Supplemental Instruction and Course Redesign

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In this Session:

Course Redesign Initiative
Types of Redesigned Courses
Data from Past Semesters
Success Factors
Limitations
Future Goals
University of Houston-Downtown

- Founded in 1974
- ~15,000 enrolled students
- Commuter campus
- Hispanic-serving institution
- Average student age: 28
- Average class size: 26
- Five colleges
UHD Supplemental Instruction

Learner’s Community, Spring 2001

- 20 SI Leaders
- 9 courses
- 27 sections

Current: Spring 2018

- 39 SI Leaders
- 22 courses
- 54 sections
The Bricks: SI Leaders

2-day mandatory training

Monthly professional development meetings

Observations

Communities of Practice

Mentors

Performance Evaluations
The Idea

NOT SURE IF WORST IDEA

OR BEST IDEA
How It All Started

- Fall 2011: Natural Science Faculty
- Addition of Science Recitation for BIOL 1301 and CHEM 1307
- Fall 2013: THECB CSSP Grant
- Team-Based Learning Model & SI Integration
- Spring 2015: Expansion to BIOL 1302 and CHEM 1308
- Fall 2015 – Present: Redesign of College Algebra, U.S. History I, Physics I, Calculus I, etc.
The Snowball Effect of Course Redesign
Class held 2x/week  
Instruction-heavy  
Little-to-no active classroom learning

Extended class time (without increase in tuition)  
Class held 2x/week  
Instruction-heavy  
Active learning/problem-solving segment reserved for end of class

Class held 4x/week  
Short, group learning component during class  
Weekly exams

Extended class time (without increase in tuition)  
Class held 2x/week  
Short lectures that follow individual & group quiz (RAP)  
Application and group problem-solving activities

Normal class time  
Class held 2x/week  
Lecture is held at home via pre-made videos  
Class used primarily for solving problems in groups
Traditional
- Most courses on campus
  - U.S. History II, Trigonometry, Business Math, Political Science

Extended
- College Algebra
- Calculus I
- General Physics I (sporadic)

Accelerated
- Developmental Math
- Economics

TBL
- General Biology
- Introduction to Chemistry
- General Chemistry

Flipped
- Organic Chemistry I
<table>
<thead>
<tr>
<th>Role of the SI Leader in the Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional</strong></td>
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<tr>
<td>- Model student</td>
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<tr>
<td>- Asks questions</td>
</tr>
<tr>
<td>- Actively takes notes</td>
</tr>
<tr>
<td><strong>Extended</strong></td>
</tr>
<tr>
<td>- Model student</td>
</tr>
<tr>
<td>- Asks questions</td>
</tr>
<tr>
<td>- Actively takes notes</td>
</tr>
<tr>
<td><strong>Accelerated</strong></td>
</tr>
<tr>
<td>- Attends class 4 times a week</td>
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<tr>
<td>- Some interaction during or at end of class</td>
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<tr>
<td><strong>TBL</strong></td>
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<tr>
<td>- Largely interactive</td>
</tr>
<tr>
<td>- Assist groups with application activities</td>
</tr>
<tr>
<td><strong>Flipped</strong></td>
</tr>
<tr>
<td>- Extension of instructor</td>
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<tr>
<td>- Facilitates individual and group learning</td>
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</tbody>
</table>
Brainstorm Break

Do you have redesigned courses at your institution? What are they? Why were these courses chosen? How are your SI/PASS/Peer Leaders utilized in these courses?
Construction

Data Snapshot, Spring 2014 – Fall 2017*
SI Attendance by Class Type

- Traditional (Control): 36.8% Participation to SI, 58.4% Percent Repeat Students
- Extended: 35.3% Participation to SI, 58.3% Percent Repeat Students
- Accelerated: 33.3% Participation to SI, 56.3% Percent Repeat Students
- Team-Based Learning: 53.0% Participation to SI, 72.4% Percent Repeat Students
- Flipped: 59.3% Participation to SI, 78.7% Percent Repeat Students
- Total: 53.7% Participation to SI, 72.7% Percent Repeat Students
SI Attendance by Class Type

<table>
<thead>
<tr>
<th>Class Type</th>
<th>1-3 Visits</th>
<th>4-6 Visits</th>
<th>7+ Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional (Control)</td>
<td>72.7%</td>
<td>15.1%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Extended</td>
<td>69.9%</td>
<td>14.1%</td>
<td>13.2%</td>
</tr>
<tr>
<td>Accelerated</td>
<td>68.1%</td>
<td>18.3%</td>
<td>13.6%</td>
</tr>
<tr>
<td>Team-Based Learning</td>
<td>57.4%</td>
<td>20.0%</td>
<td>22.6%</td>
</tr>
<tr>
<td>Flipped</td>
<td>51.6%</td>
<td>19.0%</td>
<td>29.5%</td>
</tr>
</tbody>
</table>
Pass (ABC Rates) by Class Type

Traditional (Control): 72.1% (SI Participants) 57.8% (Non-SI Participants)
Extended: 75.0% (SI Participants) 54.0% (Non-SI Participants)
Accelerated: 84.6% (SI Participants) 68.9% (Non-SI Participants)
Team-Based Learning: 64.1% (SI Participants) 46.7% (Non-SI Participants)
Flipped: 69.0% (SI Participants) 48.5% (Non-SI Participants)
Total: 54.8% (SI Participants)
Pass (ABC Rates) for Select Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Baseline Pass Rate</th>
<th>Fall 2016 Course Pass Rate</th>
<th>SI Participant Pass Rate (Redesigned)</th>
<th>Non-SI Pass Rate (Redesigned)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. History I (Traditional)</td>
<td>52.0%</td>
<td>71.0%</td>
<td>64.9%</td>
<td>77.3%</td>
</tr>
<tr>
<td>Calculus I (Extended)</td>
<td>37.0%</td>
<td>69.6%</td>
<td>55.2%</td>
<td>88.6%</td>
</tr>
<tr>
<td>Intermediate Algebra (Accelerated)</td>
<td>49.0%</td>
<td>66.0%</td>
<td>61.5%</td>
<td>88.9%</td>
</tr>
<tr>
<td>General Biology I (Team-Based Learning)</td>
<td>37.8%</td>
<td>64.6%</td>
<td>49.1%</td>
<td>78.4%</td>
</tr>
<tr>
<td>Organic Chemistry I (Flipped)</td>
<td>27.4%</td>
<td>46.8%</td>
<td>51.2%</td>
<td>41.2%</td>
</tr>
</tbody>
</table>
Structural Integrity

Rare photos of me jumping to conclusions
When does SI Work Best (at UHD)?

- Student Success
- Faculty Buy-In
- SI
- Course Redesign
- Student Self-Efficacy
What We Learned

• SI attendance is the greatest in classes that have a group learning component inside the classroom

• Commuter campuses (such as UHD) benefit greatly from bringing SI into the classrooms
  • Build rapport with students immediately
  • Bypass scheduling conflicts

SI leader Emily Steinman conducts a team-based exam review for General Biology I using Jeopardy (Spring 2018).
The Mortar: Faculty Buy-In

Faculty Participation

• Marketing sessions
• Validating “expertise” of SI Leader
• Fostering two-way communication
• Promoting SI to their colleagues

How we got our UHD faculty on board

• Found an advocate in each department
• Data from past semesters
• Pre-semester networking session
• Grant meetings
Limitations

- Student self-efficacy
- Effect of faculty instruction
- Long-term trends
- Redesigned courses
  - Some not comparable
  - Course difficulty

SI leader Carlos Guajardo conducts a team-based exam review for history using Kahoot! (Spring 2017).
Where We Go From Here

- Prioritize staffing to redesigned sections that integrate SI with active learning
- Collaborate with faculty teaching circles
- Faculty liaisons for redesigned courses
- Long-term data analyses

Calculus I in-class SI activity, Fall 2017.
Thank you!

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