High-Impact Educational Practices as Promoting Student Retention and Success

National Symposium on Student Retention
November 5, 2013

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www.fullerton.edu/analyticalstudies for more information
Orange County State College
Fullerton, California
Weekly Report of Admissions Applications
July 24, 1959
Total Admitted — 10
Total Rejected — 6
Incomplete Applications — 13
Grand Total 149
*Girls 49
*Boys 21
From Very Small to Very Large in Half a Century

Largest California State University Campus seven of last nine years

- Fall 2013 enrollments
  - 38,325 students
    - 33,049 are undergraduates
      » 56% from households where neither parent has earned a college degree
      » 37% are Hispanic
    - 4,667 new first-time freshmen
      » 58% from households where neither parent has earned a college degree
      » 45% are Hispanic
    - 4,753 new undergraduate transfers
      » 61% from households where neither parent has earned a college degree
      » 33% are Hispanic
## Degrees Earned 2011-12
(Summer 2011 through Spring 2012)

### CSU Fullerton Rank

<table>
<thead>
<tr>
<th></th>
<th>In CSU</th>
<th>In CA</th>
<th>In USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor's Degrees Earned – (6,724)</td>
<td>1</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>Bachelor's Degrees Earned by Hispanic Students – (1,950)</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Total Degrees Earned – (8,308)</td>
<td>2</td>
<td>7</td>
<td>46</td>
</tr>
</tbody>
</table>

Source: National Center for Education Statistics IPEDS Data Center
(Data extracted – July 2013)

Discussion of High-Impact Practices:
CSRDE presentation --- 11/5/2013
In 2012-13, CSU Fullerton Students Earned 9,046 Degrees

- 7,474 bachelor’s degrees earned
  - 52% were among the first generation of their families to earn a college degree
    - 74% of Hispanic students earning a bachelor’s degree were among the first generation of their families to earn a college degree
  - 37% of students earning bachelor’s degrees initially entered as first-time freshmen
Retention and Graduation Rates

• One-Year Retention Rate Trend

<table>
<thead>
<tr>
<th>Ethnic-Race Grouping</th>
<th>Fa04</th>
<th>Fa05</th>
<th>Fa06</th>
<th>Fa07</th>
<th>Fa08</th>
<th>Fa09</th>
<th>Fa10</th>
<th>Fa11</th>
<th>Fa12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Underrepresented</td>
<td>84%</td>
<td>78%</td>
<td>81%</td>
<td>81%</td>
<td>83%</td>
<td>86%</td>
<td>86%</td>
<td>89%</td>
<td>90%</td>
</tr>
<tr>
<td>Underrepresented</td>
<td>79%</td>
<td>77%</td>
<td>76%</td>
<td>77%</td>
<td>77%</td>
<td>81%</td>
<td>83%</td>
<td>88%</td>
<td>87%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>82%</td>
<td>78%</td>
<td>79%</td>
<td>79%</td>
<td>80%</td>
<td>84%</td>
<td>85%</td>
<td>88%</td>
<td>89%</td>
</tr>
</tbody>
</table>

• Six-Year Graduation Rate Trend

<table>
<thead>
<tr>
<th>Ethnic-Race Grouping</th>
<th>Fa02</th>
<th>Fa03</th>
<th>Fa04</th>
<th>Fa05</th>
<th>Fa06</th>
<th>Fa07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Underrepresented</td>
<td>52%</td>
<td>55%</td>
<td>55%</td>
<td>52%</td>
<td>56%</td>
<td>56%</td>
</tr>
<tr>
<td>Underrepresented</td>
<td>44%</td>
<td>45%</td>
<td>45%</td>
<td>46%</td>
<td>44%</td>
<td>49%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>49%</td>
<td>52%</td>
<td>51%</td>
<td>50%</td>
<td>51%</td>
<td>53%</td>
</tr>
</tbody>
</table>
GOAL 2

Improve student persistence, increase graduation rates University-wide, and narrow the achievement gap for underrepresented students.

A critical measure of a university's performance is the effectiveness with which it employs its resources to ensure students meet their educational goals in a timely manner. This institutional and social priority must be accompanied by a commitment to the success of all students, including those from historically underrepresented groups. Improving persistence of our students, especially in their entering year, is an important first step in this process. High-Impact Practices (HIPs), those pedagogical and programmatic approaches that promote student engagement, retention and graduation, are integral to these efforts.

OBJECTIVES:
• Increase the overall 6-year graduation rate, such that the Fall 2012 cohort of first-time full-time freshman is at least 10 percentage points higher than that of the Fall 2006 cohort.

• Increase the 4-year transfer graduation rate, such that the Fall 2014 cohort is at least 10 percentage points higher than that of the Fall 2008 cohort.

• Reduce by at least half the current 12% achievement gap between underrepresented and non-underrepresented students.

• Increase participation in High-Impact Practices (HIPs) and ensure that 75% of CSUF students participate in at least two HIPs by graduation.

Discussion of High-Impact Practices:
CSRDE presentation --- 11/5/2013
What are High Impact Practices?


The following teaching and learning practices have been widely tested and have been shown to be beneficial for college students from many backgrounds. These practices take many different forms, depending on learner characteristics and on institutional priorities and contexts.

- First-Year Seminars and Experiences
- Common Intellectual Experiences
- Learning Communities
- Writing-Intensive Courses
- Collaborative Assignments and Projects
- Undergraduate Research
- Diversity/Global Learning
- Service Learning, Community-Based Learning
- Internships
- Capstone Courses and Projects

An overarching assumption is that the High Impact Practice is done well (with high quality).
Why are they important?

• If done well they augment the academic experiences of our students

• They provide opportunities to better connect with the subject matter and/or the university as a whole

• They provide opportunities for academic and social connections to evolve through collaborative experiences
Some CSU Fullerton Exemplars

• **Learning Communities**
  – Freshman Programs
  – ECS Scholars

• **Supplemental Instruction**
  – Math
  – Biology

• **Internships, Civic Engagement, Capstone Courses**
Quick thoughts on Retention / Graduation

• **Central Mission of Higher Education Institutions**
  - Higher Education Institutions are ultimately responsible for student retention (Tinto, 2002)

• **Astin’s Theory of involvement, Tinto’s Integration Model, Pascarella’s Causal Model of College Student Change**

• **Link between retention theory & practice?**

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Student Characteristics

Learning Outcomes
  - Successful Graduation

- Cultural Factor
- Engagement

Closing the Gap: HIPS (High Impact Practices)

- Deepen Engagement & learning  Kuh (2008)
- Culturally-Responsive Practices

- First-year seminars and experiences *
- Common intellectual experiences *
- Learning communities *
- Collaborative assignments and projects *
- Diversity/global learning *

- Collaborative Learning Approach
  - 1) Learning Community, 2) Supplemental Instruction
  - Maximizing College Impact on Learning Outcomes
  - Culturally-Responsive <=> Collectivistic Culture
Closing the Gap: HIPS (High Impact Practices)

Culturally-Responsive Practices

• Research on Collaborative Learning
  – Collectivistic Culture
    • Focus on valuing needs of group or family instead of individuals
    • View themselves as members of groups
  – Collaborative Learning in early research
    • (1) Achievement gains for all (race, gender)
    • (2) Social Climate in the classroom
  – Underrepresented students
    • Collaboratively-Oriented learning preferences
  – Vygotsky’s Zone of Proximal Development
    • Closing the gap between low achievers and high achievers
What We Have Found

* Learning Community
  – Students build academic and social cohesion
  – Collaborative pedagogy, active learning, mutual responsibility for group (Tinto, 2008)
  – Maximize college impact (Kuh, 2008)

* Supplemental Instruction
  – Peer-facilitated review session in a collaborative group learning setting
  – Integrated support programs (Tinto, 2008)
Closing the Gap
Supplemental Instruction (SI) in BIOL 171

• Dependent Variables
  – Success Rates (*Logistic Regression*)

• Independent Variables - SI, Previous GPA, UR, SI x UR

<table>
<thead>
<tr>
<th></th>
<th>Fall 2007</th>
<th>Spring 2008</th>
<th>Fall 2008</th>
<th>Spring 2009</th>
<th>Fall 2009</th>
<th>Spring 2010</th>
<th>Fall 2010</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant</td>
<td>0.92</td>
<td>0.80</td>
<td>0.94</td>
<td>0.71</td>
<td>0.91</td>
<td>0.82</td>
<td>0.87</td>
<td>0.86</td>
</tr>
<tr>
<td>Total</td>
<td>0.64</td>
<td>0.62</td>
<td>0.65</td>
<td>0.52</td>
<td>0.79</td>
<td>0.74</td>
<td>0.78</td>
<td>0.69</td>
</tr>
<tr>
<td>Non-Participant</td>
<td>0.52</td>
<td>0.46</td>
<td>0.59</td>
<td>0.44</td>
<td>0.70</td>
<td>0.58</td>
<td>0.67</td>
<td>0.57</td>
</tr>
</tbody>
</table>
Closing the Gap
Supplemental Instruction (SI) in BIOL 171

• Dependent Variables
  – Course Grade (ANCOVA) with covariate Previous GPA

• Independent Variables - SI, UR, SI x UR

Course Grade of SI Participants by Year Term
(4.0: A, 3.0: B, 2.0: C, 1.0:D, 0:F)

<table>
<thead>
<tr>
<th></th>
<th>Fall 2007</th>
<th>Spring 2008</th>
<th>Fall 2008</th>
<th>Spring 2009</th>
<th>Fall 2009</th>
<th>Spring 2010</th>
<th>Fall 2010</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant</td>
<td>2.98</td>
<td>2.73</td>
<td>3.06</td>
<td>2.35</td>
<td>2.87</td>
<td>2.79</td>
<td>3.04</td>
<td>2.86</td>
</tr>
<tr>
<td>Total</td>
<td>2.28</td>
<td>2.25</td>
<td>2.29</td>
<td>1.79</td>
<td>2.51</td>
<td>2.58</td>
<td>2.69</td>
<td>2.37</td>
</tr>
<tr>
<td>Non-Participant</td>
<td>1.93</td>
<td>1.82</td>
<td>2.12</td>
<td>1.54</td>
<td>2.26</td>
<td>2.14</td>
<td>2.27</td>
<td>2.03</td>
</tr>
</tbody>
</table>
## Closing the Gap

### Supplemental Instruction (SI) in BIOL 171

**DV: Course Success Rates -- Logistic Regression**

**DV: Course Grade -- ANCOVA**

<table>
<thead>
<tr>
<th>Effects</th>
<th>Success Rates</th>
<th>Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous GPA</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>SI participation</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Underrepresented/Non-Underrepresented</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>SI participation X Underrepresented/Non-Underrepresented</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

* $P < .05$
Closing the Gap
Supplemental Instruction (SI) in BIOL 171

• Dependent Variables
  – Course Grade (ANCOVA) with covariate Previous GPA

Interaction Effects between
SI Participation x Underrepresented/Non-Underrepresented


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# Closing the Gap

**Freshman Program (FP) - Learning Community**

## 1-year Retention, 2-Year Retention, & 6-year Graduation GPA

<table>
<thead>
<tr>
<th>Effects</th>
<th>1-year</th>
<th>2-year</th>
<th>6-year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Retention Rates</td>
<td>GPA</td>
<td>Retention Rates</td>
</tr>
<tr>
<td>High School GPA</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Parent Education</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Freshmen Program</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Underrepresented/Non-Underrepresented</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Freshmen Program x Underrepresented/Non-Underrepresented</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

* * P < .05

Closing the Gap

Freshman Program (FP) - Learning Community

Interaction Effects between FP Participation x Underrepresented/Non-Underrepresented

1-year GPA

6-year Graduation Rates

Discussion of High-Impact Practices:
CSRDE presentation --- 11/5/2013
Conclusion
Collaborative Learning Approaches
→ High Impact Practices as Culturally-Responsive Strategy

• 1-yr Retention & GPA
• 2-yr Retention & GPA
• 6-yr Grad Rates & GPA
• Course Retention
• Course Grade

HS GPA
1st Generation
Ethnicity
(Underrepresented vs. Non-Underrepresented)

Learning Community
Supplemental Instruction

OUTCOMES
PRE-COLLEGIATE
INSTITUTIONAL

Discussion of High-Impact Practices:
CSRDE presentation --- 11/5/2013
Conclusion

We have observed the positive effects of Collaborative Learning Approaches of High Impact Practices Enhancing Student Success (retention/graduation/GPA)

– **Freshmen Program** *(Program Level)*
  • HS GPA, UR, Parent Education, FP participation
  • Interaction Effects of UR & FP -- more effective for UR
    – 1-yr GPA, 2-yr GPA, 6-yr Graduation Rates

– **Supplemental Instruction** *(Course Level)*
  • SI participation, Previous GPA, UR
  • Interaction Effects of UR & SI -- more effective for UR
    – Course Grade
Conclusion

Collaborative Learning Approaches
-- High Impact Practices as Culturally-Responsive Strategy

Supplemental Instruction, Freshman Program

- Raised Achievement for All
- Narrowed Achievement Gap between Underrepresented and Non-Underrepresented
Next Steps for our Institutional Research Efforts

- **Cognitive Learning Outcomes (college variable)**
  - Supplemental Instruction Enhancing Student Success in STEM Courses
  - Learning Community Improving Retention/Graduation/GPA

- **Affective Learning Outcomes (college variable)**
  - Values, attitudes, satisfaction w/college, educational experience
  - NSSE survey data for those who persisted and graduated
Implications

– Collaboration of campus constituencies
  • Leadership, faculty, staff, student, parents
  • Academic affairs & student affairs

– Role of faculty development
  • “What faculty think and value makes a difference with regard to the likelihood that students will participate in educationally effective practices” (Kuh, 2009b, p. 690)

– Connection between student cultural characteristics & policy
University Commitment

• University secured just under half a million dollars from CSU Chancellor’s Office in baseline funding to support and expand supplemental instruction

• University is discussing expansion of Freshman Programs efforts through use of freshman interest groups

• University Student Academic Life Committee regularly reviews NSSE findings and college level plans to increase student engagement
Questions?

• Presentation available on our website at:

www.fullerton.edu/analyticalstudies/planning/avp.html
Appendix A. Supplemental Instruction
Logistic Regression: Analysis Model of Success Rates

<table>
<thead>
<tr>
<th>Effects</th>
<th>Coefficient (B)</th>
<th>Wald $\chi^2$</th>
<th>P</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous GPA</td>
<td>.880</td>
<td>27.187</td>
<td>.000*</td>
<td>2.411</td>
</tr>
<tr>
<td>SI Participation</td>
<td>1.399</td>
<td>41.171</td>
<td>.000*</td>
<td>4.051</td>
</tr>
<tr>
<td>Underrepresented/Non-Underrepresented</td>
<td>-.704</td>
<td>18.000</td>
<td>.000*</td>
<td>.495</td>
</tr>
<tr>
<td>SI Participation by Underrepresented/Non-Underrepresented</td>
<td>.101</td>
<td>.096</td>
<td>.757*</td>
<td>1.106</td>
</tr>
</tbody>
</table>

* $P < .05$
## Appendix B. Supplemental Instruction
Two-way (SI Participation X Underrepresented/Non-Underrepresented) Analysis of Covariance on Course Grades

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous GPA</td>
<td>84.492</td>
<td>1</td>
<td>84.492</td>
<td>71.043</td>
<td>.000*</td>
</tr>
<tr>
<td>Participation</td>
<td>147.476</td>
<td>1</td>
<td>147.476</td>
<td>124.002</td>
<td>.000*</td>
</tr>
<tr>
<td>Underrepresented/Non-Underrepresented</td>
<td>39.481</td>
<td>1</td>
<td>39.481</td>
<td>33.197</td>
<td>.000*</td>
</tr>
<tr>
<td>Participation * Underrepresented/Non-</td>
<td>5.672</td>
<td>1</td>
<td>5.672</td>
<td>4.769</td>
<td>.029*</td>
</tr>
<tr>
<td>Underrepresented/Non-Underrepresented</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>1536.609</td>
<td>1034</td>
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</tr>
</tbody>
</table>

a. R Squared = .194 (Adjusted R Squared = .200)

* P < .05
### Appendix C. Freshman Program

**Logistic Regression: Analysis Model of Retention & Graduation Rates**

<table>
<thead>
<tr>
<th>Effects</th>
<th>1-year</th>
<th>2-year</th>
<th>6-year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Wald $\chi^2$</td>
<td>p</td>
</tr>
<tr>
<td>High School GPA</td>
<td>.86</td>
<td>429.49</td>
<td>.000*</td>
</tr>
<tr>
<td>Parent Education</td>
<td>.11</td>
<td>25.98</td>
<td>.000*</td>
</tr>
<tr>
<td>Freshmen Program</td>
<td>.22</td>
<td>8.71</td>
<td>.003*</td>
</tr>
<tr>
<td>Underrepresented/Non-Underrepresented</td>
<td>-.22</td>
<td>40.05</td>
<td>.000*</td>
</tr>
<tr>
<td>Freshmen Program x Underrepresented/Non-</td>
<td>.19</td>
<td>3.21</td>
<td>.073</td>
</tr>
<tr>
<td>Underrepresented/Non-Underrepresented</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $P < .05$
## Appendix D. Freshman Program

Two-way (SI Participation X Underrepresented/Non-Underrepresented) Analysis of Covariance on 1-yr, 2-yr GPA, & 6-yr graduation GPA

<table>
<thead>
<tr>
<th>Effects</th>
<th>1-year</th>
<th></th>
<th>2-year</th>
<th></th>
<th>6-year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F ratio</td>
<td>p</td>
<td>F ratio</td>
<td>p</td>
<td>F ratio</td>
<td>p</td>
</tr>
<tr>
<td>High School GPA</td>
<td>5115.585</td>
<td>.000*</td>
<td>4970.041</td>
<td>.000*</td>
<td>1388.785</td>
<td>.000*</td>
</tr>
<tr>
<td>Parent Education</td>
<td>204.828</td>
<td>.000*</td>
<td>183.252</td>
<td>.000*</td>
<td>64.611</td>
<td>.000*</td>
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<tr>
<td>Freshmen Program</td>
<td>120.228</td>
<td>.000*</td>
<td>42.930</td>
<td>.000*</td>
<td>21.060</td>
<td>.000*</td>
</tr>
<tr>
<td>Underrepresented/Non-Underrepresented</td>
<td>115.274</td>
<td>.000*</td>
<td>122.944</td>
<td>.000*</td>
<td>9.651</td>
<td>.002*</td>
</tr>
<tr>
<td>Freshmen Program x Underrepresented/Non-Underrepresented</td>
<td>5.747</td>
<td>.017*</td>
<td>4.073</td>
<td>.044*</td>
<td>2.025</td>
<td>.155</td>
</tr>
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</table>

* P < .05