

# Analytics and Gateway Courses:

## Understanding and Overcoming Roadblocks to College Completion

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# Session Overview



- The problem
- Gateway course data – What we have learned
  - Foundations of Excellence<sup>®</sup> institutions
  - Building and Scaling Analytic Capacity institutions
- Actions to improve institutional performance in gateway courses
- Learner analytics overview
- Summary & conclusions
- Questions & discussion

# Gateway “Killer” Courses



- Courses with high rates of unsuccessful outcomes (DFWI rates)
  - Courses with DFWI rates of 30% or higher
  - These courses “kill” a student’s GPA, motivation, academic progress, etc.
  - Serve as “gatekeeper” to further study and degree completion



What is your institution’s definition?

# Why Addressing Gateway Course Performance Matters

It's about . . .

- Teaching
- Learning
- Student Support
- Student Performance
  - Cliff Adelman's *Inside the Toolbox* and *Toolbox Revisited*

# Why Addressing Gateway Course Performance Matters

It's also about . . .

- Institutional Performance
  - Performance-Based Funding
- National Well Being
  - The Completion Agenda



Why else does it matter to you?

# Foundations of Excellence<sup>®</sup> (FoE) Institutions

**Focus:** The institution

**Unit of Analysis:** The entire first year

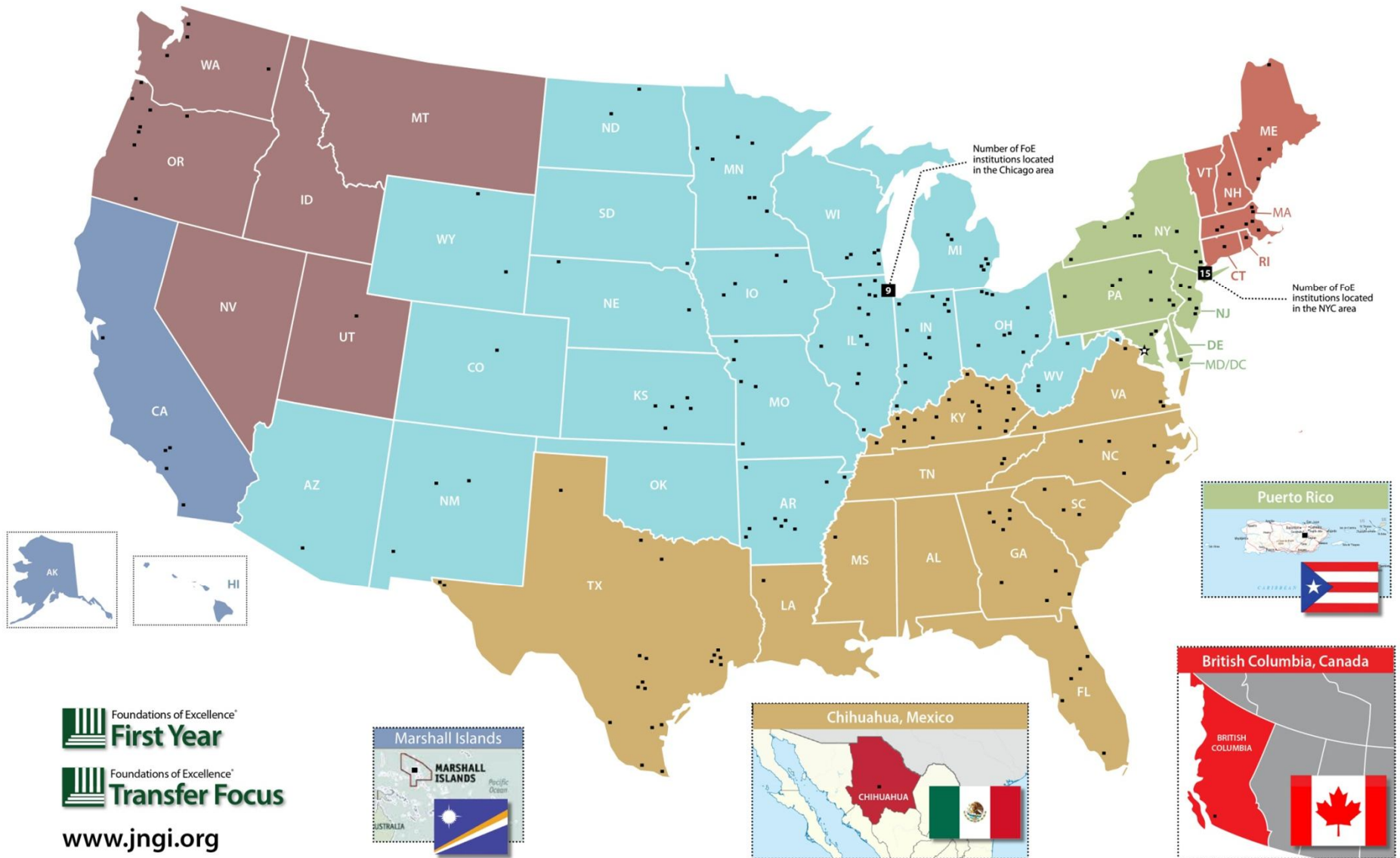
**Method:** Nine Dimensions

**Application:** Of data to action

**Results:** Retention and revenue gains (IPEDS data)



# Foundations of Excellence<sup>®</sup> Institutions



# High Enrollment Courses and DFWI Rates

- FoE institutions identified
  - the 5 courses with the highest enrollment of new students
  - the number of new students enrolled in those courses &
  - the number new students who receive a D, F, W, or I
- Rate calculated from these numbers



# Average DFWI Rates for Five Highest Enrollment First-Year

Two-Year institutions			
Academic Year	Institutions	Number of Courses	DFWI Average Rate
2004-2005	10	50	36%
2005-2006	13	65	36%
2006-2007	13	65	38%
2007-2008	10	50	35%
2008-2009	7	35	33%
2009-2010	19	91	38%
2010-2011	15	74	31%
<b>Overall</b>	<b>87</b>	<b>430</b>	<b>37%</b>
Four-Year institutions			
Academic Year	Institutions	Number of Courses	DFWI Average Rate
2004-2005	20	100	25%
2005-2006	18	90	25%
2006-2007	10	50	28%
2007-2008	17	85	22%
2008-2009	9	45	31%
2009-2010	11	55	21%
2010-2011	6	30	23%
<b>overall</b>	<b>91</b>	<b>455</b>	<b>25%</b>

# High Enrollment Courses by DFWI Rates for 2-Year Institutions

Field	Number of Courses	DFWI Rate
Math – developmental	71	46
Math – college level	12	42
English – developmental	25	41
History	12	39
Sociology	14	37
Computer	26	35
PE / Health	3	35
English – college level	82	35
Political Science	7	32
Psychology	46	32
Biology	8	31
FYS/ Success	21	29
Speech	19	25

# High Enrollment Courses by DFWI Rates for 4-Year Institutions

Field	Number of Courses	DFWI Rate
<b>Economics</b>	<b>4</b>	<b>46</b>
<b>Accounting/Finance</b>	<b>3</b>	<b>43</b>
<b>Math – developmental</b>	<b>23</b>	<b>40</b>
<b>Math – college level</b>	<b>48</b>	<b>38</b>
<b>History</b>	<b>21</b>	<b>30</b>
<b>Biology</b>	<b>18</b>	<b>29</b>
<b>Psychology</b>	<b>51</b>	<b>27</b>
<b>Chemistry</b>	<b>7</b>	<b>26</b>
<b>Political Science</b>	<b>9</b>	<b>25</b>
<b>Philosophy</b>	<b>7</b>	<b>24</b>
<b>Fine Arts</b>	<b>5</b>	<b>23</b>
<b>Sociology</b>	<b>20</b>	<b>22</b>
<b>English – college level</b>	<b>105</b>	<b>21</b>
<b>Computer</b>	<b>8</b>	<b>20</b>
<b>Health/PE</b>	<b>12</b>	<b>19</b>
<b>Speech</b>	<b>26</b>	<b>18</b>
<b>FYS/ success</b>	<b>30</b>	<b>15</b>
<b>Religion</b>	<b>6</b>	<b>9</b>

# Percentage of High Enrollment Courses that Are High Risk

Percent of Courses with DFWI rate of 30% or More		
Academic Year	2-Year Institutions	4-Year Institutions
2004-2005	70%	32%
2005-2006	69%	30%
2006-2007	80%	36%
2007-2008	62%	25%
2008-2009	63%	51%
2009-2010	71%	27%
<b>Overall</b>	<b>70%</b>	<b>32%</b>

## Some Anecdotal Reasons for High DFWI Rates

- Lack of institutional identification of courses
- Students lack of academic preparation (especially in mathematics)
- Inadequate or nonexistent placement procedures
- Late enrollment; missed classes
- Faculty grading pattern; lack of early feedback
- Lack of institutional action/plan
- Other

# Actions to Address Issues in Gateway Courses

- Inform departments of DFWI rates
- Develop departmental action plans to enhance success in high DFWI courses.
- Examine the reasons for high DFWI rates
- Develop increased curricular support services for courses with high DFWI rates



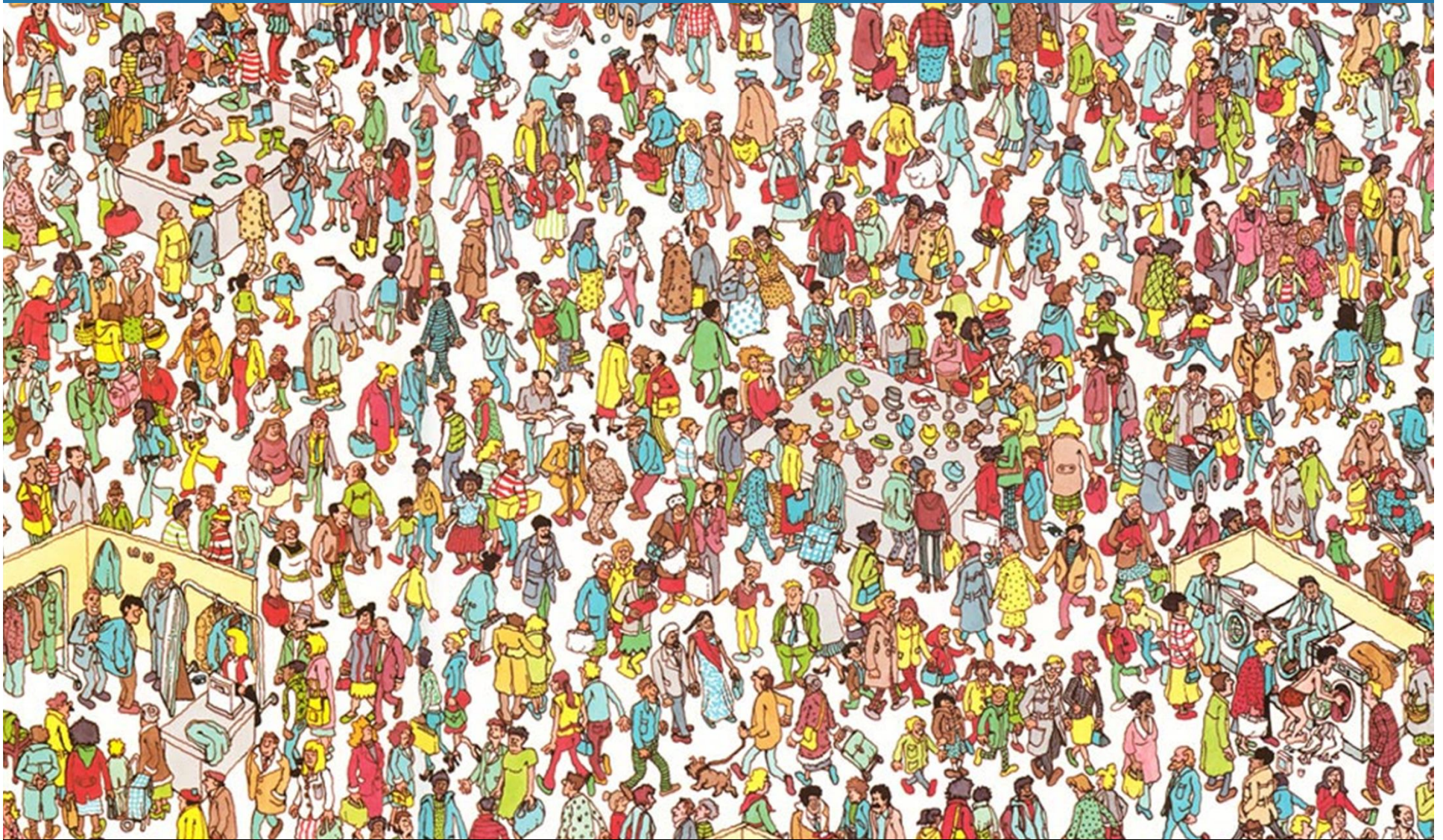
# Actions to Address Issues in Gateway Courses

- Provide Supplemental Instruction for courses with high DFWI rates
- Discuss creating more engaging pedagogies as one way to reduce DFWI rates
- Use early warning and/or early intervention (analytics) tools
- Combine all these elements into a coordinated institutional effort



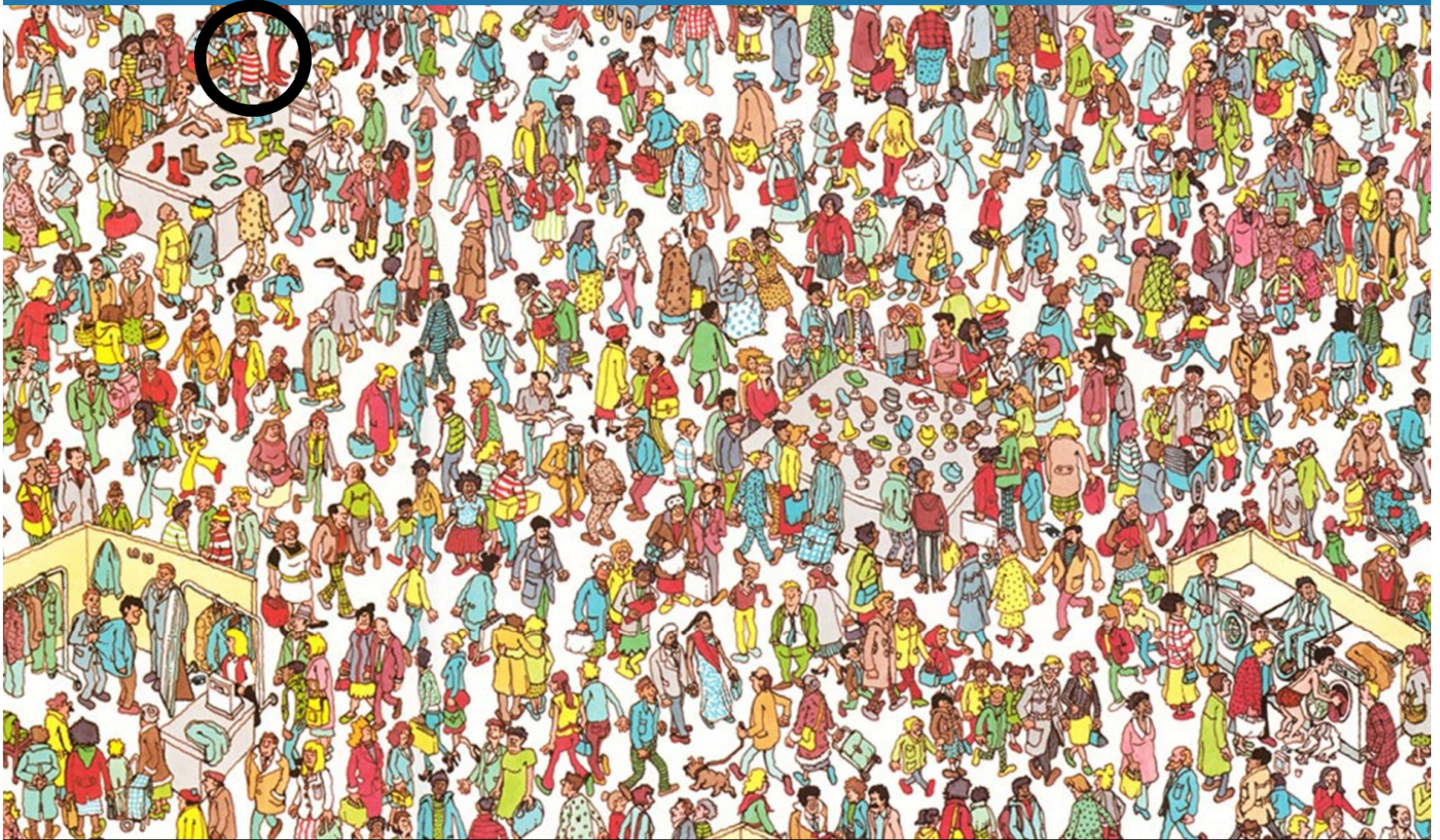


# Challenge: How do you find the student at risk?





# Challenge: How do you find the student at risk?







**INTERVENTIONS – ANALYTICS IS THE  
TOOL FOR ACTIONABLE INTELLIGENCE**



# Discussing interventions



## Data driven best practices

- Faculty involvement
  - Timing
  - Early
  - Frequent
- Up-to-date (cumulative)

# Message Content



- Efficacy research
  - Alter the messages
  - Provide
    - Facts
    - Advice
  - Demonstrate concern
  - Keep them short
  - Make them relevant to current course activities

# Institutional Challenge



- Data in many places, “owned” by many people/organizations
- Different processes, procedures, and regulations depending on data owner
- Everyone can see potential, but all want something slightly different
- Sustainability
  - “Can’t you just...”
  - “Can’t s/he just...”
- Faculty participation is essential

# New Possibilities

- Using data that exists on campus
- Taking advantages of existing programs
- Bringing a “complete picture” beyond academics
- Focusing on the “action” in “actionable intelligence”



Analytics is  
about...

- Actionable intelligence
- Moving research to practice
- Basis for design, pedagogy, self-awareness
- Changing institutional culture
- Understanding the limitations and risks

A black and white photograph of a man in a tuxedo holding a laptop. The laptop screen displays the text 'Myths of Analytics' in a bold, white, sans-serif font. The man is wearing a dark tuxedo jacket, a white dress shirt, and a dark bow tie. He is holding the laptop with both hands, and the background is dark and out of focus.

# Myths of Analytics





Who cares?!?

So what?!?

# KNOCKING AT THE COLLEGE DOOR

March 2008

Projections of  
High School Graduates  
by State and Race/Ethnicity  
1992-2022

So what?!?

WICHE

Western Interstate Commission for Higher Education

with  
support  
from

ACT<sup>™</sup>  
CollegeBoard

# Summing Up

Success in gateway courses is about:

- Student excellence
- Institutional excellence
- Society at-large
  - Enfranchisement
  - Social mobility
  - Social justice
- National economic competitiveness
- National Completion Agenda

# Conference on Excellence in Gateway Course Completion



April 14 -16, 2013  
Indianapolis, IN

## Featured Speakers



**Freeman A. Hrabowski, III**  
President,  
University of Maryland,  
Baltimore County



**Katherine J. Denniston**  
Acting Director, Division of  
Undergraduate Education,  
National Science Foundation

[www.jngi.org/gateway/](http://www.jngi.org/gateway/)



# Questions and Discussion



## Contact Information

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