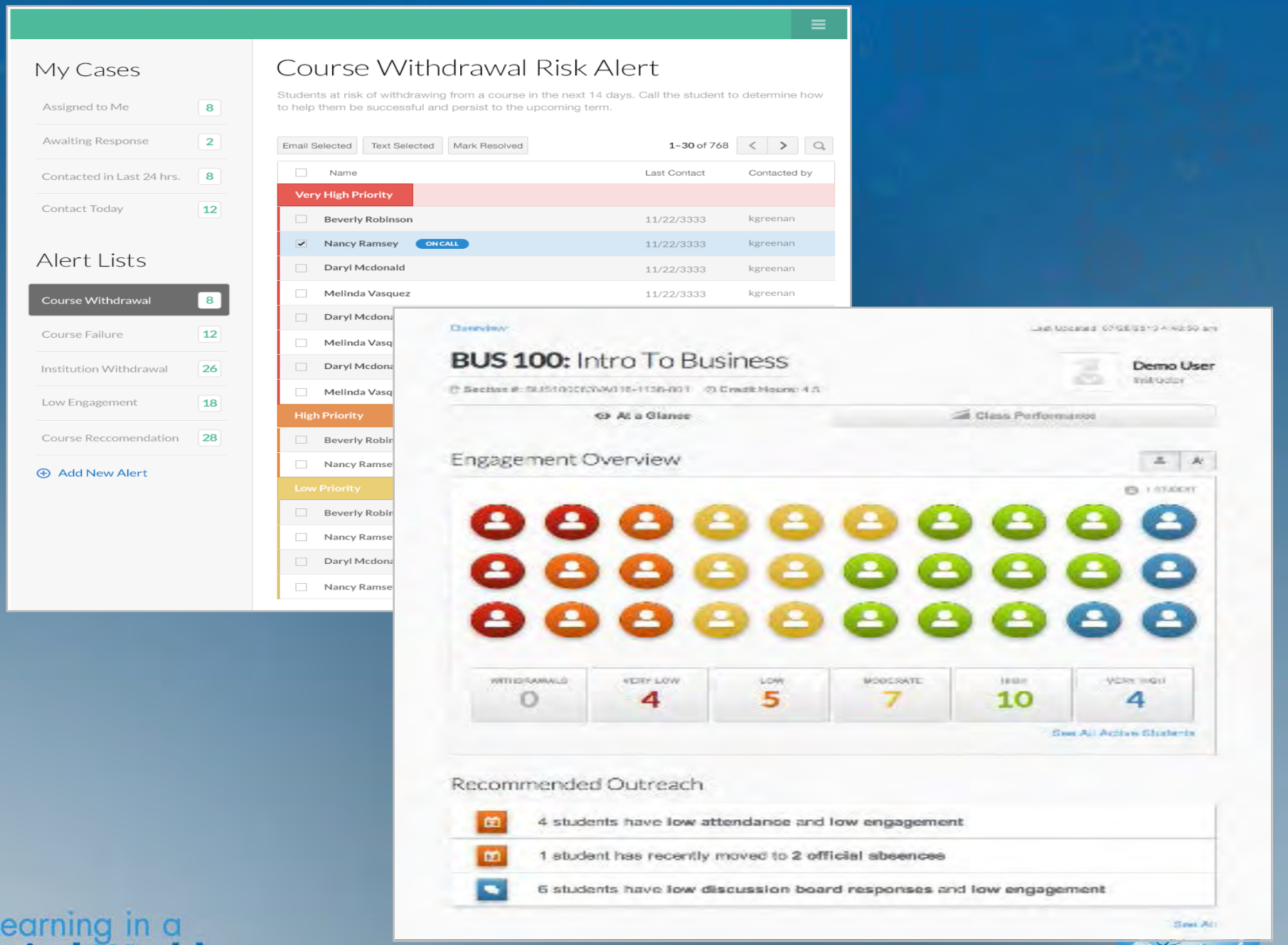
24% **More likely to graduate:** Overall GPA is greater than 2.5 and term enrollment credits average more than 6

12% **More likely to graduate:** Students who are enrolled in at least one online class during the summer term

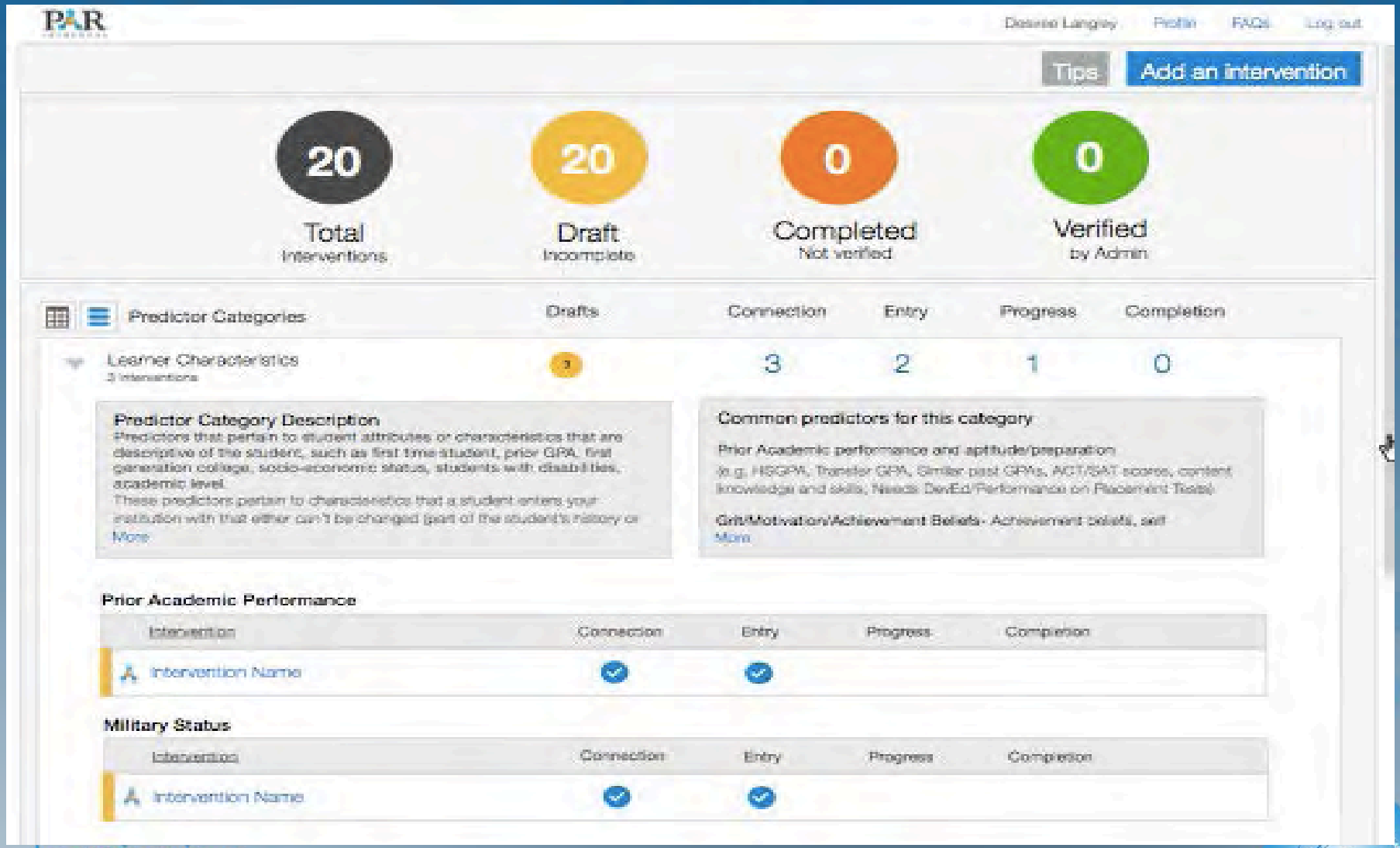
45% **Less likely to graduate:** Students who are required to take both developmental English and math



Learning in a
Digital World
Washington, DC • September 13-16, 2014


My Cases
Assigned to Me 8
Awaiting Response 2
Contacted in Last 24 hrs. 8
Contact Today 12
Alert Lists
Course Withdrawal 8
Course Failure 12
Institution Withdrawal 26
Low Engagement 18
Course Reccomendation 28
Add New Alert
Course Withdrawal Risk Alert
Students at risk of withdrawing from a course in the next 14 days. Call the student to determine how to help them be successful and persist to the upcoming term.
Email Selected
Text Selected
Mark Resolved
1–30 of 768
Name
Last Contact
Contacted by
Very High Priority
Beverly Robinson 11/22/3333 kgreenan
Nancy Ramsey ON CALL 11/22/3333 kgreenan
Daryl Mcdonald 11/22/3333 kgreenan
Melinda Vasquez 11/22/3333 kgreenan
High Priority
Low Priority
BUS 100: Intro To Business
Demo User
At a Glance
Class Performance
Engagement Overview
0
4
5
7
10
4
Recommended Outreach
4 students have low attendance and low engagement
1 student has recently moved to 2 official absences
6 students have low discussion board responses and low engagement

Dashboards


PAR
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
2
1
0
Predictor Category Description
Common predictors for this category
Prior Academic Performance
Intervention
Connection
Entry
Progress
Completion
Intervention Name
Military Status
Intervention
Connection
Entry
Progress
Completion
Intervention Name

Numbers Are Not Enough

- Use of LMS on campus by faculty and students
  - 60% institutional use of LMS;
  - 21% course sections;
  - 70% of faculty not using LMS 2009-2010
- Access and ease of use
- Integration of data
- Training and use of data
- Sense making and use of data
- Social and Culture Change

Macfadyen, L. P., & Dawson, S. (2012). Numbers Are Not Enough. Why e-Learning Analytics Failed to Inform an Institutional Strategic Plan. Educational Technology & Society, 15 (3), 149–163. http://www.ifets.info/journals/15_3/11.pdf

Worksheet 3
Inventory of Your Student Solution Tool Sets

	Educational Planning	Counseling and Coaching	At Risk and Early Alert	Transfer and Articulation	Predictive Analytics	Learning Analytics
Legacy ERP/LMS						
Vendor Point Solutions						
Home Grown Solutions						
Direct to Students						

Linda L. Baer & Donald Norris 2014 Copyright

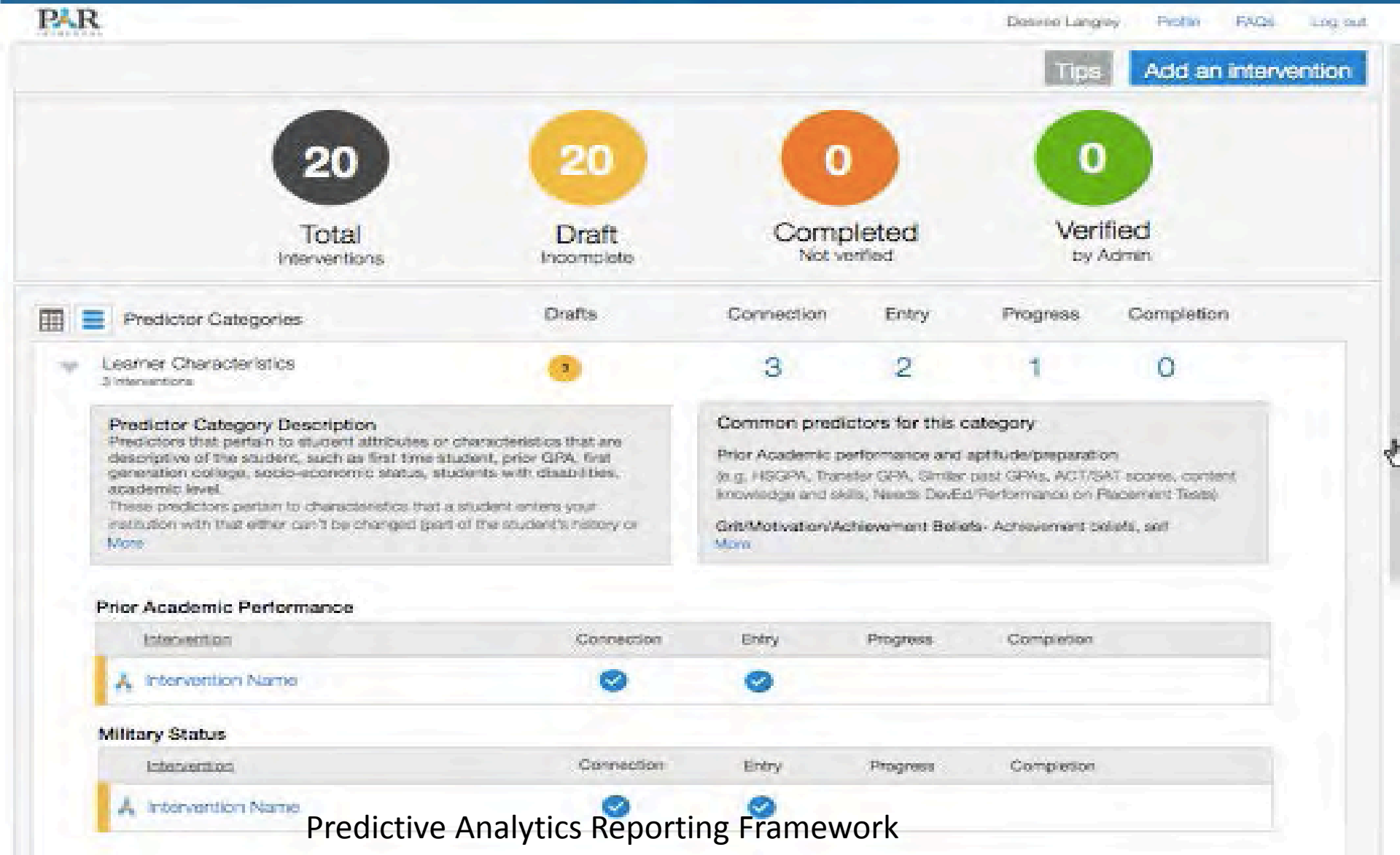
PAR
FRAMEWORK

Predictive Analytics Reporting (PAR) Framework: Overview, Applications, Results

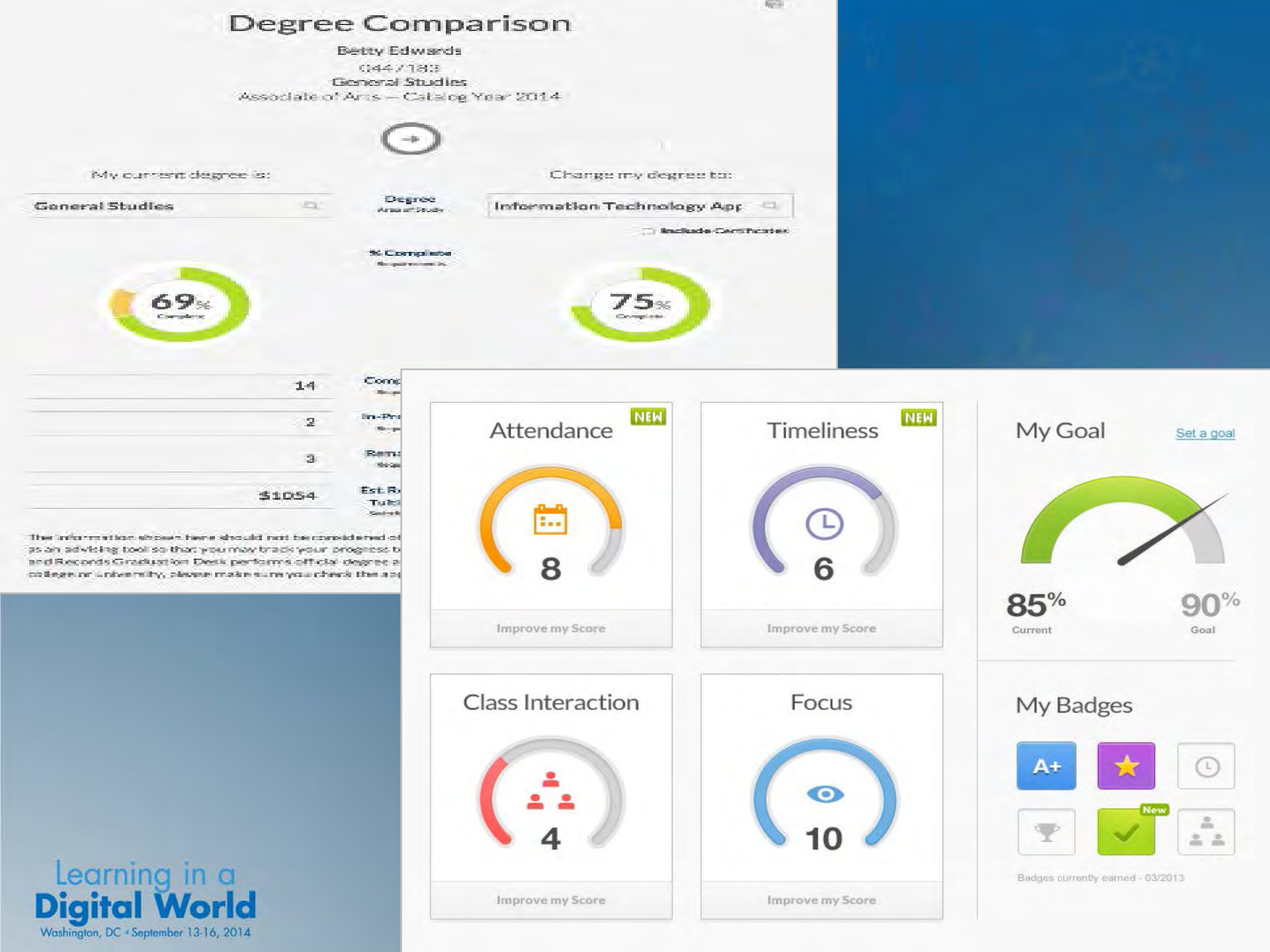
PAR Student Success Matrix

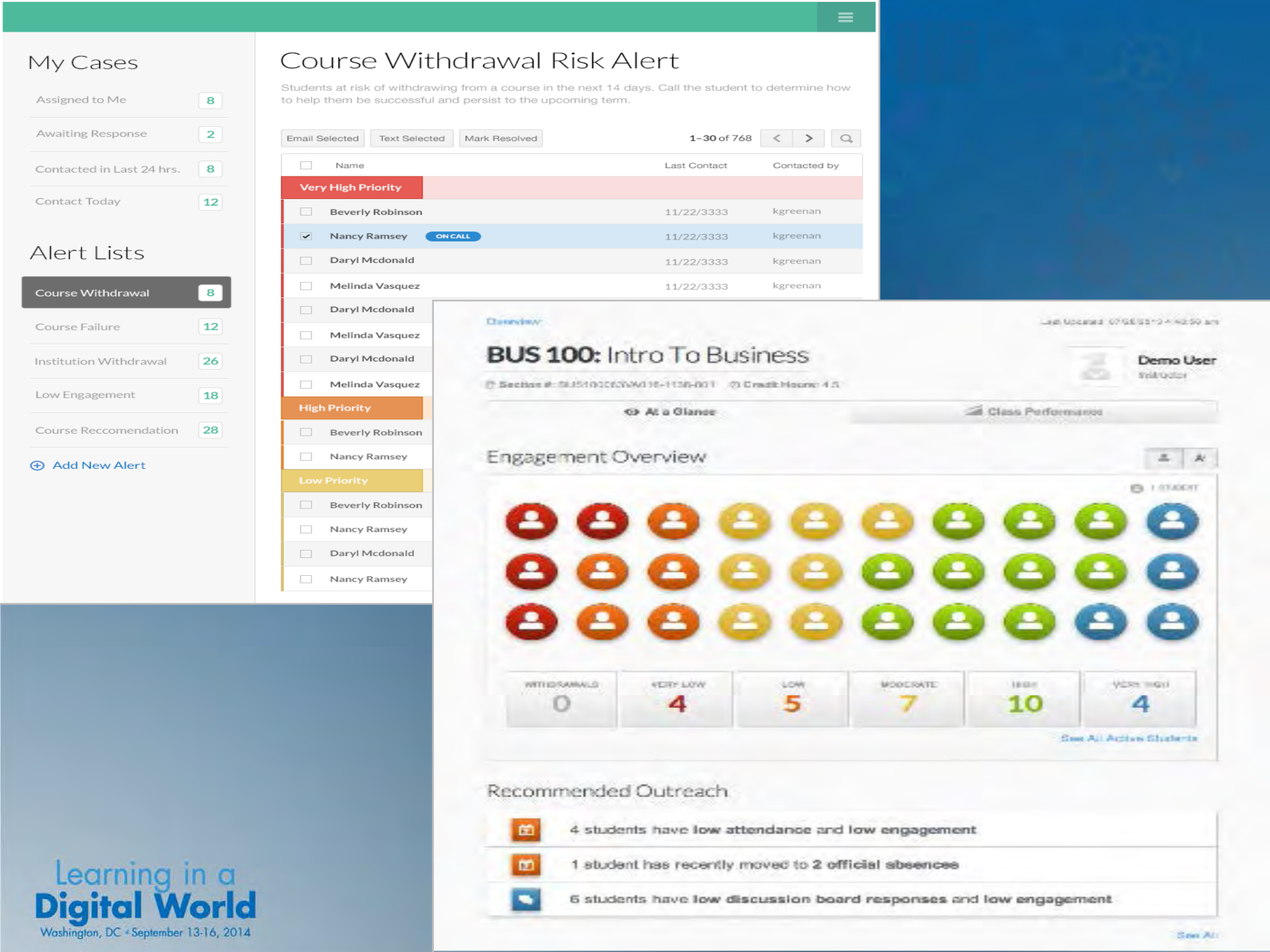
PREDICTORS	CONNECTION	ENTRY	PROGRESS	COMPLETION
learner characteristics				
learner behaviors				
academic integration				
social/psychological integration				
other learner support				
course/program characteristics				
instructor characteristics/ behaviors				

PAR Dashboard



Predictive Analytics Reporting Framework


Degree Comparison
Betty Edwards
044 / 183
General Studies
Associate of Arts — Catalog Year 2014
My current degree is:
General Studies
Degree
Change my degree to:
Information Technology Appr
Include Certificates
% Complete
69%
75%
14
2
3
$1054
Attendance
NEW
8
Improve my Score
Timeliness
NEW
6
Improve my Score
My Goal
Set a goal
85%
Current
90%
Goal
Class Interaction
4
Improve my Score
Focus
10
Improve my Score
My Badges
New
Badges currently earned - 03/2013
Learning in a
Digital World
Washington, DC • September 13-16, 2014



Learning in a Digital World
Washington, DC • September 13-16, 2014

Competency-based Education

- Focuses on the demonstration of articulated skills, knowledge and abilities
- Defines learning but makes time flexible
- Is not based on credit hours or seat time (though may “translate” to credit hours for administrative convenience or necessity)



College for America. Southern New Hampshire University Cathrael Kazin.

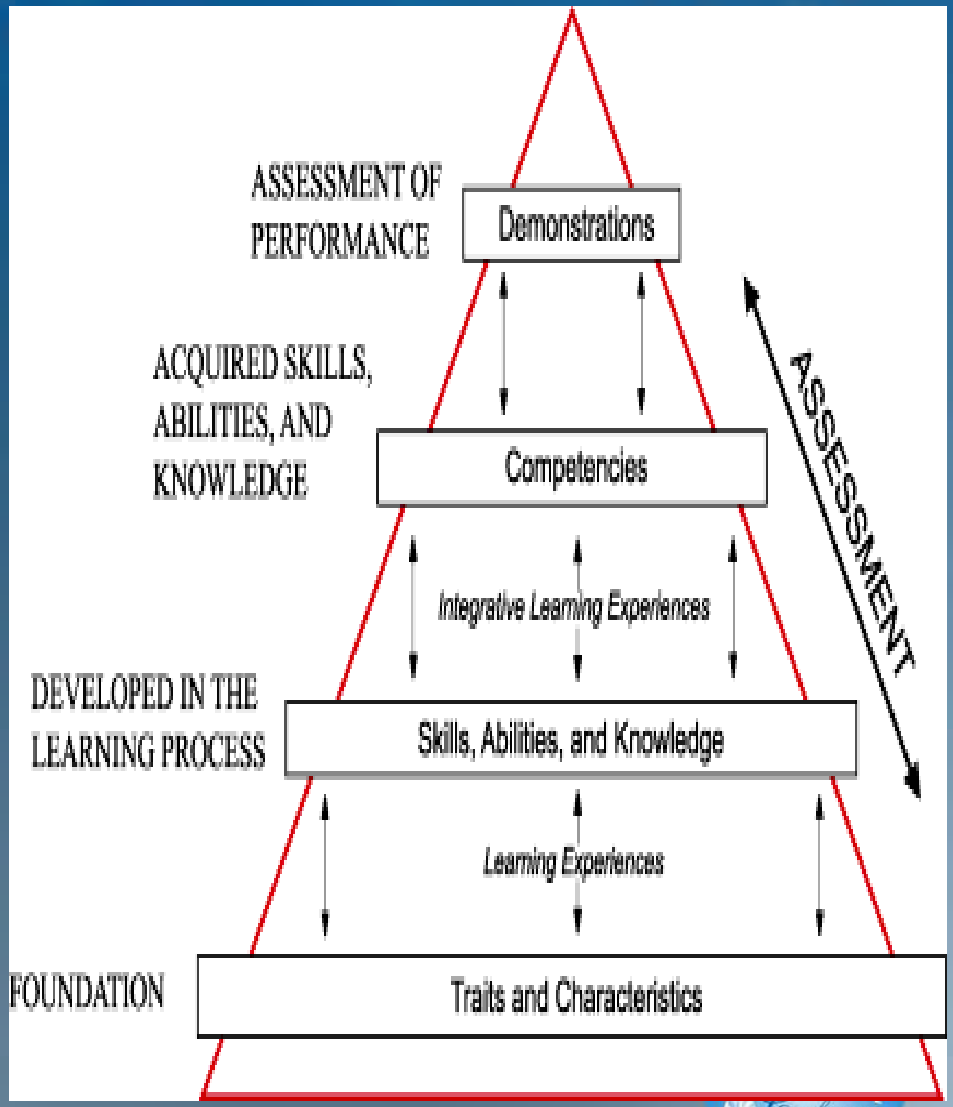
Shifts in Public Policy

- US Department of Education approves certain programs not offered in credit or clock hours 3-13
- College for America S. New Hampshire University approved by DOE 4-13
  - Project-based competencies
  - Partners with employers
  - $2500/year
- Capella University FlexPath competency-based bachelor's and Master's degree approved using direct assessment learning model 8-13
- N. Arizona University's Personalized Learning program receives HLC approval for three competency-based programs
  - 120 competencies
  - Pay flat rate of $2500 per six month period vs. $8,000 per semester
- U of Wisconsin's UW Flex
  - Collaboration between UW System and the UW Extension 13 2-year colleges
  - Flexible routes to degrees
  - Working adults with families

Weise and Christensen. Hire Education. Clayton Christensen Institute. 2014

Competency Defined

- *A competency* is "a combination of skills, abilities, and knowledge needed to perform a specific task"



National Postsecondary Education Cooperative (NPEC) (2001)

Why Competency-based?

- Need better evidence of what students know and can do
  - Seat-time and credit hours not good proxies for knowledge and skills
- Working adults come to higher education with experience and skills
  - Students learn at different rates
- Need better alignment with workplace expectations
  - Employers "speak competency"
- Efficiency and productivity
  - CBE increases efficiency of higher education
  - CBE can lower costs

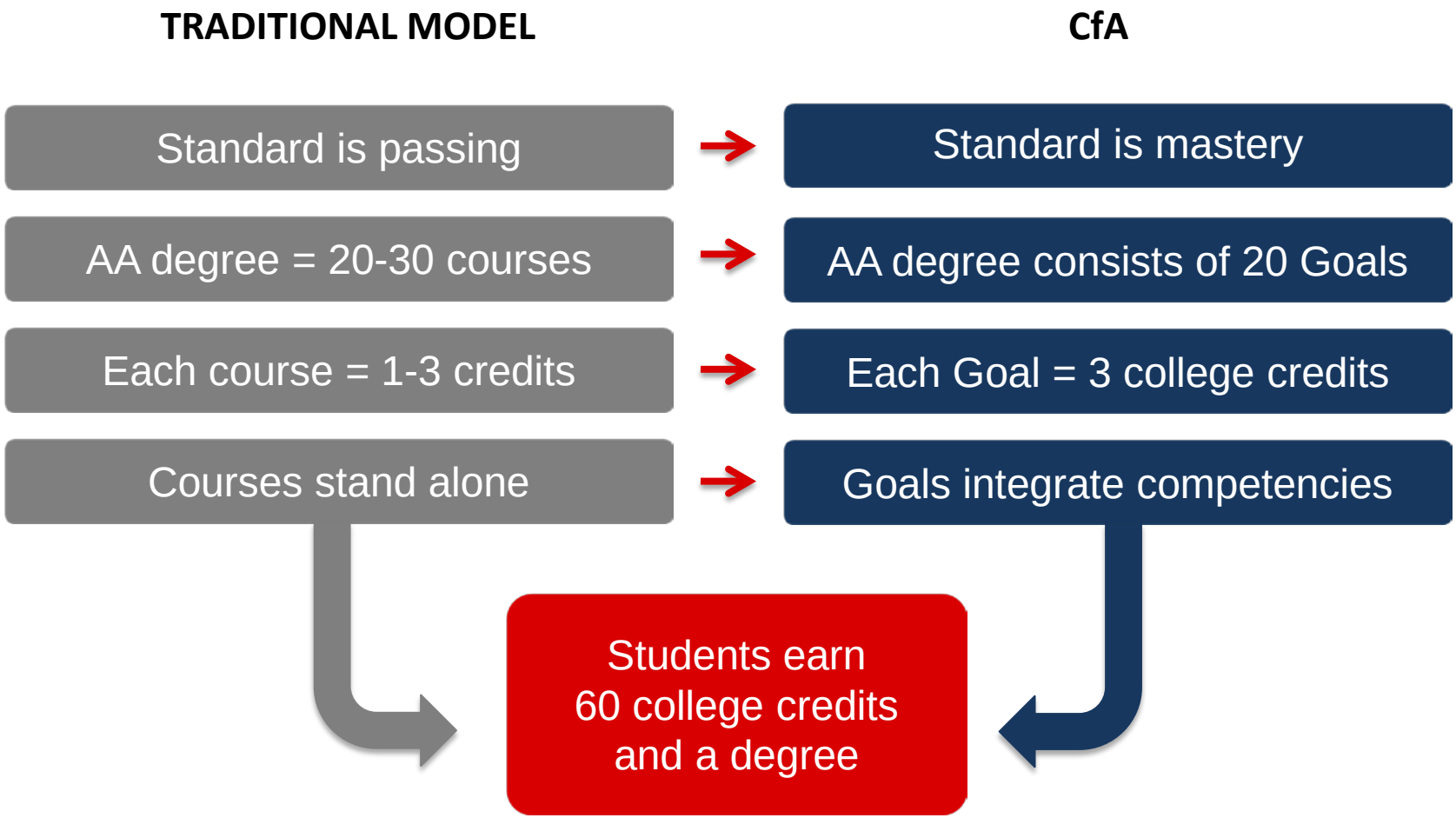
High Quality Competency-Based Education

- Students advance upon demonstrated mastery
- Competencies include explicit, measurable, transferable learning objectives that empower students
- Assessment is meaningful and a positive learning experience for students
- Students receive rapid, differentiated support based on their individual learning needs
- Learning outcomes emphasize competencies that include application and creation of knowledge along with the development of important skills and dispositions

Who is Competency-Based Education?

Institution	CBE Program	Funding	Degrees
Western Governors University	N/A	Private, NFP	Bachelor's, Master's
Southern New Hampshire University	College for America	Private, NFP	Associate's, Bachelor's in process
Capella	FlexPath	Private, FP	Bachelor's, Master's
University of Northern Arizona	Personalized Learning	Public	Bachelor's
University of Wisconsin	Flexible Option	Public	Bachelor's

Traditional AA Compared with CfA Model



CfA Unbundles the Traditional Faculty Role

TRADITIONAL MODEL

Single faculty member

- Advises students
- Provides subject matter expertise
- Designs curriculum
- Instructs students
- Develops assessments
- Evaluates student work

College for America

Dedicated experts

- Coach students
- Provide subject matter expertis
- Design curriculum
- Curate instructional resources
- Develop assessments
- Evaluate student work

Competency-based Education (CBE)

Advantages

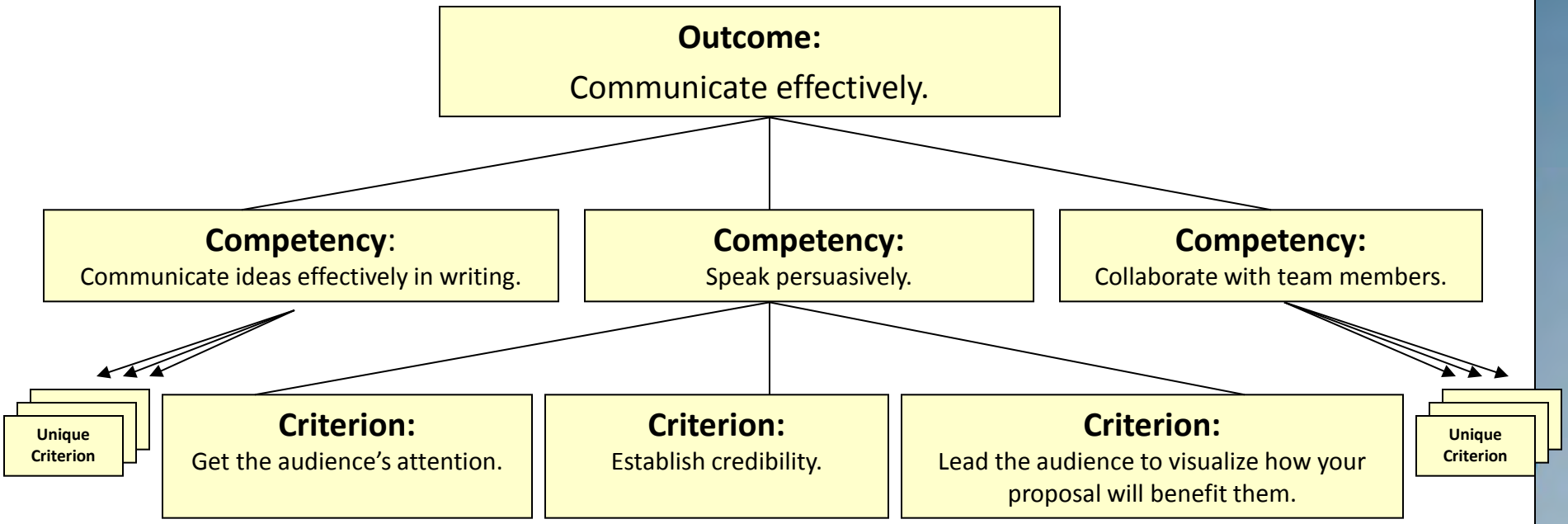
- Time is removed as a barrier – students can progress at their own speed
- Requires clear articulation of what students should know and be able to do
- Provides evidence of student achievement and proficiency
- Makes it easy to track how students are progressing
- Offers potential cost savings and greater efficiency
- Uses language that employers understand

Challenges

- Requires clear articulation of what students should know and can do
- May be perceived as undermining faculty autonomy
- May be perceived as devaluing “intangibles” of college experience

Capella University
Outcomes, Competencies, and Criteria

- **Outcomes** are the expected results that Capella has for its learners — what a learner should know, be able to do, and understand at the end of a course or program.
- **Competencies** are bundles of skills needed to demonstrate the outcomes.
- **Criteria** are measurable descriptions of learner performance against competencies.



Introducing FlexPath



Slides provided by Capella University

Why a new delivery model?

Improved Alignment	• Societal needs • Emerging workforce demand
Lowered Costs	• Students • Institutions
Improved Degree Completion	• Self paced • Flexible engagement
Agnostic About Learning Source	• Open Source, MOOC, ect. • Workplace

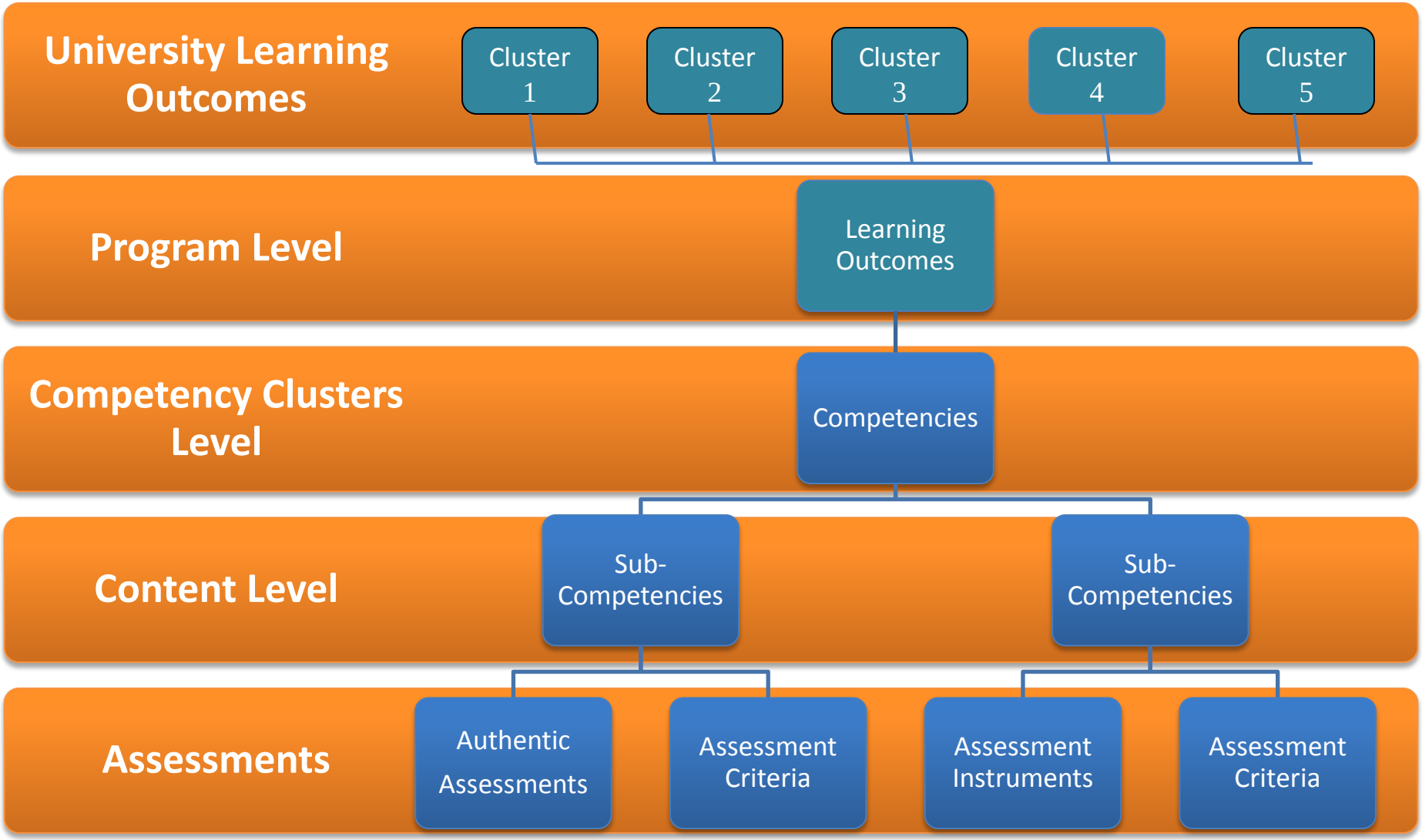
Components of Direct Assessment



Curriculum	Assessments	Faculty Role
•Competency Framework •Connection to external standards (employers) •Curricular mapping •Self paced learning •Agnostic as to learning source (open source)	•Tightly linked to competencies •Embedded assessment •Shared assessment rubrics •Various models include authentic, objective and traditional “classroom”	•Deeply engaged in creation of competency framework, curricular mapping & aligned assessments •May be disaggregated in delivery model •New “teaching” methods

Slides provided by Capella University

FlexPath Curricular Structure



Slides provided by Capella University

Program Health & Program Maps
Competency Map
Tools & Resources
Additional Details

Questions or Concerns?

If you have questions or concerns, contact your instructor to discuss your status or get help via Tools and Resources.

Tools and Resources

Competency Map

Education begins with knowing yourself—and deciding to move forward. Use your competency map to help plan your studies, anticipate challenges, and celebrate successes. Leverage insights to better discuss your personal and professional goals with instructors, academic advisors, and career counselors.

Competency Map Tutorial



Review the tutorial for an overview of the competency map.

VIEW THE TUTORIAL >>

Select Term: Spring 2013 Select Course: BUS3020 REFRESH

PRINT

BUS3020:

Fundamentals of E-Business - Spring 2013
Instructor: John Smith

Status for Jill Olson

YOU HAVE COMPLETED
22
CRITERIA, *towards*
40
TOTAL CRITERIA



YOU HAVE COMPLETED
5
ASSIGNMENTS, *out of*
10
TOTAL ASSIGNMENTS



YOU HAVE **6** COMPETENCIES in this course

NON-PERFORMANCE BASIC PROFICIENT DISTINGUISHED



COMPETENCY – 1
Examine the basic business models for e-business. MORE >>
BASIC



COMPETENCY – 2
Relate the importance of e-business infrastructure to the economic impact of a business. MORE >>
BASIC



COMPETENCY – 3
Examine the relationship of basic e-business strategies to business success. MORE >>
PROFICIENT



COMPETENCY – 4
Apply effective e-business planning and implementation. MORE >>
DISTINGUISHED



COMPETENCY – 5
Develop a technology and management e-business plan. MORE >>
DISTINGUISHED



COMPETENCY – 6
Evaluate the management implications of e-business. MORE >>
NON-PERFORMANCE

For this course, there are some criteria that are not aligned to competencies.



Tools & Resources

This will link to a static page that lists existing Capella resources and tools that support Learner success (i.e. Writing Center, Academic Resources, Success Factors, etc).

Learn More

Learner Support Structure

- While this is self-paced / self-directed, learners are not on their own!
- Capella will provide:

1 FlexPath Coach

- 1:1 coach to learners
- Focus on learner progress and holding them accountable
- Moving from a reactive customer-service focus (transactional) to a proactive coaching relationship
- Close relationship with faculty and tutors

2 FlexPath Tutor

- Content experts
- Assigned to each course
  - Using Capella alumni and learners to fill these roles
- Proactive/visible resource within the courseroom and iGuide
- Close relationship with coaches and faculty

3 FlexPath Faculty

- Focus on assessment and evaluation
- Emphasis on substantive feedback to learners
- Schedule that allows for 24 - 48 hour turnaround on assessments
- Less *direct* interaction with learners
- Close relationship with coaches and tutors

Slides provided by Capella University

Leveraging Analytics to Optimize Student Success

"Leading-edge institutions are deploying a range of analytics activities to optimize student success. The most aggressive institutions have made this a major institutional strategy/initiative."

Donald Norris and Linda Baer

A new marketplace is emerging for sophisticated student success solutions. The market is immature but new solutions are emerging in each application category.

The Bill & Melinda Gates Foundation

QUESTIONS & COMMENTS

LINDALBAER0508@GMAIL.COM