STUDENT SUCCESS IS EVERYBODY’S BUSINESS!

Welcome to the Faculty Development Electronic Notebook for the College of Science, Engineering, and Technology. This electronic notebook contains information to help faculty and staff (1) stay abreast of current trends in higher education; (2) continually be successful as they face the challenges of teaching and working with students in an evolving digital world; and, (3) most importantly, understand their roles in assisting the University with its retention efforts and make each student successful. Student success is everybody’s business! Valuable resources—articles, external links, videos, etc.—about class attendance, retention, advising, and best practices—are provided. Innovative learning strategies and suggestions for integrating Web 2.0 technologies in face-to-face (F2F), hybrid/ blended, and online course development and teaching are also emphasized.

The College of Science, Engineering and Technology is a very dynamic school. It has been, and remains, a major force for change within the University because of the untiring hard work, dedication, and contributions of the faculty, staff, and students. Additionally, CSET has contributed significantly to the implementation of the Office of the Provost’s Five Point Plan for 2008-2013: Enhance the Collegial Environment, Increase Enrollment Growth in Quality and Quantity, Improve freshman to sophomore retention, Implement Teacher/Scholar Model for the faculty, and Implement the Performance-Based Management Model. This electronic notebook is just one of the College’s efforts to validate its commitment.

Please take a few minutes to peruse the notebook, and let us know your thoughts!
May 11, 2010

8:00 - 8:30 a.m.    Continental Breakfast

8:30 - 9:45 a.m.    General Session I:  *Retention*
Dr. Sandra J. DeLoatch, Dean, College of Science, Engineering, and Technology

9:45 - 10:00 a.m.    Break

10:00 - 12:00 noon    General Session II:  *Teaching Unprepared Students*
Dr. Kathleen F. Gabriel, Professor, Professional Studies in Education, California State University, Chico

12:00 - 1:00 p.m.    Lunch

1:00 - 2:30 p.m.    General Session III:  *Effective Academic Advising*
Dr. Bennie Marshall, Chair and Professor, Department of Nursing and Allied Health

2:30 - 2:45 p.m.    Break

2:45 - 4:00 p.m.    Concurrent Technology Sessions
  - *Using Clickers Pedagogically*
    Turning Technologies
  - *Use of the Mediasite Feature in Blackboard*
    Sonic Foundry

---

1 Co-sponsored with the Center for the Enhancement of Teaching, Learning, and Advising
2 Sponsored by the School of Extended Learning
May 12, 2010

8:00 - 8:30 a.m.  Continental Breakfast

8:30 - 9:30 a.m.  General Session IV:  Scholarship and Tenure
Dr. Larry Mattix, Associate Dean, College of Science, Engineering, and Technology
Dr. Charles Ford, Interim Associate Dean, College of Liberal Arts

9:30 - 10:45 a.m.  General Session V - Enhancing Student Interaction
Dr. Lawrence Dotolo, President, Virginia Tidewater Consortium for Higher Education

10:45 - 11:00 a.m.  Break

11:00 - 12:15 p.m.  General Session VI:  Attendance:  Let’s Keep them Coming!!!!
Mrs. Sharon Lowe, Vice President for Student Affairs, and Student Affairs Staff

12:30 - 1:15 p.m.  Lunch

1:30 - 3:00 p.m.  Departmental Work Session
(See Breakout Session Room List)

3:00 - 3:15 p.m.  Break

3:15 - 4:15 p.m.  Plenary Session I - Effective Online Learning
Dr. Joyce Harvey, Associate Professor, CSET
Dr. Dorothy Jones, Professor, School of Business

Lunch and afternoon sessions will be held in Robinson Technology Center
May 13, 2010

8:00 – 8:30 a.m.  Continental Breakfast and Showcase of Accomplishments

8:30 – 9:30 a.m.  Plenary Session II - *Effective Online Learning*
Dr. Joyce Harvey, Associate Professor, CSET
Dr. Dorothy Jones, Professor, School of Business

9:30 – 11:00 a.m.  Departmental Work Session

11:00 – 12:00 noon  Plenary Session III - *Mentoring for Academic Improvement*
Patrice Smith, Special Assistant to the Dean, CSET
Vanessa Jenkins, NSU Counseling Center

12:00 – 1:00 p.m.  Lunch

1:00 – 3:00 p.m.  Departmental Work Session

3:00 – 3:15 p.m.  Break

3:15 – 4:30 p.m.  Plenary Session III: *CSET Jeopardy*

**Breakout Session Room List**

<table>
<thead>
<tr>
<th>Biology</th>
<th>RTC 127</th>
<th>Mathematics</th>
<th>RTC 124</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>RTC 128</td>
<td>Nursing &amp; Allied Health</td>
<td>RTC 136</td>
</tr>
<tr>
<td>Computer Science</td>
<td>RTC 108</td>
<td>Physics</td>
<td>RTC 310A</td>
</tr>
<tr>
<td>Engineering</td>
<td>RTC 213</td>
<td>Technology</td>
<td>RTC 200</td>
</tr>
</tbody>
</table>
I. Please keep this form handy during the workshop to evaluate each session. The ratings scale range is four (4) - excellent to one (1) - poor. Shade the rating that reflects your response.

**General Sessions**

<table>
<thead>
<tr>
<th>General Session Code</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Retention</td>
</tr>
<tr>
<td>II</td>
<td>Teaching Unprepared Students</td>
</tr>
<tr>
<td>III</td>
<td>Effective Academic Advising</td>
</tr>
<tr>
<td>IV</td>
<td>Scholarship and Tenure</td>
</tr>
<tr>
<td>V</td>
<td>Enhancing Student Interaction</td>
</tr>
<tr>
<td>VI</td>
<td>Attendance: Let’s Keep Them Coming!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Ratings:</th>
<th>Excellent - 4</th>
<th>Good - 3</th>
<th>Acceptable - 2</th>
<th>Poor - 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>VALUE OF INFORMATION</th>
<th>METHOD OF PRESENTATION</th>
<th>CLARITY OF SESSION OBJECTIVE</th>
<th>OPPORTUNITY FOR DISCUSSION</th>
<th>PRACTICALITY OF IDEAS</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Concurrent Workshop Sessions

<table>
<thead>
<tr>
<th>Concurrent Workshop Code</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Using Clickers Pedagogically: Turning Technologies</td>
</tr>
<tr>
<td>II</td>
<td>Use of the Mediasite Feature in Blackboard: Sonic Foundry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CODE</th>
<th>Ratings:</th>
<th>Excellent - 4</th>
<th>Good - 3</th>
<th>Acceptable - 2</th>
<th>Poor - 1</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Plenary and Departmental Work Sessions

<table>
<thead>
<tr>
<th>Session Code</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Departmental Work Session I</td>
</tr>
<tr>
<td>II</td>
<td>Plenary Session I – Effective Online Learning</td>
</tr>
<tr>
<td>III</td>
<td>Plenary Session II – Effective Online Learning</td>
</tr>
<tr>
<td>IV</td>
<td>Departmental Work Session II</td>
</tr>
<tr>
<td>V</td>
<td>Plenary Session III – Mentoring for Academic Improvement</td>
</tr>
<tr>
<td>VI</td>
<td>Departmental Work Session III</td>
</tr>
<tr>
<td>VII</td>
<td>Plenary Session III – CSET Jeopardy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CODE</th>
<th>Ratings:</th>
<th>Excellent - 4</th>
<th>Good - 3</th>
<th>Acceptable - 2</th>
<th>Poor - 1</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VII</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
II. Please rate the items in this section.

1. Overall quality of the workshop

2. Scheduling of workshop activities

3. Organization of workshop and sessions

4. Evaluation procedures

5. Opportunity to interact with speakers

6. Usefulness of resources issued

7. Helpfulness of exercises presented

8. What did you like about this workshop?

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

9. How could the workshop be improved?

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

10. Comments

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
I. The ratings scale range is four (4) - excellent to one (1) - poor.

<table>
<thead>
<tr>
<th>Session</th>
<th>Value of Information</th>
<th>Method of Presentation</th>
<th>Clarity of Session Objective</th>
<th>Opportunity for Discussion</th>
<th>Practicality of Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Retention</td>
<td># 49 25 7 2</td>
<td># 41 31 5 1</td>
<td># 50 22 6 1</td>
<td># 42 27 8 2</td>
<td># 32 33 10 3</td>
</tr>
<tr>
<td></td>
<td>% 59 30 8 2</td>
<td>% 53 40 6 1</td>
<td>% 63 28 8 1</td>
<td>% 53 34 10 3</td>
<td>% 41 42 13 4</td>
</tr>
<tr>
<td>II Teaching Unprepared Students</td>
<td># 56 22 3 1</td>
<td># 60 19 3 0</td>
<td># 58 20 3 0</td>
<td># 53 21 7 1</td>
<td># 53 21 4 1</td>
</tr>
<tr>
<td></td>
<td>% 68 27 4 1</td>
<td>% 73 23 4 0</td>
<td>% 72 25 4 0</td>
<td>% 65 26 9 1</td>
<td>% 67 27 5 1</td>
</tr>
<tr>
<td>III Effective Academic Advising</td>
<td># 34 27 16 4</td>
<td># 32 26 17 3</td>
<td># 30 31 15 2</td>
<td># 35 24 14 4</td>
<td># 27 29 18 6</td>
</tr>
<tr>
<td></td>
<td>% 42 33 20 5</td>
<td>% 41 33 22 4</td>
<td>% 38 40 19 3</td>
<td>% 45 31 18 5</td>
<td>% 34 36 23 8</td>
</tr>
<tr>
<td>IV Scholarship and Tenure</td>
<td># 29 29 11 5</td>
<td># 25 28 13 5</td>
<td># 25 30 11 2</td>
<td># 28 27 13 3</td>
<td># 25 24 16 4</td>
</tr>
<tr>
<td></td>
<td>% 39 39 15 7</td>
<td>% 35 39 18 7</td>
<td>% 37 44 16 3</td>
<td>% 39 38 18 4</td>
<td>% 36 35 23 6</td>
</tr>
<tr>
<td>V Enhancing Student Interaction</td>
<td># 33 30 12 2</td>
<td># 28 36 8 3</td>
<td># 30 35 7 1</td>
<td># 33 27 14 2</td>
<td># 30 31 14 2</td>
</tr>
<tr>
<td></td>
<td>% 43 39 16 3</td>
<td>% 37 48 11 4</td>
<td>% 41 48 10 1</td>
<td>% 43 36 18 3</td>
<td>% 39 40 18 3</td>
</tr>
<tr>
<td>VI Attendance: Let’s Keep Them Coming!</td>
<td># 43 26 4 3</td>
<td># 47 17 7 2</td>
<td># 42 20 8 2</td>
<td># 31 22 14 5</td>
<td># 44 19 11 2</td>
</tr>
<tr>
<td></td>
<td>% 57 34 5 4</td>
<td>% 64 23 10 3</td>
<td>% 58 28 11 3</td>
<td>% 43 31 19 7</td>
<td>% 58 25 14 3</td>
</tr>
</tbody>
</table>
I. The ratings scale range is four (4) - excellent to one (1) - poor.

<table>
<thead>
<tr>
<th>Session</th>
<th>Value of Information</th>
<th>Method of Presentation</th>
<th>Clarity of Session Objective</th>
<th>Opportunity for Discussion</th>
<th>Practicality of Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Clickers Pedagogically: Turning Technologies</td>
<td># 12 3 8 1</td>
<td>4 3 2 1</td>
<td>4 3 2 1</td>
<td>4 3 2 1</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td></td>
<td>% 50 13 33 4</td>
<td>42 38 13 8</td>
<td>50 32 9 9</td>
<td>43 43 4 9</td>
<td>59 18 14 9</td>
</tr>
<tr>
<td>Use of the Mediasite Feature in Blackboard: Sonic Foundry</td>
<td># 8 8 10 1</td>
<td>6 11 10 1</td>
<td>8 11 5 2</td>
<td>9 8 10 1</td>
<td>6 10 9 1</td>
</tr>
<tr>
<td></td>
<td>% 30 30 37 4</td>
<td>21 39 36 4</td>
<td>31 42 19 8</td>
<td>32 29 36 4</td>
<td>23 38 35 4</td>
</tr>
</tbody>
</table>
Evaluation Form - Plenary and Departmental Work Sessions  
Responses (47)  
May 11-13, 2010

I. The ratings scale range is four (4) - excellent to one (1) - poor.

<table>
<thead>
<tr>
<th>Session</th>
<th>Value of Information</th>
<th>Method of Presentation</th>
<th>Clarity of Session Objective</th>
<th>Opportunity for Discussion</th>
<th>Practicality of Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Departmental Work Session I</td>
<td>#</td>
<td>31 10 1 3</td>
<td>23 17 1 3</td>
<td>26 14 1 3</td>
<td>31 10 0 3</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>69 22 2 7</td>
<td>52 39 2 7</td>
<td>59 32 2 7</td>
<td>70 23 0 7</td>
</tr>
<tr>
<td>II Plenary Session I</td>
<td>#</td>
<td>20 19 5 1</td>
<td>18 16 8 2</td>
<td>16 18 8 2</td>
<td>16 17 10 1</td>
</tr>
<tr>
<td>Effective Online Learning</td>
<td>%</td>
<td>44 42 11 2</td>
<td>41 36 18 5</td>
<td>36 41 18 5</td>
<td>36 39 23 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40 35 21 5</td>
</tr>
<tr>
<td>III Plenary Session II</td>
<td>#</td>
<td>16 13 10 2</td>
<td>14 12 12 3</td>
<td>14 16 8 4</td>
<td>16 13 9 2</td>
</tr>
<tr>
<td>Effective Online Learning</td>
<td>%</td>
<td>39 32 24 5</td>
<td>34 29 29 7</td>
<td>33 38 19 10</td>
<td>40 33 23 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>44 21 26 10</td>
</tr>
<tr>
<td>IV Departmental Work Session II</td>
<td>#</td>
<td>25 12 2 3</td>
<td>22 13 2 3</td>
<td>23 14 2 3</td>
<td>28 7 2 3</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>60 29 5 7</td>
<td>55 33 5 8</td>
<td>55 33 5 7</td>
<td>70 18 5 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>59 28 5 8</td>
</tr>
<tr>
<td>V Plenary Session III</td>
<td>#</td>
<td>18 16 3 1</td>
<td>17 16 3 1</td>
<td>15 18 4 0</td>
<td>17 17 3 0</td>
</tr>
<tr>
<td>Mentoring for Academic Improvement</td>
<td>%</td>
<td>47 42 8 3</td>
<td>46 43 8 3</td>
<td>41 49 11 0</td>
<td>46 46 8 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>41 57 3 0</td>
</tr>
<tr>
<td>VI Departmental Work Session III</td>
<td>#</td>
<td>27 11 0 1</td>
<td>23 13 0 1</td>
<td>24 11 2 1</td>
<td>29 4 4 0</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>69 28 0 3</td>
<td>62 35 0 3</td>
<td>63 29 5 3</td>
<td>78 11 11 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70 24 3 3</td>
</tr>
<tr>
<td>VII Plenary Session III</td>
<td>#</td>
<td>19 14 5 1</td>
<td>24 12 1 0</td>
<td>17 17 3 0</td>
<td>16 11 9 1</td>
</tr>
<tr>
<td>CSET Jeopardy</td>
<td>%</td>
<td>49 36 13 3</td>
<td>65 32 3 0</td>
<td>46 46 8 0</td>
<td>43 30 24 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>46 30 22 3</td>
</tr>
</tbody>
</table>
Comments

Retention
1. It was a very good workshop.
2. Informative session.
3. Do not remember any ideas.
4. Try better engagement strategies.
5. Presenter did a great job.
7. Did not attend.
8. Session on Retention was very good.
9. Basic info provided.
10. Good Interaction.
11. Good Information.

Teaching Unprepared Students
1. Need more time for discussion.
2. Excellent speaker.
4. Very Good.
5. Excellent Thanks!
6. Awesome, great presenter, very valuable information provided.
7. Very good; I’ve heard some of this before.
8. It is insulting to bring people from the outside to discuss generic topics to persons with training in education. Visitors should be discussing their research on the topic.
9. Presenter was wonderful.
10. Best session of the conference.
12. Very interesting and entertaining.
13. Very good.
15. Great statistics and real life situations.
16. Four plus.
17. Excellent and engaging.
18. Good practical data.
19. Excellent presentation.
20. Set the bar for the workshop.
21. Excellent session.

Effective Academic Advising
1. Needs Improvement.
2. Good Presentation.
3. Not on tenure tracks.
4. Attended session before.
5. Techniques should have been employed presented in session II.
6. The presenter in Sec. Ed. conducted their dissertation research on effective academic advising.
7. Effective Academic Advising is a vita part of success for the University.
10. Good; need for solutions was missing.
11. To much lecturing, more faculty interaction is needed.
12. No suggestions on how to make advisors better.
13. Academic advising is a process not an encounter.

Scholarship and Tenure
1. Very Good.
2. A bit disjointed, second part shined.
3. Too late! Information needed years ago.
4. Would like to have seen specific examples and suggestions for those with heavy teaching loads.
5. Irrelevant to me. The President dismissed my application without following Faculty handbook. I never received any explanation!!!
7. Nice.
8. Very Good.
9. Only related to small subset of audience.

Enhancing Student Interaction
1. Super.
2. Very casual; unprepared.
3. Awesome very informative and fun.
4. Attended session many times before.
5. Very engaging.
7. Very Informative.
8. Great Session.
9. Good; glad to hear the mentioning of junior faculty.
10. Same workshop as last year.
11. Redundant.
12. Nothing new seemed exactly like last years presentation.

Attendance: Let’s Keep Them Coming!
1. This was a good presentation. It should be filmed and used to promote enrollment.
2. Excellent presentation.
3. Notifying the office of student affairs when students are absent is very good.
4. Very effective.
5. Creative!
6. Learned a lot about University services.
7. Excellent way of presenting student services.
8. Funny.
9. Very well presented.
10. Excellent presentation.
11. Entertaining.
12. Interesting and Informative.
13. Excellent.
15. Informative.
17. Cute but what is the point.
18. Great info and presentation.
Using Clickers Pedagogically: Turning Technologies
1. N/A.
2. DNA.
3. No clickers were used.
4. I understand the students a little better.
5. Shameful!
6. Excellent Presentation.
7. Very Good.
8. No clicker-presenter did what he said we should not do.
9. Session was outstanding; will put info into practice.
10. Session was not accurately labeled.

Use of the Mediasite Feature in Blackboard: Sonic Foundry
1. Not very interactive.
2. N/A.
3. More use of technology expected based on topic. This was presented as lecture/Powepoint mostly.
4. This was only a sales pitch, waste of time.

Departmental Work Session I
1. Very disappointing!
2. Accomplished quite a bit.
3. Good.
4. Very valuable.

Plenary Session I - Effective Online Learning
1. Excellent; need hands-on.
2. Gained ideals and tools for hybrid course.
3. Confusing and disjointed at times.
4. Excellent.
5. Too many “buzz words”.

Plenary Session II - Effective Online Learning
1. Excellent; need hands-on
2. Poorly organized; the 2 presenters were having personal discussions, very unprofessional.
3. Confusing and disjointed at times.
4. Excellent.
5. Confusing, boring, not engaging.

Departmental Work Session II
1. Disappointing, no direction on how to begin to solve problems.
2. Productive and informative.
3. Good.
4. Good Info.
Plenary Session III - Mentoring for Academic Improvement
1. Did not really cover mentoring for AI but information was good.
2. Lots of information; confusing.
3. Timing was not right for this session; it should have been longer.
4. Good.

Departmental Work Session III
1. Informative.
2. Good.
3. Time well spent.

Plenary Session III - CSET Jeopardy
1. I won!!!
2. Excellent ending!
3. Very enjoyable! Nice ending!
4. Very Good.
5. Not really necessary too chaotic.
II. The ratings scale range is four (4) - excellent to one (1) - poor.

<table>
<thead>
<tr>
<th>Response Area</th>
<th>#</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Overall quality of the Retreat</td>
<td>38</td>
<td>35</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>%</td>
<td>46</td>
<td>43</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>2. Scheduling of Retreat activities</td>
<td>30</td>
<td>29</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>%</td>
<td>36</td>
<td>35</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>3. Organization of workshops and sessions</td>
<td>42</td>
<td>24</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>%</td>
<td>52</td>
<td>30</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>4. Evaluation procedures</td>
<td>33</td>
<td>35</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>%</td>
<td>40</td>
<td>43</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>5. Opportunity to interact with speakers</td>
<td>41</td>
<td>30</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>%</td>
<td>50</td>
<td>37</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>6. Usefulness of resources issued</td>
<td>33</td>
<td>30</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>%</td>
<td>41</td>
<td>38</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>7. Helpfulness of exercises presented</td>
<td>31</td>
<td>33</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>%</td>
<td>38</td>
<td>41</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>

8. **What did you like about this workshop?**
1. Presentation on “Let’s keep Them Coming!”
2. Interacting with/meeting other faculty members, seeing how effective teacher student engagement can be in class or online.
3. The session on Teaching Unprepared Students.
4. Knowing the existence of all the tools.
5. Relevance of specific issues raised during the workshops was outstanding. As a new/junior faculty, I learned a lot of the expectations of teaching faculty.
7. Covered topics that are important.
8. Presentation on teaching unprepared students was the most helpful.
9. Poster presentations.
10. Topics; speakers.
11. Information given.
12. CSET Jeopardy.
13. Covered several important areas for faculty.
14. Teaching strategies, and Online Technologies.
15. The workshop is the best out of the past 3 years.
16. The new ideas presented by the outside presenters.
17. The interaction with faculty from other schools.
18. Was able to gain some new practical tools to use in the classroom.
19. Online staffs are very helpful.
20. Good learning experience.
22. Lunch (fried chicken).
23. Everything.
24. Presentation on teaching unprepared students.
25. The session on how to engage students.
26. The new facilities were impressive.
27. The valuable information given in some sessions.
28. This was an outstanding workshop, best so far; did not even feel the three days pass.
29. Workshop was informative and the presentations were very good.
30. Topics were very relevant to the mission and goals of NSU.
31. Variety of topics.
32. Career Services/Student Affairs.
33. Excellent speakers for some of the presentations.
34. Kept the audience engaged.
35. The subject matter that were brought on.
36. The variety of topics; Counseling center is very helpful.
37. This workshop brought together relevant information regarding topics of interest to faculty.
38. The departmental work session.
39. Most of the workshops were relevant.
40. There were practical suggestions to me in engaging my students.
41. General Session II.
42. Very stimulating, motivating, engaging, and informative.
43. Interaction, good topics.
44. Covered very pertinent issues/information very much relative to my needs as a classroom instructor.

9. **How could the workshop be improved?**
1. Cut down the time from 3 days to 1.5 days.
2. Better utilization of time. Some workshops/work sessions had little benefit.
4. Workshops/sessions should end at 3 pm each day
5. Start at 9 am - 5 pm.
6. Start late on first day (lunch) to allow morning to get grades in.
7. More presentations from faculty.
8. Schedule the day after grades are due.
9. More time for department.
10. Trim the departmental sessions to one.
11. There is no plans to mentor junior faculty.
12. Too long.
13. By breaking up the department sessions; so that the content/coverage of topics can be less focused. Longer department sessions, once a day may help with this.
14. Need a better time control.
15. Shorten the time.
16. The opportunity to discuss issues related to student retention and faculty scholarship.
17. By shortening to two days, because three days is really too long.
18. Allow more interaction with faculty from other departments and schools.
19. Stop making the workshops mandatory.
20. Too long.
22. Food.
23. Should be short morning sessions.
24. Get new presenters.
25. Making it one day.
26. Shorten it to two days.
27. Do not start on the same day we have to turn in grades; should start the day after.
28. Healthier food for lunch.
29. The time length for the workshop is too long.
30. Remove the conflict with submitting grades; most faculty aren't engaged the first day because they are thinking about entering their final grades.
31. Less Days.
32. More breaks in between presentation.
33. More time should be allotted for the departmental breakout meetings.
34. Everyone should attend the community session.
35. Critical thinking is important, and time should have been allocated for that.
36. Presentation of data to support information presented.
37. Too many days.
38. I feel that the workshop was too long.
39. Handouts can be given instead of presentations.
40. Try to give info that is really needed; do not try to fill time.
41. The Mediasite presentation was a sales pitch more than a workshop.
42. It was during the time of summer registration.
43. Some of the workshops gave us info we already new.
44. This was not productive, instead we should allow faculty to share their tips that work for them.
45. Being able to adjust the temperature in the rooms.
46. Try to make them shorter, more to the point, and more relevant to faculty in terms of praxis.
47. By not scheduling them during the day that grades are due.
48. Have them after final grades are due.
49. Needs to be more information on online learning-how to engage online students.
50. Session on tenure could have been concurrent, so that only those with an interest could attend.
51. The day of the workshop it should be done after final grades are due.

10. Comments
1. Money spent on food and electricity for 3 days of the workshop could be saved because of difficult times now.
2. 3 days is too long. We can shorten it by having 3 half day sessions, 8 -12 noon. You can also save $$$ by cutting down lunch.
3. Excellent! Keep it up!
4. Workshop is too long and too many departmental sessions(some departments have monthly meetings).
5. Thanks!!
6. Much better than last year.
7. Hope to see more online courses and developing them.
8. The department sessions were too short. There needs to be more interaction between faculty, speakers, etc. in the general and plenary sessions.
9. Overall it was a good positive experience.
10. Open the workshop to those faculty members who genuinely want to work on improving student engagement and retention.
11. Posters were excellent.
12. Commit more time to showcasing faculty efforts.
13. I learn something new each time.
14. Keep having sessions on academic advising.
15. Great sessions.
16. Great Food.
17. Should have the workshops during the semester, perhaps on the weekend.
18. After all the whole program is very helpful.
19. Appreciated the breakfast and lunch.
20. I would like to see if CSET faculty could have Thursday and Friday to prepare for summer school.
21. I feel that the faculty development is important.
22. Three days is not necessary.
23. Should not be scheduled while faculty are still in final grades period.
24. This was great for faculty as many did not receive training as teachers, yet alone advising. So, it was great to see different faculty learn about the additional responsibilities that come with teaching.
25. This workshop was much better than I anticipated, I actually enjoyed it.
26. Timing was not good at all.
27. NSU faculty (not paid consultants) should be on panels to present information addressed in these sessions.
28. There are highly qualified faculty among us at NSU who can present these workshops, with a more informal perspective.
29. As useful as this workshop can be it is completely offset by its timing.
30. Hopefully this initiative would continue on a yearly basis to help faculty and staff to be more competitive, productive, and effective in their respective areas.
31. Do not need 3 full days of workshop.
32. Thanks to the planning committee for its efforts.
33. Mediasite was not useful; one long commercial.
General Session I: Retention
Dr. Sandra J. DeLoatch, Dean, College of Science, Engineering, and Technology
Improving Retention

Sandra J. DeLoatch
Dean, College of Science, Engineering, and Technology
Overview

- Five Point Plan – Relevant Items
- Current Statistics
  - Enrollment Data
  - NSU Graduation Rates
  - NSU Retention Rates
- What do students say?
- What can we do?
- NSU Retention Project
Five Point Plan – Relevant Items

- **Point 2** - Enrollment Growth in Quality and Quantity
  - Increase student enrollment from 6,000 to 9,000 with improved quality during 2008-2013

- **Point 3** - Improve freshman to sophomore retention rate by at least 15% and increase six-year Graduation Rate from 31% to 60%

**CHALLENGE – SUBSTANTIAL BUDGET CUTS OVER LAST FEW YEARS!!**
Norfolk State University

QUICK FACTS – Fall 2009

Enrollment:
• Total Enrollment 6,993
• Full-time 5,675
• Part-time 1,318
• In-state 5,712
• Out-of-state 1,281

Demographics:
• Female 65%
• Male 35%
• Black 85%
• White 5%
• Other 10%
Fall 2009 Enrollment Data

By College/School

<table>
<thead>
<tr>
<th>College/School</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUEN</td>
<td>976</td>
</tr>
<tr>
<td>COLA</td>
<td>2691</td>
</tr>
<tr>
<td>CSET</td>
<td>2045</td>
</tr>
<tr>
<td>EDUC</td>
<td>763</td>
</tr>
<tr>
<td>SWRK</td>
<td>518</td>
</tr>
</tbody>
</table>

Enrollment Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2007</td>
<td>6,155</td>
<td>Baseline</td>
</tr>
<tr>
<td>Fall 2008</td>
<td>6,325</td>
<td>↑ 11% over baseline</td>
</tr>
<tr>
<td>Fall 2009</td>
<td>6,993</td>
<td>↑ 14% over baseline</td>
</tr>
</tbody>
</table>
Growing Enrollment

- Increase new freshmen
- Increase transfer students
- Increase graduate students
- Increase international students
- Improve retention of existing students
# NSU Six-Year Graduation Rates

## Cohort Years 1994 - 1998

<table>
<thead>
<tr>
<th>Fall 1994</th>
<th>Fall 1995</th>
<th>Fall 1996</th>
<th>Fall 1997</th>
<th>Fall 1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>24%</td>
<td>22%</td>
<td>27%</td>
<td>28%</td>
</tr>
</tbody>
</table>

## Cohort Years 1999 - 2003

<table>
<thead>
<tr>
<th>Fall 1999</th>
<th>Fall 2000</th>
<th>Fall 2001</th>
<th>Fall 2002</th>
<th>Fall 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>29%</td>
<td>30%</td>
<td>31%</td>
<td>32%</td>
<td>32%</td>
</tr>
</tbody>
</table>

## Graduation Rates

<table>
<thead>
<tr>
<th>Fall 1994 first-time freshmen graduating in 2000</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2003 first-time freshmen graduating in 2009</td>
<td>32%</td>
</tr>
</tbody>
</table>

↑ 60%
## NSU Retention Rates

<table>
<thead>
<tr>
<th>College or School</th>
<th>Overall Fall-to-Fall Retention</th>
<th>Freshman Cohort Fall-to-Fall Retention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F06-F07</td>
<td>F07-F08</td>
</tr>
<tr>
<td>BUEN</td>
<td>70%</td>
<td>70%</td>
</tr>
<tr>
<td>COLA</td>
<td>67%</td>
<td>72%</td>
</tr>
<tr>
<td>CSET</td>
<td>71%</td>
<td>73%</td>
</tr>
<tr>
<td>EDUC</td>
<td>71%</td>
<td>75%</td>
</tr>
<tr>
<td>SWRK</td>
<td>79%</td>
<td>81%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>69%</td>
<td>72%</td>
</tr>
</tbody>
</table>
What do students say?
10. How can we better help you to be successful academically?

- [ ] 1. Evening study sessions
- [ ] 2. More notifications from advisors on your academic performance
- [ ] 3. Small group review or help sessions in the Tutoring Center
- [ ] 4. Peer instruction in the classroom
- [ ] 5. Group learning exercises in the classroom
- [ ] 6. Use of Personal Response Systems (clickers) in the classroom
- [ ] 7. Use of online homework systems
- [ ] 8. Use of Blackboard (blended courses)
- [ ] 9. Additional faculty office hours
- [ ] 10. Teacher-prepared study guides
- [ ] 11. PowerPoint lectures
- [ ] 12. More graded assignments
- [ ] 13. (other) ______________________________
Improving Academic Performance
Preliminary Observations from CSET Student Survey

- Teacher-prepared study guides
- More notifications from advisors on academic performance
- More graded assignments
- Group learning exercises in the classroom
- Small group review or help sessions in the Tutoring Center
CSET Student Survey, Item 9

9. What factors prevent you from being successful academically at NSU?

☐ Financial Aid
☐ Extracurricula activities
☐ Work schedule
☐ Lack of flexibility in course offerings
☐ Lack of evening, weekend, and online classes
☐ Availability of faculty during office hours
☐ Family/Penonal Issues (list examples)

☐ Other (please describe)
Retention Barriers …

Preliminary Observations from CSET Student Survey

- Financial resources\(^1\)
- Lack of flexibility in course offerings
- Student work schedules
- Family/personal issues (child care, death in the family, pregnancy, illness, relationship problems)
- Faculty office hours

\(^1\) Confirmed by several years of Enrollment Management data
Reflecting on your experience at NSU, please suggest three major reasons for the relatively high NSU student drop out rate.

- Low expectations. NSU appears to be extremely lenient on its requirement to enter college, which in some part turns many students off for the undergraduate programs. However, the graduate programs boast pretty high standards to maintain within the programs.
- Not enough support or guidance from administrators and faculty on specific requirements for graduation.
- Sometimes the teachers don't clarify the assignments enough.
- Some professors/advisors really don't care about the students, I experienced that my first major.
- Availability of classes to fit working student's schedules
- Substandard grades
- Generation gap between teachers and students- Some of these professors here at NSU are stuck in their ways of teaching and it is not beneficial to the students.
- Poor instruction. Poor rate of teachers showing up for class Can't conduct any business over the phone (voice mail always full).
Reflecting on your experience at NSU, please suggest three major reasons for the relatively high NSU student drop out rate.

- The university needs to seek and recruit teachers who have a passion for their profession and what they are teaching instead of those who just work for a check.
- Students drop out of school for many reasons including having children, financial problems and not adapting well to a new environment.
- The dropout rate isn't entirely NSU's fault. Much of it lies on the student. However, the attitudes, the lack of compassion at times from some professors ...
- Three major reason why NSU may be experiencing a high student drop out rate are: out-of-state tuition costs, disconnect with professors and lack of focus for first-generation students.
- Some departments really need to make sure the graduation requirements are clear so that students don't reach junior year and have not met the requirements needed to graduate. Faculty and advisors need to make sure they are guiding students in the right direction. Also, when students need help to pass their content exams, the departments need to come together and help tutor them.
Please suggest one practical strategy that NSU needs to implement in order to improve student retention and graduation, support student academic and personal goal attainment, and prepare students for productive life after graduation.

- SUPPORT THE STUDENT!
- Teachers need to put more excitement into the curriculum.
- Have the faculty realize that they impact students lives. When they don't care students do not care either.
- Just keeping the students encouraged. For a lot of students, leaving home for the first time and being put in an environment where there is more accountability on them can be a stressful thing.
- University needs to be able to provide different avenues for improvement.
- The university must do a better job of reaching potential students and make them feel like they’re getting the value they expected out of their educational experience.
Please suggest one practical strategy that NSU needs to implement in order to improve student retention and graduation, support student academic and personal goal attainment, and prepare students for productive life after graduation.

- NSU should focus on freshmen/sophomores involvement in their majors and on campus. Get students involved early.
- NSU needs to improve their customer service in departments that have primary education classes, especially for freshmen. Academic advisors need to know which classes are only offered in certain semesters, and explain this to the students when they register for classes.
- Creating a new and improved academic environment for students.
- I believe the advisors should become more involved with the students, that way they will know what is going on in the students minds and help find solutions.
What can we do?
Tinto (2000) cites five conditions that best promote retention:

- Having high expectations of students.
- Clearly explaining institutional requirements and providing good advice about academic choices.
- Providing academic, social and personal support, particularly in and before the first year.
- Showing students that they are valued. Frequent contact with the staff is important especially in the first year.
- Active involvement in learning – “students who learn are students who stay.” Social learning, where students learn in groups is particularly valuable, and can help foster friendship, which is another factor that encourages student persistence.
CSET Teaching and Learning “Best Practices” Agreement
Spring 2009

I, ________________________________, agree to try the “best practices” checked below to improve the retention of students in my classes during the Spring 2009 semester and report the results (success or failure) to my department chair at the at midterm and at the end of the semester.

_________________________________________  ____________________________  ______________________
Signature                                                                 Department                                                                 Date

☐ 1. Offer evening study sessions on _________ at _________ (AM or PM) each week.
☐ 2. Monitor student performance continuously and notify advisors of students scoring below “C” in your classes.
☐ 3. Conduct small group review or help sessions in the Tutoring Center
☐ 4. Utilize peer instruction in the classroom
☐ 5. Utilize collaborative learning in the classroom
☐ 6. Use Personal Response Systems (clickers) in the classroom
☐ 7. Prepare and use common assessments (quizzes and tests) in collaboration with my colleagues
☐ 8. Use a common syllabus for multi-section courses
☐ 9. Participate in regular group meetings for instructors of multi-section courses
☐ 10. Require students to use online homework systems
☐ 11. Use Blackboard (blended courses)
☐ 12. Check prerequisites during the first week of classes
Best Practices Agreement (cont.)

- 13. Conduct regular attendance checks and communication with students and their advisors.
- 14. Extend my office hours to __________ hours per week.
- 15. Introduce collaborative or group assignments
- 16. Conduct peer facilitated learning groups
- 17. Provide students with teacher-prepared study guides
- 18. Use Scantrons for detailed item analyses of tests and quizzes
- 19. Adjust my teaching style to student learning styles
- 20. Use rubrics for assignments
- 21. Use inquiry-based methods in the classroom
- 22. Reduce the use of PowerPoint lectures
- 23. Use more essay questions on assessments
- 24. Assess student performance early and often (as early as week 2 or 3 and at least 4 times per semester).
- 25. (other) ___________________________________________________________________________
- 26. (other) ___________________________________________________________________________
CSET Successes

- Enrollment and retention are increasing
- The Tutoring Center: students who seek tutoring are more successful in their courses
- Increased pass rates in courses
  - Interactive engagement in lecture
  - Online homework system
  - Technology integration in all phases of courses
- High quality student research and presentations
- Effective summer bridge program
- Good partners
- http://cset.nsu.edu
NSU Retention Project

- Project separated into five phases
  - **Phase I** – Basic profile data (demographics, first generation, application dates, high schools, etc.) – Completed
    - Academic units currently reviewing their area data
  - **Phase II** – Examination of the financial factors and relationship to retention and Phase I data
  - **Phase III** – Administration of the Non-Returning Student Survey
  - **Phase IV** – Examination of academic performance indicators in relationship to Phase I and Phase II data
  - **Phase V** – Examination of relationships with student reported engagement as collected in the NSSE
- Status Report August 2010
Your Suggestions

1.

2.

3.

4.

5.

6.

7.

8.
for all you do
to support the NSU educational enterprise!
Questions?
Additional Information

Sandra J. DeLoatch
Larry Mattix
Patrice C. Smith
Norfolk State University
Telephone: (757) 823-8180
Facsimile: (757) 823-9114
E-mail: sjdeloatch@nsu.edu
          lmattix@nsu.edu
Web: www.nsu.edu
cset.nsu.edu
Questions?
Additional Information

Sandra J. DeLoatch
Larry Mattix
Patrice C. Smith
Norfolk State University
Telephone: (757) 823-8180
Facsimile: (757) 823-9114
E-mail: sjdeloatch@nsu.edu
lmattix@nsu.edu
Web: www.nsu.edu
cset.nsu.edu
I, _______________________________________________________, agree to try the “best practices” checked below to improve the retention of students in my classes during the Spring 2009 semester and report the results (success or failure) to my department chair at the at midterm and at the end of the semester.

_________________________       _________________________          ________________
Signature                Department            Date

☐ 1. Offer evening study sessions on __________ at _________ (AM or PM) each week.
☐ 2. Monitor student performance continuously and notify advisors of students scoring below “C” in your classes.
☐ 3. Conduct small group review or help sessions in the Tutoring Center
☐ 4. Utilize peer instruction in the classroom
☐ 5. Utilize collaborative learning in the classroom
☐ 6. Use Personal Response Systems (clickers) in the classroom
☐ 7. Prepare and use common assessments (quizzes and tests) in collaboration with my colleagues
☐ 8. Use a common syllabus for multi-section courses
☐ 9. Participate in regular group meetings for instructors of multi-section courses
☐ 10. Require students to use online homework systems
☐ 11. Use Blackboard (blended courses)
☐ 12. Check prerequisites during the first week of classes
☐ 13. Conduct regular attendance checks and communication with students and their advisors.
☐ 14. Extend my offices hours to __________ hours per week.
☐ 15. Introduce collaborative or group assignments
☐ 16. Conduct peer facilitated learning groups
☐ 17. Provide students with teacher-prepared study guides
☐ 18. Use Scantrons for detailed item analyses of tests and quizzes
☐ 19. Adjust my teaching style to student learning styles
☐ 20. Use rubrics for assignments
☐ 21. Use inquiry-based methods in the classroom
☐ 22. Reduce the use of Powerpoint lectures
☐ 23. Use more essay questions on assessments
☐ 24. Assess student performance early and often (as early as week 2 or 3 and at least 4 times per semester).
☐ 25. (other) _____________________________________________________________________
☐ 26. (other) _____________________________________________________________________
General Session II: Teaching Unprepared Students

Dr. Kathleen F. Gabriel, Professor, Professional Studies in Education, California State University, Chico
**Teaching Unprepared Students:**

Strategies for Promoting Success and Retention in Higher Education

Kathleen F. Gabriel, Ed.D.

---

**Agenda**

1. List numbers & characteristics….
2. Consider Philosophical Foundations
3. Describe benefits of interaction (prof to student & student to student)
4. Benefits of Learner-Centered teaching
5. Review Two “Science of Learning” techniques

---

Growing numbers of underprepared, unprepared, and/or at-risk students…

How prevalent is the problem?

What do you think? True or False

___ 1. ACT testing results showed that 49% of high school graduates do not have the reading skills needed for college success.

___ 2. At 4-year colleges, 25% of first-time students require at least 1 year of remedial courses.
What do you think? True or False

___ 3. Once admitted to college, 55% of the students who have to take at least one remedial class will go on to obtain a degree or certificate within 8 years of enrollment.

What do you think? True or False

___ 3. According to the 2009 Federal NCAA graduation rates, Norfolk State University reported at least 37% of all students (who started as freshmen*) graduated in 6 years.

*Freshmen classes from 1999 to 2002

Unprepared and/or At-Risk Students

Characteristics &/or Behaviors

Write-Pair-Share

YELLOW 3 x 5 card

Name            Date

Answer or thoughts here.....

Characteristics &/or Behaviors

Signal for attention
Philosophical Foundations

- It is never too late
- “Commitment and time” required
- Struggle (possibly pain) is involved
- Responsibility for goals & dreams goes to...
- “Never do for the students what they can do for themselves.”

---

It ain’t nothing to find no starting place in the world. You just start from where you find yourself.

--August Wilson

Shared Mission: The First Week of Class

Reach Out

Begin with a detailed and explicit syllabus

LEARN YOUR Student’s NAMES...

STRATEGIES TO ACCOMPLISH THIS TASK

NAME PLATES

Using Office Hours for “Interviews”
Principles for Good Practice in Undergraduate Education:

1) Encourages Faculty-Student Contact
2) Encourages Cooperation Among Students

*By Chickering, A., & Gamson, Z. (1987)*

Mobilizing the Learning Community

Find Someone Who________?????

Four major reasons for academic Difficulty:

1) Poor Management of Time
2) Continue to organize (and study) the same way they did in high school
3) Selection of courses
4) They studied alone…

Author, Richard J. Light (pgs. 36-49)

Learner-Centered Teachers

Keep a constant eye on both ends of the bridge.
Norfolk State University
“Strategic Plan and Goals”

#3. To ensure an **optimum learning environment**

#5. To provide a **stimulating learning environment**

---

**Example:**

*Declining By Degrees*

---

**Expert Teachers know...**

- Kinds of difficulties that students are likely to face
- Know how to tap into their students’ existing knowledge in order to make new information meaningful
- Know how to assess their student’s progress


---

**Prior Knowledge and Experience**

- Chess Masters
- “Class A” players (good, but not a masters
- Novices

Bransford et al., *How People Learn*, p.135.
Counting Vowels

DO NOT OPEN
Until...

Counting vowels in 30 Seconds: How accurate are you?

Left & Right Hemispheres

- Using both sides of the brain helps one balance and improve all areas of mental performance

Left Hemisphere

Right Hemisphere

Lion


The Science of Learning

- Two Channels for processing:
  - Visuospatial
  - Visual-auditory
- Synergetic Effect

When both are used, comprehension and retention are improved.


…We can help students learn about different strategies and when to use them. (p. 124)

Buzan, Tony (1983) Use Both Sides of Your Brain
“RE-PRESENT” Information in an Alternative Format


Re-Represent Information

**Representations**

- Diagrams
- Sequences
- Matrices
- Hierarchies

Write the vocabulary on a 3 x 5 card...
Think of an image that connects the definition to the word and draw a picture. . .

Ak'we es' nutrition

verb

to submit or comply silently or without protest

Inadequate Vocabulary

“Inadequate vocabulary hampers the reading comprehension of many students. . .”

--John C. Bean, p. 136

Chapter 8: “Helping Students Read Difficult Texts”


Example of Different Pictures...

Antecedent

Practice at retrieval

alacrity

tenacious

Assuage

perennial

loquacious
SELF-TEST
or with a partner

Bar Graph

High Expectations

- All participate
- Put expectations on your syllabus
- “Respect”--how we will treat each other
- Responsibility & Preparation for Class

“CLASS ACTIVITY POINTS”

Random Seating
- Write-Pair-Share
- All Students turn in their written response for class activity points

Random assignment of “small groups” for in class discussions

Seven Principles for Good Practice in Undergraduate Education:

- Encourages Active Learning

“Engagement” has compensatory effects for at-risk students (including low income, first generation, and students of color attending Predominately White Institutions.)

Connecting the Dots…Kuh et al.
Class Notes

• Ask students what they will do … have them take the ….

“Semester Performance Prognosis Inventory”

(from Dr. Saundra Y. McGuire, Director of Academic Success--Louisiana State University, Baton Rouge, LA)

Write True or False beside statements describing the way YOU will study….

___ 1. I will “teach” the concepts to friends, myself in the mirror, stuffed animals, imaginary students, etc.
___ 2. I will make flashcards & use mnemonics for myself to help me remember facts.
___ 3. I will make diagrams or draw pictures of the concepts discussed in class.

Analyze Different Teaching/Learning Methods & Assessment Techniques

The One Minute Paper

Memory Matrix

(Angelo and Cross, 1993)
Chapter 1

If we do not, we are simply setting these students up for failure and, at the same time, only pretending we have somehow fulfilled a moral obligation of providing opportunities to our diverse population in today’s society (p. 4).

Think-Pair-Share
(write-pair-share)

As you design, plan, and prepare for your courses, what actions can you incorporate?
What other actions or steps have you used? Please Share.
Keep Your Eye On The Prize

Two of the pains in life are...

- the pain of discipline,
- and
- the pain of regret

Choose which one you want.

“Today decides tomorrow.”

The 3 D’s for Success

Drive

Desire

Determination

Picture from *I Dream A World* by Brian Lanker, 1989

Results

THE END

THANK YOU FOR PARTICIPATING IN TODAY’S PRESENTATION.
General Session III: Effective Academic Advising

Dr. Bennie Marshall, Chair and Professor, Department of Nursing and Allied Health
Excellence in Academic Advisement

Bennie L. Marshall, Ed.D., RN
Chair, Department of Nursing and Allied Health
Objectives

- Describe the concept of Academic Advising
- Review the National Academic Advising Association (NACADA ) Core Values of Academic Advising
- Provide scenarios related to academic advising and facilitate a discussion of advisement strategies, techniques and student learning outcomes.
Excellence in Academic Advisement

• Benefits Everyone
  • Students
  • Faculty
  • Staff
  • Community
  • Global Society
What is Academic Advising?

- An integral component of the teaching and learning process that engages students and prepares them to become members of their higher education community, to think critically about their roles and responsibilities as students and prepares them to be educated citizens who contribute to a global society.
Concept of Academic Advising

- Curriculum – What advising deals with
  - Institution’s mission
  - Culture and expectations;
  - Meaning, value and interrelationship of the institution’s curriculum and co-curriculum
  - Selection of academic programs and courses
  - Development of life and career goals
  - Campus/community resources, policies and procedures
Concept of Academic Advising

- Pedagogy- How advising does what it does
  - Incorporates the preparation, facilitation, documentation and assessment of advising interactions.
Learning Outcomes (the result of academic advising). Students will:

- Craft a coherent educational plan based on assessment of abilities, aspirations, interests, and values
- Assume responsibility for meeting academic program requirements
- Cultivate intellectual habits that lead to lifelong learning
- Develop as productive citizens
Specific Learning Outcomes

- Intellectual growth
- Enhanced self-esteem
- Realistic self-appraisal
- Clarified values
- Achievement of personal and educational goals
- Independence
- Effective Communication
- Social Responsibility
- Collaboration
- Meaningful interpersonal relationships
- Satisfying and productive lifestyles
Advisors are Responsible

- for themselves and their professional practices
- to their educational community
- to higher education
- to their institutions
- for involving others
- to individuals they advise
Core Values of Advisement

- Advisors are responsible to the individuals they advise.
- Advisors are responsible for involving others, when appropriate, in the advising process.
- Advisors are responsible to their institutions.
Core Values of Advisement

- Advisors are responsible to higher education.
- Advisors are responsible to their educational community.
- Advisors are responsible for their professional practices and for themselves personally.

**Student advisement is every faculty member’s responsibility!!**
Students Deserve

- Respectful
- Dependable
- Academic Advisement
- Professional
- Accurate
- Honest
- Friendly
Excellence in Advisement

Take the Academic Advisement Self Assessment
Concurrent Technology Sessions: Using Clickers Pedagogically
Turning Technologies

and

Use of the Mediasite Feature in Blackboard
Sonic Foundry
Using Audience Response Systems in the Classroom Effectively

Dr. Mark Taylor
www.taylorprograms.com
mark@taylorprograms.com

Why use an Audience Response System?
- Technology is only worth using in the classroom when it addresses a specific instructional deficit
- Are there instructional issues, especially with large classes?

Issues with Large Classes
- Necessary on most campuses
- Cost effective delivery of credits
- Can be less than optimal learning environment
- Contribute to all forms of teaching that are bad
- Allow for ineffective learner behaviors.

Issues with Large Classes
- Difficult to
  Monitor attendance
  Monitor preparation for class, especially “in-time” during instruction
  Maintain attention/engagement
  Monitor on-going learning
    Understanding or content
  Get students active/fight passivity “spectatorism”
  Meaningfully move students “up” out of knowledge/content level learning
    To application, utility, “use”
    To analysis, synthesis
    To value/affective level/caring/evaluation
    To deep, applicable, lasting learning
- What if there were a system to combat these problems and help reach these desired learning outcomes?

The Audience Response System
- Student response units
  smart phone software
- Receiver unit
- Questions embedded into PowerPoint or stand alone program
- Reporting program software for individual and group responses
- Ask questions and they respond.

Issues with learning outcomes
- Colleges are having outcomes in learning, work readiness and other issues.
Many students who do earn degrees have not actually mastered the reading, writing and thinking skills we expect of college graduates. Over the past decade, literacy among college graduates has actually declined.

Spellings Commission on the Future of Higher Education
August 9, 2006

**Graduates are underachieving** in learning to communicate, critical thinking and problem solving, character development/“moral reasoning”, citizenship, appreciation of diversity, ability to understand and participate in a global society, development of “broader interests” (lifelong learning) and in preparation for career. Derek Bok  Our Underachieving Colleges

“Most colleges are seriously out of step with the real world in getting students ready to become workers in the postcollege world.” TIME January 24, 2005

Workplace Issues  “a pandemic of workplace unreadiness as today's graduates are unable to think long term, handle details or delay gratification”

“Ready or not, here life comes”  Mel Levine 2005

Why use an Audience Response System?
• Different students
• Different (digital) world
• Different outcomes
• Different needs
• Different futures
• Different tools.

Clickers and the Digital Learner
• Students are usually leaving a digitally rich environment to come to class
• With clickers students don’t have to power down/check out of digital world to come to class
• Integrates with other technology platforms- they can use their own device
• Contributes to academic credibility; they see us as tech savvy
• Monitors real time learning
• Offers instant feedback
• Makes class a more attractive place to be
• Makes class a place they need to be.

Clickers to Increase Learning
• Every student “works” on every “question”
• Improves ability to encourage, ensure and monitor meaningful out of class preparation
• Fits perfectly in transition from the teaching model to the learning model
• More processing/critical thinking/problem solving less content regurgitation.
Clickers to Increase Engagement
- Research proven
- Every student responds to every item
- Students can see class responses so are not alone in rightness or wrongness
- Establishes a true community of learners.

Clickers to Increase Activity
- Increasing activity increases learning
  Question/ “Talk to your neighbor”/ Re-question
- Activity improves whatever learning outcomes you want:
  Knowledge/ content
  Skills/ utility
  Caring/ value/ affect
- Peer instruction- Eric Mazur
- Who are they more likely to believe than you?
- Activity improves course completion and retention
  Interaction helps develop relationships, which lead to academic and social integration, which contributes to student persistence retention

Questions
- Anonymous responders or identified responders
- Planned or “on the fly”
- Formative or summative
- Embeds Assessment into Learning

From only assessing for grades to assessing for grades and assessing for learning
- Clickers for data gathering
  about your specific class
  comparing classes and methods
  school improvement initiatives
  response to intervention program
- Clickers for formative assessment
  How is the class learning from assigned material?
  Instant feedback- right now
- Merge teaching and assessment
Clickers for summative/ graded assessments
- Assess students being prepared for class
- High stakes grading?
- Max points for right answer/ some points for responding
- 15% of their grade
less and it does not matter
more and they get stressed.

Questions
  ● Find out who prepared for class
    - Accountability
  ● Find out where you are starting
    - Understanding / misunderstandings
  ● Find out who understands on an ongoing basis - Pacing
  ● Identify common ongoing misunderstandings - Clarifying
  ● Start student discussion - initiate peer instruction

Question / Response Types
  ● Yes/ no
  ● True/ false
  ● Likert scale / Opinion Gathering
  ● Priority ranking
  ● Numeric response
  ● Fill in the Blank
  ● Essay response
  ● Moment to Moment
  ● Self Paced Testing

Best Questions
  ● Not so hard everyone misses
  ● Not so easy everyone gets right
  ● Have a right answer
  ● Have a wrong answer that is common misconception
  ● Peer instruction/ discussion can lead to convergence on correct answer.

Effectiveness is limited only by creativity
  ● New ways to solve old problems
    Preparation, attention, engagement, activity, monitor understanding
  ● New possibilities to solve new problems
    Games/ contests
    Individual and group responses
    Peer Instruction/Assessment
    Monitor changes in understanding in real time.

The Dark Side- ARS Concerns
  ● Cost
    Compared to text book?
Not an issue if used regularly in class

- Tech concerns
  Improves what you are trying to do instructionally anyway
- Increases attendance
  May increase attendance by disruptive students, who would have skipped
  Management techniques can keep them in line
- Cheating
  New strategies may be required, as have been of any new cheating strategy
- Increases activity
  Maybe see as disruptive by faculty used to “quiet’ students
- Reduces time for lecture
  More than offset by increases in preparation for class, efficiency of in-class, activity, engagement...

Benefits of Clickers

Instructor

- Improves class attendance and student participation
- Identifies students' comprehension of content
- Triggers class discussion with student responses
- Tracks student progress

Students

- Popular with “clicker generation” (cell phones, TV remote, digital cameras, MP3 player, games, laptop, PDA...)
- Engages students in active learning
- Provides students with immediate feedback of understanding of content

Learning vs. Learned

*In times of change, the learner will inherit the earth while the learned are beautifully equipped for a world that no longer exists.* – Eric Hoffer

Questions/ Comments/ Resources?

Dr. Mark Taylor
www.taylorprograms.com
mark@taylorprograms.com
Clickers in the Large Classroom: Current Research and Best-Practice Tips

Jane E. Caldwell

Department of Biology, West Virginia University, Morgantown, WV 26506

Audience response systems (ARS) or clickers, as they are commonly called, offer a management tool for engaging students in the large classroom. Basic elements of the technology are discussed. These systems have been used in a variety of fields and at all levels of education. Typical goals of ARS questions are discussed, as well as methods of compensating for the reduction in lecture time that typically results from their use. Examples of ARS use occur throughout the literature and often detail positive attitudes from both students and instructors, although exceptions do exist. When used in classes, ARS clickers typically have either a benign or positive effect on student performance on exams, depending on the method and extent of their use, and create a more positive and active atmosphere in the large classroom. These systems are especially valuable as a means of introducing and monitoring peer learning methods in the large lecture classroom. So that the reader may use clickers effectively in his or her own classroom, a set of guidelines for writing good questions and a list of best-practice tips have been culled from the literature and experienced users.

INTRODUCTION

Many instructors at both large and small educational institutions have begun to use classroom technology that allows students to respond and interact via small, hand-held, remote keypads. This technology, which we will refer to as an audience response system (AR system or ARS), resembles the “Ask the Audience” portion of the game show “Who Wants to be A Millionaire,” and enables instructors to instantaneously collect student responses to a posted question, generally multiple choice. The answers are immediately tallied and displayed on a classroom projection screen where both students and instructor can see and discuss them.

Uses of this technology vary widely and include spicing up standard lecture classes with periodic breaks, assessing student opinions or understanding related to lecture, increasing the degree of interactivity in large classrooms, conducting experiments on human responses (e.g., in psychology courses), and managing cooperative learning activities. Students and instructors who have used AR systems are generally positive and often enthusiastic about their effects on the classroom, and many researchers and educators assert their great potential for improving student learning (Beatty et al., 2006).

The literature on applications and classroom outcomes of ARS use includes not only descriptive articles but also quantitative educational research studies with varying degrees of rigor (for reviews see Roschelle et al., 2004a; McDermott and Redish, 1999; Duncan, 2005; Simpson and Oliver, 2006). This article aims to survey some of that literature and research as it applies to large-enrollment classes, to offer some best-practice tips culled from both the literature and the experience of users at West Virginia University (WVU), and to discuss the successes, outcomes, and challenges resulting from this technology. Some basic motivations for using an ARS and the attitudes of both students and faculty who have used this technology are also summarized.

OVERVIEW

What is a Clicker? Description of Hardware and Software

The handheld devices used in an ARS—commonly called “clickers” or “key-pads” in the United States and “handsets” or “zappers” in the United Kingdom (d’Inverno et al., 2003; Simpson and Oliver, 2006)—are small transmitters about the size of a television remote control. Students use their clickers to transmit their answers by pressing the clicker buttons. Although one early example of a clicker had a single response button (Poulis et al., 1998), modern clickers usually have a 10-digit numeric keypad and often some accessory buttons including a power switch, a send button, or function keys that permit text entry (Barber and Njus, 2007).

Modern clicker units are “two-way,” meaning that the clicker not only sends a signal but also indicates whether it was received. Although early clickers were often connected to the rest of the system by wiring, modern systems are wireless and use either infrared (IR) or, more recently, radiofrequency (RF) signals. The RF systems are rapidly becoming the current standard, because they send stronger signals, require only a single receiver, do not experience interference from classroom lights or other IR-emitting signals, and often have a smaller footprint.
equipment, and do not require a direct line of sight between the student and the receiver. In all AR systems, each clicker unit has a unique signal so that the answer from each individual student can be identified and recorded. When polling is complete, answers from the entire class are displayed on the projection screen, usually in the form of a histogram, although some systems offer more sophisticated options (Roschelle et al., 2004a). The feature of an ARS that allows this incoming mass of student answers to be rapidly collected, tabulated, and displayed is the coupling of a proprietary receiver unit with an ordinary classroom computer and projection system.

Such systems of clickers, receiver, and software are given various names in the educational and product literature, including classroom response system, personal response system, classroom communication system, group response system, audience response system, electronic voting system, audience paced feedback system, and classroom network (Poulis et al., 1998; Draper et al., 2002; d’Inverno et al., 2003; Roschelle et al., 2004a, 2004b; Simpson and Oliver, 2006).

Although this conglomeration of technological hardware may sound complex, the instructor typically can ignore all but the software interface during class. This software is used to create and administer questions, which is usually not much more complicated than creating or displaying PowerPoint (Microsoft, Redmond, WA) slides. Most systems are said to be easy to use with only an “intermediate” level of computer skill, thereby freeing the instructor to consider pedagogy rather than technical operations (Cue, 1998; Brewer, 2004; Parsons, 2005). Most ARS software not only controls display settings and data collection during class but also helps the instructor format questions (usually as PowerPoint slides) and grade student responses. Grading tools in the software typically allow the instructor to specify which answer or answers will be treated as correct. These tools also permit different point values to be given for correct versus incorrect answers. Typical ARS software can export or even upload student scores to classroom management systems such as Blackboard and WebCT (Washington, DC). Six different commercially available RF systems are described, and their advantages and disadvantages are discussed in the accompanying article by Barber and Njis (2007).

Who Uses Clickers? (Typical Course and Student Characteristics)

Although this article focuses mainly on the use of AR systems in large lecture courses, instructors have reported using clickers in classes ranging from 15 students (e.g., Draper, 2002) to more than 200 students (e.g., Cue, 1998; Draper and Brown, 2002; Wit, 2003). Although much of the early research and development of clickers was done by physics instructors, a creative or willing instructor can apply the technology to virtually any subject. ARS technology has been incorporated into courses in nursing (Halloran, 1995), communication (Jackson and Trees, 2003), engineering (van Dijk et al., 2001; d’Inverno et al., 2003), computer science (Draper, 2002; Draper and Brown, 2002; d’Inverno et al., 2003; Roschelle et al., 2004a), mathematics (Mays, personal communication1; Draper and Brown, 2002; Wit, 2003; Roschelle et al., 2004a; Caldwell et al., 2006), chemistry (Roschelle et al., 2004a; Bunce et al., 2006), philosophy (Draper and Brown, 2002), biology (McGraw, personal communication2; Draper, 2002; Draper and Brown, 2002; Brewer, 2004; Roschelle et al., 2004a; Wood, 2004; Hatch and Jensen, 2005; Knight and Wood, 2005), physics (Cue, 1998; Poulis et al., 1998; Dufresne et al., 2000; Burnstein and Lederman, 2001; Lindenfeld, 2001; Hake, 2002; Roschelle et al., 2004a; Pollock, 2005, 2006; Beatty et al., 2006), premedical education (Roschelle et al., 2004a), medical, veterinary, and dental education (Draper, 2002; Draper and Brown, 2002), business (Cue, 1998; Roschelle et al., 2004a; Beekes, 2006), economics (Simpson and Oliver, 2006), and psychology (Draper, 2002; Draper and Brown, 2002).

ARS technology has been successfully used in varied course formats, ranging from optional tutorials (d’Inverno et al., 2003) to formal standard lectures and cooperative learning through peer instruction (Nichol and Boyle, 2003). With a skilled instructor, an AR system can be a useful instructional tool for students of all ages and levels of preparation, from freshmen in large, introductory courses for nonmajors (Caldwell, unpublished observations),3 to juniors and seniors in required, high-level majors courses (Halloran, 1995; Knight and Wood, 2005) or even graduate students (Beekes, 2006). AR systems have also been used in elementary (Johnson and McLeod, 2004) and K–12 settings (Roschelle et al., 2004a).

Typical Characteristics of Questions

Typically, ARS questions are written before class as a part of preparing lecture notes or lesson plans. Inserting questions is typically no more difficult than creating a new slide in PowerPoint. Instructors can also add questions “on-the-fly” during class, when hit by a sudden inspiration, concern about student understanding, or a question from a student that could be addressed to the class as a whole.

Modes of implementation are as varied as the instructors who use them, but typically between two and five questions are given per 50 minutes of class instruction (e.g., Burnstein and Lederman, 2001; Elliot, 2003; Jackson and Trees, 2003; Beatty, 2004; Caldwell et al., 2006).

There are many types of questions, but some common features have been noted (e.g., Poulis et al., 1998; Draper et al., 2002, Simpson and Oliver, 2006). Among the common uses of clicker questions are the following:

1. to increase or manage interaction, through questions that:
   • start or focus discussions (Jackson and Trees, 2003)
   • require interaction with peers (Knight and Wood, 2005)
   • collect votes after a debate (Draper, 2002)
2. to assess student preparation and ensure accountability, through:

   1 These were unpublished observations of trigonometry classes (Math 128) at WVU in 2005, by M. Mays.
   2 These were personal communications between the author and J. McGraw and his students’ evaluations of an ecology course (Biology 221) at WVU in 2006.
   3 These were unpublished observations of General Biology 101 and 102 courses at WVU in 2005, by the author.
• questions about reading or homework (Knight and Wood, 2005)
• prelab questions
3. to find out more about students, by:
• surveying students’ thoughts about the pace, effectiveness, style, or topic of lecture
• polling student opinions or attitudes
• probing students’ pre-existing level of understanding
• asking how students feel about clickers and/or active learning
4. for formative (i.e., diagnostic) assessment, through questions that:
• assess students’ understanding of material in lecture
• reveal student misunderstandings of lecture (e.g., Wood, 2004)
• determine future direction of lecture, including the level of detail needed
• test students’ understanding of previous lecture notes
• assess students’ ability to apply lecture material to a new situation
• determine whether students are ready to continue after working a problem (Poulis et al., 1998)
• allow students to assess their own level of understanding at the end of a class (Halloran, 1995)
5. for quizzes or tests (Draper, 2002) although reports of using clickers for summative high-stakes testing are relatively rare. Quiz questions typically check whether students are:
• paying attention
• taking good notes
• preparing for class or labs
• keeping up with homework
• actively thinking
• able to recall material from previous lectures
6. to do practice problems, especially in math, chemistry, engineering, or physics courses
7. to guide thinking, review, or teach, including questions used to:
• review at the end of lecture
• give prelab tutorials (Draper, 2002)
• review for a test (Jackson and Trees, 2003)
• lead students through a multistep process by asking which step should come next (Wood, 2004)
8. to conduct experiments on or illustrate human responses (Draper et al., 2002; Simpson and Oliver, 2006)
9. to make lecture fun.

This list should in no way be considered limiting—ARS technology is a flexible tool limited only by the imagination of the instructor and the question format itself. As an example, some less common but innovative uses include:

• using an ARS as a “clapometer” to continuously monitor in real time whether students are confused (Cutts et al., 2004)
• using an ARS for “differentiated instruction” to track the level of understanding and progress in a small class with unevenly distributed abilities (Parsons, 2005)
• using questions with multiple correct answers or only partially correct answers to prompt discussion (Burnstein and Lederman, 2001).

Why Bother? Motivations for Clicker Use

To paraphrase Stephen Draper, technology is only worth using in the classroom when it addresses a specific instructional deficit (Draper, 1998). Many instructors have adopted clicker technology to compensate for the passive, one-way communication inherent in lecturing and the difficulty students experience in maintaining sustained concentration. This is certainly a case where “simple” technology can be enough to “overcome crucial problems in the traditional delivery” (Draper, 1998). Some institutions have adopted clickers solely for this reason, in the hope of addressing high attrition rates in the sciences by making lecture classes less passive and impersonal (Burnstein and Lederman, 2001).

Many of the courses that use clickers have abandoned lecture altogether or at least reduced it to a smaller component of class time (Draper et al., 2002; Cutts et al., 2004; Knight and Wood, 2005). These “interactive engagement” or “peer instruction” methods are quite powerful, but still fairly new to most instructors. The current discussion will focus primarily on motivations for using clickers within traditional lectures. Peer and interactive instruction methods will be discussed later in this article. Even when simply added to a traditional lecture, the “give-and-take atmosphere encouraged by use of clickers . . . makes the students more responsive in general, so that questions posed to the class as a whole during lecture are much more likely to elicit responses and discussion.” (Wood, 2004).

By their nature, clickers increase participation by allowing all students to respond to all questions asked by the instructor. The idea behind clickers is not new—teachers have used interactive, instructive questioning to teach students since at least the time of Socrates. This style of interaction, however, becomes very difficult as class size increases. Students in large classes are often hesitant or unwilling to speak up because of fear of public mistakes or embarrassment, fear of peer disapproval, pre-existing expectations of passive behavior in a lecture course—both on the part of lecturer and students, or even uncertainty of acceptable behavior in a class that may be larger than one’s own hometown. Instructors have tried countless creative methods to prompt student participation, from calling on student volunteers, calling student names from a roll book, or assigning a different set of “special volunteers” who are designated participants each day (Wiedemeier, personal communication). These options maintain participation but by their nature only elicit participation from a fraction of the class. These methods of sampling class opinion, unfortunately, are vulnerable to small sample size problems: a small but vocal minority can give the impression that the silent majority of the class understands (or misunderstands) a topic (Simpson and Oliver, 2006).

Instructors can instead use other equally low-tech methods to ask the entire class a question and collect responses by “show-of-hands” votes, applause or other audible feedback, 4

4 Dr. Wiedemeier randomly chooses a different small group of students each day, designated “Wied’s Wonderful,” from her large lecture course of more than 300 students. These students answer questions and are designated the “volunteers” (as needed) during the current class meeting for extra credit.
and prefabricated response cards that indicate a vote with various colors, shapes, or words (Heward et al., 1996). However, these low-tech methods, although less expensive, have several disadvantages. The lack of privacy during voting may prevent completely honest votes, time constraints may preclude accurate estimates, and (aside from the applause method) the overall trend of student responses is only truly apparent to the instructor.

These shortcomings are directly addressed by ARS technology, which not only allows private votes, but also accurately tallies and displays them very quickly. A further benefit of ARS questioning is the permanent and individualized record of student votes that can be accessed after the class. These records can be used later for attendance records, student tutorials, lesson planning, or educational research.

Clickers are useful in sustaining attention and breaking up lectures. It has been demonstrated that the most well-recalled portion of a lecture is the first five minutes (Burns, 1985), so using clickers to emphasize an important concept at the beginning of class may make good use of this phenomenon, as well as helping students to focus and settle down at the start of class (Elliot, 2003). Sometimes the latter half of lectures is lost; because the average human attention span is no more than 20 minutes, recall of information drops drastically after 15–20 minutes (Burns, 1985), and students themselves report that the longest time they can comfortably endure uninterrupted lecture is 20–30 minutes (MacManaway, 1970). Periodic breaks (e.g., for clicker questions) may help relieve student fatigue and "restart the attention clock" (Middendorf and Kalish, 1996). Some educators recommend using these breaks for relevant demonstrations or activities, including a "debriefing" at the end to ensure that students get the point (Middendorf and Kalish, 1996; Allen and Tanner, 2005). Clicker questions seem ideal for this debriefing, because they are active and can demonstrate to the lecturer whether that point has gotten across.

Clickers can help reveal student misunderstandings, as long as questions are carefully designed (discussed below). This is often an exciting and helpful moment for lecturers who assumed that their students were following along. The following comments from a biology instructor are illustrative, after discovering that although 90% of his students recalled a rule of genetics, only 48% were able to apply it following comments from a biology instructor are illustrative, after discovering that although 90% of his students

"For me, this was a moment of revelation. . . . for the first time in over 20 years of lecturing I knew . . . that over half the class didn’t ‘get it’ . . . . Because I had already explained the phenomenon as clearly as I could, I simply asked the students to debate briefly with their neighbors and see who could convince whom about which answer was correct. The class erupted into animated conversation. After a few minutes, I asked for a revote, and now over 90% gave the correct answer . . . .” (Wood, 2004).

The literature abounds with such inspiring examples (e.g., d’Inverno et al., 2003). Often a few questions will be needed for students to practice and fully master a difficult new idea. Although this takes away from lecture time, it appears that this practice time is well spent. For example, during a set of practice questions a class improved from 16% correct to 100% correct after three questions. Furthermore, when asked a similar question one week later, 80% still answered correctly (Hatch and Jensen, 2005).

These examples illustrate the powerful potential of clickers not just to reveal but to address student misconceptions as part of formative assessment. This means that rather than simply noting the responses of students, the instructor responds to them and may use them to modify the subsequent direction of the lecture. Not only does this imply that instructors use poor responses as a cue for further explanation, but also that if students demonstrate solid understanding of a topic, it is unnecessary to lecture further on it. This approach does entail some amount of thinking on one’s feet and planning lectures for contingencies, but instructors who take this approach regularly offer assurance that it becomes easier with practice (Beatty, 2004).

Clickers are a boon because they “increase the ease with which teachers can engage all students in frequent formative assessment” (Roschelle et al., 2004a). They can offer rapid feedback to the instructor both about the course and the quality of the teaching (Draper et al., 2002). To use formative assessment successfully as part of classroom teaching, it helps to write good clicker questions, including some that not all students will answer correctly (discussed further below). It is also advisable for the instructor to focus the attention of students on the reasoning involved, rather than the “rightness” of specific answers (Dufresne et al., 2000).

Clickers tend to change the atmosphere of lectures (Roschelle et al., 2004a, 2004b). Although pressing buttons on a clicker itself does not seem very much like active engagement, instructors frequently report that students who use clickers become more visibly active participants as well, more likely to ask and answer questions (Elliot, 2003; Beekes, 2006). Instructors who use the systems strongly advocate that students who commit to an answer—even if they just guess—are “emotionally” or “psychologically invested” in the question and pay better attention to the discussion that follows (Wit, 2003; Beatty, 2004). Students not only become more aware of the diversity of ideas and understanding within the classroom (Roschelle et al., 2004b), but also realize when they are not alone in their confusion (Knight and Wood, 2005). In general, students think clickers are fun, and their use tends to liven up a classroom. Instructors report less sleeping, more discussion, and improved alertness during class (Jackson and Trees, 2003). Increases in attendance have been repeatedly documented, particularly when performance on ARS questions is linked to grades (Burnstein and Lederman, 2001; Jackson and Trees, 2003; Wit, 2003; Caldwell, unpublished observations).

Clickers offer an efficient way to hold all students accountable for preclass preparation. Students who were regularly quizzed on readings prepared more for class, but didn’t seem to mind so long as they earned something toward their final grades. This offers an instructor a way out of two common dilemmas: the need to “cover” the material in lecture leaves little time for more interactive teaching, and many students in a standard lecture course disregard reading assignments because they believe the important material will be covered in class. If clickers are used for brief quizzes on assigned readings or homework to encourage preparation, then class time can then be spent in more productive ways than “coverage” (e.g., Knight and Wood, 2005).
The most important motivation for using clickers, however, is their benefit to learning. Some educators have noted that the instructor feedback provided by clickers may in itself spur changes in teaching approach (d’Inverno et al., 2003). Depending on the method of implementation, typical classroom outcomes include increased student response and interaction—both with peers and with the instructor, improved student understanding and learning (even of complex material), improved achievement on exams, increased attendance, and increased instructor awareness of student problems (Johnson and McLeod, 2004; Roschelle et al., 2004a, 2004b; Knight and Wood, 2005). These outcomes will be discussed in more detail in the review of research that follows.

LITERATURE REVIEW

General Summary of the State of the Field

A wealth of journal articles explore the uses, outcomes, and benefits of clicker use, and some good reviews exist (McDermott and Redish, 1999; Roschelle et al., 2004a; Duncan, 2005; Simpson and Oliver, 2006). Most reviews agree that “ample converging evidence” suggests that clickers generally cause improved student outcomes such as improved exam scores or passing rates, student comprehension, and learning and that students like clickers. The reviews of the literature, however, also agree that much of the research so far is not systematic enough to permit scientific conclusions about what causes the benefits (Roschelle et al., 2004a, 2004b; Simpson and Oliver, 2006). It is possible that the alteration of teaching methods associated with clickers is responsible, rather than the use of clickers themselves. It is also possible that a “Hawthorne Effect” (Mayo, 1977) is responsible: the treatment of our student “test subjects” is different when we use clickers, and this special treatment causes the improvement rather than the use of clickers themselves. It is also possible that a “Hawthorne Effect” (Mayo, 1977) is responsible: the treatment of our student “test subjects” is different when we use clickers, and this special treatment causes the improvement rather than the use of clickers themselves. This explanation seems less likely when the systems have been used several times by an instructor and are thus no longer novel (Poulis et al., 1998), but a Hawthorne effect is difficult to rule out.

A tentative explanation (Poulis et al., 1998) for positive effects of clickers on student achievement suggests several factors:

- increased active participation of students during lecture
- removal of the “house of cards effect,” in which students understand new material poorly because it is based on other poorly understood material
- use of discussions and peer learning in many implementations.

For clicker research to proceed rapidly in a variety of fields, good standardized tests that assess student understanding of concepts would be helpful to evaluate the effect of various instructional methods (Hake, 2002). Such exams do exist in physics, astronomy, and economics, but are only slowly becoming available in other fields (Anderson et al., 2002; Hake, 2002; Klymkowsky et al., 2003).

Generally the use of clickers improves or does not harm exam scores (Knight and Wood, 2005). There are so far no consistent factors in clicker-using courses that correlate with increased exam scores: the style of teaching varies, as does the presence or absence of peer-learning activities (Simpson and Oliver, 2006).

The use of an AR system does increase the likelihood of active student engagement during class (van Dijk et al., 2001). Students reported that they were twice as likely to work on a problem presented during class if answers were submitted by clicker than by show of hands—and even more likely if credit was given for answering (Cutts et al., 2004). For instructors not comfortable with significant amounts of peer learning during class, a still worthwhile compromise may be a combination of an ARS used with traditional lecture. Research has shown that the amount of content coverage and level of interaction obtained when using an ARS in a lecture is intermediate between traditional lecture (high content, low interaction) and more intensive application of peer learning (reduced content, high interaction; van Dijk et al., 2001).

Improvements in Attendance, Retention, and Sometimes Grades

When linked to grades, and particularly if it becomes a daily feature of class, an ARS increases attendance (Cue, 1998; Jackson and Trees, 2003). Physics instructors report that when clicker scores accounted for 15% or more of the course grade, attendance levels rose to 80–90%, preparation for quizzes became more serious, and students were noticeably more alert during class (Burnstein and Lederman, 2001).

Figure 1 shows that attendance can be increased if clicker points are worth just 10% of the course grade (Caldwell, unpublished observations). Other instructors, however, report that when clickers constitute 5% or less to the course grade, their effect on attendance remains negligible (Merovich, personal communication; Zelkowski, personal communication). This seems to be common sense: when students are held accountable, they are more likely to meet our expectations. Some instructors suggest that linking interactive instruction to grade incentives causes students to take it more seriously (Hake, 1998; Cutts et al., 2004).

Clickers appear to reduce student attrition compared with lecture without clickers. Table 1 compares the attendance at the beginning and end of the semester in two courses conducted with and without clickers. With clickers, roughly 4% of students stopped attending by the final exam. This attrition rate was noticeably higher without the clickers, ranging from 8 to nearly 12%. A possible explanation is related to the regular attendance encouraged by daily clicker questions and attendance checks. Students were either better prepared for the exam and chose to attend or were more invested in the course after having spent so much time attending—regardless of preparation. In any case, it is interesting to note that attrition was dramatically reduced during fall semester, when freshmen are typically adjusting to college life.

Figure 2 indicates similar positive outcomes from clicker use in a mathematics course (Mays, personal communication): Use of clickers increased the number of A’s earned by 4.7%, reduced the rate of withdrawal by nearly 3%, and decreased the combined proportion of students earning D’s, F’s, or withdrawing by 3.8%. These results suggest that active engagement in class boosts achievement for at least some students and prevents others from dropping or failing the course. These findings are consistent with J. Zelkowski’s
Coping with Decreased Lecture Coverage

Most studies of clicker use agree that when time is spent on ARS activities there is usually a decrease in content coverage (Burnstein and Lederman, 2001; Simpson and Oliver, 2006; McGraw, personal communication). Generally this decreased coverage is considered “more than compensated” by perceived improvements in student comprehension, instructor awareness of student difficulties, and the ability to assess instantly whether the pace of the course is appropriate (Elliot, 2003; Beatty, 2004).

One solution to decreased coverage is the use of lecture “scripts” or outlines. An instructive example comes from Belfast (Burns, 1985): Students given transcripts of lectures and asked not to attend class produced better notes and achieved higher test scores than students who did attend the lecture class (but were not given the transcript)—as long as the class was lecture only. This suggests an alternative: We could give students a lecture outline for portions of the lecture we choose to omit in favor of clicker questions, as was done in an engineering course (d’Inverno et al., 2003). Just-in-Time-Teaching (JiTT) offers another alternative: Web-based classroom management systems are used to give students “warm up exercises” outside of class and to hold them responsible for learning material before class; class time is used to refine and apply those understandings (Novak et al., 1999; Marrs and Novak, 2004; Smith et al., 2005). Another successful method is to make students more responsible for reading and homework outside of class, by assessing comprehension using clickers at the beginning of class meetings, as described above (Knight and Wood, 2005).

If concerns about content coverage are severe, it may be worth evaluating the purpose and goals of lecture within the course. Studies of lecturing indicate that more coverage does not necessarily indicate more learning or more retention by students (Johnstone and Su, 1994). Furthermore, because students remember only 20–25% of the information we present, even in that most fertile, first 15–20 minutes of class (Burns, 1985), it seems that our time might be better spent in activities other than lecturing—such as peer instruction or problem solving. An underlying assumption noted in much of the literature on clicker usage is the conviction that covering content is not the most effective way to teach and that active engagement leads to more effective learning (Draper et al., 2002; Cutts et al., 2004; Knight and Wood, 2005; Simpson and Oliver, 2006).

Attitudes Toward Clickers

Student Attitudes. A sampling of student attitudes toward clickers is included in Figure 3. About 88% of students either “frequently” or “always” enjoyed using the clickers in class. This reflects the overall trend in the literature: most students like using clickers. When asked if clickers were enjoyable, helpful, or should be used, students typically gave approval ratings around or above 70%, or average Lichert scale ratings above 4 on a scale of 1–5 (McDermott and Redish, 1999; Draper et al., 2002; d’Inverno et al., 2003; Elliot, 2003; Beekes, 2006; Bunce et al., 2006; Simpson and Oliver, 2006). Students’ ratings of the system are less consistent when asked if the system helps them learn or concentrate, but are still generally positive (McDermott and Redish, 1999; Elliot, 2003; Hatch and Jensen, 2005; Beekes, 2006). Sometimes students felt that the system was helpful even when there was no evidence of significant improvement in exam scores over non-ARS classes (Bunce et al., 2006).

When clickers were used, students tended to view the instructor as more aware of students’ needs and the teaching style as more “immediate (warm, friendly, close)” (Jackson and Trees, 2003; Nichol and Boyle, 2003) or caring (Knight and Wood, 2005).

Features that students particularly liked about the system were its anonymity (Jackson and Trees, 2003), its potential to
reinforce learning (Bunce et al., 2006), and the possibility of comparing one’s answers with the rest of the class (Bunce et al., 2006) because “they like the reassurance that they’re not alone even when they’re wrong.” (Beatty, 2004) When allowed to work in groups, they feel that talking with a classmate helped their understanding, and collaborative work was important to learning (e.g., summarized comments from M. Butler’s math students in Caldwell et al., 2006).

Some student comments from a recent course at WVU include (McGraw, personal communication):

• [clicker quizzes are] “better than written quizzes [because we] got feedback right away.”

• “I enjoyed using the clickers.”

• “I like the clickers [because] it helps in the learning experience [because] you can talk out some problems with others.”

• “I liked the clickers better than paper quizzes.”

• “I really enjoyed using the clickers. It did help reinforce the material and provided a nice break in lecture and a chance to make sure you understand the material.”

Not all students like clickers. Some negative reactions in the past have included: “stop messing around with technology and get back to good basic teaching” (d’Inverno et al., 2003). Although negative responses are generally outnumbered by positive ones in any individual course, some general trends in complaints are notable. Students who complain about little else will complain about the cost of a clicker. To address this concern, some institutions (e.g.,

---

**Table 1. Effect of clickers on attrition over the semester in freshman nonmajors biology courses at WVU**

<table>
<thead>
<tr>
<th>Lecture treatment</th>
<th>Biology 101 (Fall) % Attendance</th>
<th>Biology 102 (Spring) % Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First exam</td>
<td>Final exam</td>
</tr>
<tr>
<td>Without ARS</td>
<td>100</td>
<td>88.1</td>
</tr>
<tr>
<td>With ARS</td>
<td>100</td>
<td>95.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lecture treatment</th>
<th>Percent decline</th>
<th>Percent decline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without ARS</td>
<td>11.9</td>
<td>8.1</td>
</tr>
<tr>
<td>With ARS</td>
<td>4.3</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Use of clickers decreased attrition to 4–8% by the final exam. Biology 101 probably showed a higher overall rate of attrition because it is offered in fall, when more students withdraw from college; Biology 102 is offered in spring, and serves students who have survived that first round of attrition. All courses enroll a maximum of 250 students (Caldwell, unpublished data).

---

**Figure 2.** Effect of clickers on grade distribution for two sections of college trigonometry taught at WVU. Courses were taught by the same instructor, the same semester, using the same course curricula, but in different rooms—one of which lacked an ARS. The total enrollments for the non-ARS and ARS courses were, respectively, 211 and 194 (Mays, personal communication).

**Figure 3.** Students in an introductory nonmajors freshman biology course at WVU (as in Figure 1) evaluated clickers as part of standardized course evaluations. Students who did not respond to this question totaled to 1.6%. The instructor was not present during the evaluation, and students were reminded that their responses would not be given to the instructor until after final course grades were submitted. The response by 125 students is 77% of the total enrollment (Caldwell, unpublished observations).
WVU) currently purchase clickers that are stored in wall-mounted distribution boxes and picked up and returned by students at each class meeting.

Other predictably negative student reactions to clickers occur in response to lost clickers, technical problems with software or instructor’s lack of experience, consumption of class time, and the idea of “forcing” or monitoring attendance in a college class (Halloran, 1995; Knight and Wood, 2005). Other problems occur when the learning value of the questions was unclear and they seemed to be included just for the sake of using the ARS technology, to gather data for future years, or for no reason at all (Simpson and Oliver, 2006). Students are understandably unhappy when the clickers seem to be driving course content and not vice versa (Simpson and Oliver, 2006). Some students who prefer a competitive class atmosphere dislike the use of clickers for cooperative learning activities (e.g., Knight and Wood, 2005).

Some students report anxiety about using clickers, usually because the scores are part of their course grade, and they are unsure whether answers were recorded properly (Jackson and Trees, 2003; Johnson and McLeod, 2004). Instructors have noted that regular communication about clicker scores may reduce this anxiety (Jackson and Trees, 2003). Others recommend a low-stakes contribution of clickers to grades, so that attention remains focused on reasoning and not scores (Beatty, 2004). Popular ways of keeping the pressure off include: giving partial credit for any answer and full credit for correct answers, using only randomly selected clicker data as part of the grade, and dropping a handful of lowest clicker scores from each student’s grade.

Instructor Attitudes. Like students, most instructors rate the ARS experience favorably. In general, they view it as a quick and convenient way to check student understanding. They note that their students are more active, attentive, and pleasant to teach. Typical comments include:

- “I have never seen a student doze off during a CCS [classroom communication system]-based class.” (Beatty, 2004).
- “In my experience [with an ARS] there is nothing [else] that engenders discussion in a large class to the same extent. . . . When [students] see that the choices that they have made are controversial, they are eager to discuss them.” (Lindenfeld, 2001).
- “[ARS use] has had a very significant effect on students’ performance in lectures, stimulating their interest and concentration as well as their enjoyment of lectures. . . . I felt that students were more willing to ask questions in both lectures and follow-up tutorials [when an ARS was used in lecture] . . . (Elliot, 2003).”
- “I do feel more learning went on in the classroom, and student attention was improved. . . . I will use them again. I really like the instant feedback.” (McGraw, personal communication).
- “[Compared with traditional lecture] . . . teaching with clickers is a lot more fun!” (Wood, 2004).
- “. . . if students enjoy the [ARS] session, they appear to be more receptive to technical issues and material that otherwise would have been difficult to teach.” (Beekes, 2006).
- “. . . my teaching is being directed more by what the students. . . say they need, rather than what I think they need.” (Draper, 2002).

Of course, not all faculty like clickers. Negative reactions understandably occur when the systems experience technical problems or lack technical support from IT staff, but also if they are only used for recording attendance. Faculty concerns about using an ARS include its expense and the time that questions consume during class (Brewer, 2004). This latter concern, mentioned above, is addressed further below.

BEST PRACTICE TIPS

Several texts exist to help a new user of clickers get started (Mazur, 1997; Duncan, 2005). Various other articles provide the following list of suggestions for effectively using clickers in class.

Planning

- Know why you are using an ARS in class, and keep this in mind while writing questions (Draper, 2002).
- Plan your grading system in advance. Make sure it aligns with your learning goals (Duncan, 2005).
- Plan in advance for how to deal with students whose clickers are forgotten, need batteries, or are broken: Use slips of paper, have students trade ID cards for clickers, or keep some “loaner” clickers on hand. Discourage perpetual freeloaders (Duncan, 2005; Hatch and Jensen, 2005).
- Before teaching your first course, watch another instructor who uses an ARS (Draper, 2002).
- Be aware that the first year of use requires extra time to prepare good questions (Burnstein and Lederman, 2001).

Attendance

- If you want to increase attendance, use clickers daily and link clicker usage to grades (Cue, 1998).
- Use clickers especially with introductory courses for freshmen to encourage attendance and accountability and to reduce attrition (Caldwell, unpublished observations).
- If you are requiring attendance, expect an increase in noise and possibly some disengaged students who are attending only for points (Jackson and Trees, 2003).

Communication with Students

- Explain to students why you are using the system and what you expect students to gain from the experience in order to get them to support the idea, especially if you are using it for nontraditional activities like active learning (Simpson and Oliver, 2006).
- Plan discussion time to respond to ARS answers. Be willing to adapt your lesson plan according to the results you collect. Let students “learn from the discussion of right and wrong answers.” This is considered vital by most researchers in the field (Poulis et al., 1998; Draper, 2002; Draper et al., 2002; Nichol and Boyle, 2003; Beatty et al., 2006; Simpson and Oliver, 2006).
- If incorporating a classwide discussion into your ARS use,
be sure to summarize the discussion and explain the correct answer afterward (Nichol and Boyle, 2003).

- Explain to students the purpose of homework, and use clickers to hold them accountable (Cutts et al., 2004).
- Discuss cheating with students, and clearly state that use of another student’s clicker is unacceptable (Duncan, 2005). In a survey, between 20 and 58% of students reported seeing a classmate cheat by using multiple clickers at some point during the semester (Jackson and Trees, 2003).

Peer Learning

- If using peer learning groups, limit group size to no more than four to six members (MacManaway, 1970). Students seem to prefer small-group discussions to classwide discussions led by the instructor (Nichol and Boyle, 2003).

Grades and Anxiety

- If clicker scores are part of the course grade, make those scores accessible on a regular basis to reduce student anxiety (Jackson and Trees, 2003). Consider showing students clicker scores from past semesters on the first day of class (Duncan, 2005).
- Give partial credit for any answer and full credit for correct answers to reduce anxiety and limit cheating. Consider dropping a few of the lowest clicker scores or selecting a portion of data at random (Duncan, 2005).

Prevent Wasted Time and Frustration

- Spend some time in the first classes training students to use clickers (Draper, 2002).
- Set up the system before class, and practice this before the semester begins (Draper, 2002; Duncan, 2005).
- If your clickers require a registration system, test it in advance (Duncan, 2005).
- Allow a few days for students to buy and/or register clickers. Be aware that in some cases, 5–10% of students never purchased or registered their clickers (Hatch and Jensen, 2005).
- Expect that a few students will intentionally press the wrong button, cast misleading votes, or delay voting to consume class time (Simpson and Oliver, 2006; Caldwell, unpublished observations).
- If possible, find a resource person, train a teaching assistant, or start a faculty support group.

Other Survival Tips

- Keep a positive attitude, and be willing to make a few mistakes as you learn. Consider this a chance to model the learning behavior you desire from your students (Draper, 2002; Beatty, 2004; Dufresne et al., 2000).
- Be willing to throw out or regrade a question that contains an error or is unclear.
- Encourage students to discuss answers with each other. This increases peer learning and will eliminate one type of “cheating.”
- Encourage class discussion of incorrect answers to reveal unclear wording; this can be especially important if you notice dramatic improvement in scores after peer discussion (Knight and Wood, 2005).
- Consider building a library of ARS questions with colleagues, as too few of these exist in most fields.

WRITING EFFECTIVE QUESTIONS

Clickers are a flexible tool, but like most technology are not a panacea in and of themselves. This theme repeats frequently in the clicker literature (Draper et al., 2002; Hake, 2002; Jackson and Trees, 2003; Wood, 2004; Parsons, 2005; Beatty et al., 2006; Simpson and Oliver, 2006): ARS questions are “best understood as a tool rather than a teaching approach” (Simpson and Oliver, 2006), and their effectiveness in increasing learning depends heavily on the intent and thought behind their design. One recommendation is that the instructor approach class meetings as learning sessions rather than knowledge-dispensing sessions (Beatty, 2004).

There is overall a consensus that it takes some time and practice to develop good questions and that they must be carefully designed and “woven” into lecture (Burnstein and Lederman, 2001; Elliot, 2003; Beatty et al., 2006; Simpson and Oliver, 2006). In general, there are few (if any) collections of good clicker questions available for most fields (Jackson and Trees, 2003; Beatty et al., 2006) beyond collections for physics (Mazur, 1997), although some concept tests for specific biological topics have been published in recent years (Anderson et al., 2002; Udovic et al., 2002).

If properly designed, clicker questions may enable courses to be more attuned to the way human learning and memory works than simple lecture. Traditional lectures may produce poor results because they fail to account for the “chunking” of information into categories, linking of new information with familiar concepts or creation of new categories, and the use of examples and practice to learn new concepts (Middendorf and Kalish, 1996). If the way we learn is kept in mind, however, it is possible to design clicker questions that favor learning. By this criterion, examples of good questions include presenting a new concept and asking which ideas (or categories) it is most closely related to, showing an example of a new concept, or applying a mastered concept to a new situation.

There is general agreement that a good clicker question is different from a good exam question, but exam questions can be modified for this use (Beatty et al., 2006). Some detailed treatments of question design are available in the literature (e.g., Beatty et al., 2006). Generally speaking, qualitative questions (that avoid calculations, memorization, or facts) are favored because they guide the student to focus on the concept without becoming distracted by details (Beatty, 2004; Beatty et al., 2006). Some useful goals for question design can be culled from the literature:

1. Good clicker questions should address a specific learning goal, content goal, skill, or reinforce a specific belief about learning (Beatty et al., 2006).
2. Questions can (Beatty, 2004):
   - assess students’ background, knowledge, or beliefs
   - make students aware of others’ views or of their own
   - locate misconceptions and confusion
   - distinguish between related ideas
• show parallels or connections between ideas
• explore or apply ideas in a new context.

Some examples of questions recommended by the literature include (Dufresne et al., 2000; Wit, 2003):

• given a term or concept, identify the correct definition from a list, and vice versa
• given a graph, match it with the best description or interpretation, and vice versa
• match a method of analysis with an appropriate data set, and vice versa
• questions that link the general to the specific
• questions that share a familiar situation or example with several other questions
• questions that students cannot answer, to motivate discussion and curiosity before introducing a new topic
• questions that require ideas or steps to be sorted into order
• questions that list steps and ask “which one is wrong?”
• questions that apply a familiar idea to a new context.

Several researchers assert that it is useful, and even important, to design questions that produce a wide set of responses or on which some portion of the class makes mistakes (Dufresne et al., 2000; Hake, 2002; Wit, 2003; Beatty, 2004; Brewer, 2004; Johnson and McLeod, 2004; Wilson et al., 2006). Others seem to agree, asserting that exploring those misconceptions can be an important part of steering students toward deeper understanding, not just factual knowledge (Tanner and Allen, 2005). To construct such questions, it is helpful to:

• identify student misconceptions and include them as answers, plausibly phrased
• “shut up and listen” to students to find out how they think, and pay particular attention to wrong answers
• include answers that contain common errors.

A variety of questions is usually deemed useful. While instructors are learning to write questions, often most of their questions consist of factual recall (Brewer, 2004). One set of researchers reports that asking instructors to identify the type of question they are writing can help increase the diversity of questions (Brewer, 2004).

Practical suggestions include (Wit, 2003; Beekes, 2006):

• limit the number of answers to five or less, so that question is easy to read and consider
• assess knowledge of jargon separately from concepts to ensure that each is addressed clearly and effectively
• create wrong answers (distractors) that seem logical or plausible to prevent “strategizing” students from easily eliminating wrong answers
• include “I don’t know” as an answer choice to prevent guessing
• plan to ask some questions twice to allow peer learning and build emotional investment. (Allow students to answer individually, but do not display the correct answer; then direct students to discuss the question with their peers and answer again.) This approach is advocated by many instructors who have used clickers, including Wilson et al. (2006) and Knight and Wood (2005).

CLICKERS AND PEER LEARNING

One method of instruction that particularly benefits from clickers is peer learning. Peer learning has attracted a high level of interest—especially in the physics education community—because peer learning and other active learning methods have been demonstrated to result in higher learning gains and/or exam scores than more traditional, content-based approaches to course material such as lecture (MacManaway, 1970; Hake, 1998; Pollock, 2006). Although it exists in many formats, ranging from ConceptTests (tests of conceptual understanding, often alternating with mini-lectures; Mazur, 1997; Anderson et al., 2002; Udovic et al., 2002) to question cycles (Beatty et al., 2006), the overall theme of peer learning is similar: Students spend a significant portion of class time working or discussing problems in small groups.

For the instructor, clickers offer an efficient means to monitor progress and problems in peer-learning groups and to intervene when either the class is very confused or has understood the concept thoroughly and is ready to move on. In practice, such “interactive engagement” methods have been shown to be twice as effective as traditional lecture (Hake, 1998). It is not necessary, however, to abandon lecture altogether: The setting for this nontraditional approach can still be a traditional lecture hall, and the peer instruction may be inserted into a traditional lecture or interspersed between mini-lectures. The strength of peer instruction is the interaction it fosters between students, who by virtue of their similar ages, language, and common experience, are often “better at clearing up each other’s confusions and misconceptions” than their instructor (Wood, 2004).

There are two fairly distinct approaches to peer instruction that differ in when the group interaction occurs (Nichol and Boyle, 2003). The classwide discussion method (also known in the literature as the “PERG” approach) begins with a question and proceeds immediately to small-group discussion to answer it, followed by full-class discussion. The peer-learning model (also known in the literature as Peer Instruction) requires that students think and answer independently first, see the answers, and then spend time in groups struggling to reach a consensus answer. Some data indicate that the latter method works better in larger classes, because individual answers force stronger engagement, and the class discussion portion of PERG may introduce too much confusion, unless the question asked is very difficult (Nichol and Boyle, 2003). In practice, a careful combination of the two methods by an observant instructor may be best.

Students themselves feel that discussion with other students is helpful. In surveys about peer learning (Nichol and Boyle, 2003), 92% of students agreed that discussing questions with others aided understanding, 82% agreed that hearing others’ explanations helped them learn, and more than 90% reported that the moment they felt most engaged during class was while working in small peer groups. Instructors agree that “when a student must cast such [ill-formed or nebulous] thinking into language...deficiencies become evident [to the student]” (Beatty et al., 2006). This
Clickers in the Large Classroom

opportunity for cooperative learning with peers has great potential as a means for training students for cooperative interactions in future employment (Knight and Wood, 2005; Smith et al., 2005) and for stemming the “hemorrhage” of students who dislike the traditionally competitive atmosphere of courses in science, technology, engineering, and mathematics (Tobias, 1990).

Peer learning appears to work: Students who used class time primarily to discuss assigned topics in small groups did at least as well or better as a class than students who experienced traditional lecture (MacManaway, 1970). Students who participated in peer-learning groups made statements (when interviewed) that support the idea that more able or knowledgeable students do generally help those who are less advanced achieve a higher level of understanding (Nichol and Boyle, 2003). Peer-learning approaches in physics tend to emphasize conceptual understanding more heavily than numerical problem solving. The benefits of this approach are that it improves both conceptual understanding and problem-solving skills more than courses that focus primarily on solving numeric problems (Hake, 1998). Similar approaches in biology courses have shown significant improvement in measured student learning gains over traditional lecture-only approaches (Knight and Wood, 2005).

CONCLUSIONS

Overall, clickers offer a powerful and flexible tool for teaching. They can be used in a variety of subjects with students of almost any level of academic training. Clickers may occupy either a peripheral or central role during class. They can be incorporated into a standard lecture course to increase interaction between students and instructor or used as part of a more radical change in teaching style toward primarily active learning in class (whether it be peer learning, debate, or other activities).

Clickers can be used with many styles of questions, and new variations on the technology allow formats other than multiple-choice questions (Barber and Njus, 2007). The only “rule” for question design is that each question’s structure and content reflect specific learning goals. Questions may have a single correct answer or be designed without any “right” answer in order to encourage debate and discussion.

Although much research remains to be done to elucidate the reasons why clickers are effective, they do seem to enhance students’ active learning, participation, and enjoyment of classes. When used during lectures, clickers have either neutral or positive effects and a more strongly positive effect on learning outcomes when combined with peer or cooperative learning. They increase attendance and retention and can be used to promote student accountability. They simulate a one-to-many dialogue and make it easier for both instructors and students to receive prompt feedback.

Overall, clickers have the potential to improve classroom learning, especially in large classes. Students and instructors find their use stimulating, revealing, motivating, and—as an added benefit—just plain fun.

ACKNOWLEDGMENTS

I gratefully acknowledges the support of the Eberly College of Arts and Sciences at WVU, who purchased clickers and gave financial support during my initial implementation of clickers in General Biology classes for nonmajors. I am also grateful for the financial support of the WVU Office of the Provost, which provided summer salary for the production of this literature review and has now supported the implementation of radiofrequency clickers at WVU. Jeremy Zelkowski, Melanie Butler, and Michael Mays of the WVU Department of Mathematics, as well as Catherine Merovich and James McGraw of the WVU Department of Biology, are all thanked for stimulating discussions and their willingness to share data and observations for this report.

REFERENCES


Mediasite

Taken from the web site of Mediasite
http://www.sonicfoundry.com/mediasite/whychoosemediasite/

Your know-how, online now.

Record and deliver your online learning, interactive lectures and multimedia presentations automatically with Mediasite – the easiest, most reliable and most complete webcasting and knowledge management platform.

Your presenters teach, train or present as they always do, while Mediasite records everything they say and show and immediately delivers their multimedia presentation online for audiences to watch anytime, anywhere.

Discover how Mediasite works or read on to see how you can put Mediasite to work for you.

Universities and colleges use Mediasite to capture lectures and presentations for both hybrid or blended and online learning, special events, training and alum relations:

› improve student learning, retention and matriculation
› increase enrollment without new classrooms
› generate new revenue through online and continuing education programs
› bolster recruitment and outreach
› capture, preserve and repurpose campus events

Businesses, healthcare facilities and government agencies use Mediasite to webcast training, employee briefings and corporate communications:

› build stronger teams with direct management-employee communication
› reduce travel and boost efficiency
› empower staff through training and professional development
› capture, preserve and extend the reach of conferences and other events
› strengthen sales, marketing and investor communications
› reduce customer support costs and increase satisfaction
Hit record and start talking. Really.

Mediasite is designed with your presenters in mind. It automatically records what they say and show and webcasts it live or on-demand – without changing how they present.

Mediasite Recorders automate the capture and delivery of multimedia presentations that combine audio, video and high resolution presentation graphics.

The result is the industry’s simplest workflow, eliminating time-consuming authoring or post-productio work. Plus, seamless integration with your existing audio/video and educational technology means you can confidently scale rich media webcasting throughout your academic or corporate enterprise.

**Mediasite RL Recorder**
- For your lecture halls, smart classrooms, conference and training rooms or auditoriums
- Integrates with Crestron, AMX, and Mediatech room control systems

**Mediasite ML Recorder**
- For on-the-go webcasting, live off-site events, guest speakers, conferences and trade shows
- Rugged, portable appliance moves easily from location to location and can be setup and ready to record in minutes

Why customers choose Mediasite Recorders:
- **Easiest to use** – no need for presenters to pre-upload slides, install any software, change the way they present or learn new technology
- **Live and on-demand** – record and stream presentations for users to watch now, later or both

---

2
Why choose Mediasite?  

Three reasons.

Mediasite is the easiest to use

- Lets presenters present as usual – no slide uploads, software installations or new technology to learn
- Transforms your video, audio and visual aids instantly into interactive multimedia presentations
- Starts and stops recording automatically with the built-in Scheduler for operator-free capture and publishing
- Integrates with your preferred Crestron or AMX room automation systems
- Eliminates post-production and transcoding delays – online content is ready to watch immediately
- Creates online presentation catalogs automatically without web development or integration skills
- Requires only a browser to watch presentations from any PC or Mac

Mediasite is the most reliable

- Never misses a capture thanks to our time-tested, patented recording technology
- Eliminates potential operator error with automated start/stop schedules
- Ensures high quality, error-free recording because you visually monitor video and slide inputs
- Facilitates web-based monitoring and management from anywhere
- Makes even high content volumes available without delay by simultaneously publishing from multiple Mediasite Recorders
- Guarantees your online presentations are secure with built in role-based security and integration with your Active Directory or LDAP directories
- Ensures high availability and redundancy with load balancing support
- Facilitates web-based monitoring and management from anywhere
- Scales dependably – from small implementations to campus- or company-wide
- Trusted by loyal customers and recognized as the best in class

Mediasite is the most complete

- Records, delivers, archives and manages your multimedia presentations with a single, unified system
- Streams live and on-demand, plus podcasts so users can tune in when it’s most convenient
- Provides all the tools to schedule, organize, index, customize, secure and track content
- Tracks all viewing activity and system use allowing you to analyze trends for improved learning outcomes, increased performance or program effectiveness
- Accommodates any combination of presentation sources – audio, video, laptop, tablet PC, whiteboard, document camera or visualizer
- Integrates with existing educational technology and AV systems to capture presentations in any room where teaching, training or meetings occur
- Offers multiple deployment models so you can pick what works best for you — on-premise, hosting services or blended
General Session IV: Scholarship and Tenure
Dr. Larry Mattix, Associate Dean, College of Science, Engineering, and Technology
Dr. Charles Ford, Interim Associate Dean, College of Liberal Arts
Winning Tenure at NSU

Prepared by:
Larry Mattix
Antoinette Coleman*

Presented by:
Larry Mattix
Charles Ford
May 12, 2010

2010 Faculty Development Workshop
Norfolk State University

* Bowie State University
Bowie, Maryland
Outline

Larry Mattix, Associate Dean, CSET

1. The NSU Tenure Process
2. Highlighting Your Strengths

Charles Ford, Associate Dean, COLA

3. The Teacher/Scholar Model
The NSU Tenure Process

SETTING THE GROUND RULES UP FRONT

by Larry Mattix
The Definitions

- "Tenure is conferred by the Board of Visitors after the member has completed a period of probation and satisfied well-defined requirements regarding teaching, research and service.”*

- "Such status, therefore, protects tenured faculty against arbitrary dismissal.”*

* From the 2007 Teaching Faculty Handbook
Eligibility for Tenure

- Tenure applies to the ranks of assistant professor, associate professor and professor.

- Only faculty with earned doctorate or terminal degrees are eligible for tenure.

- Only faculty with tenure-track appointments are eligible for tenure.
Tenure-Track Appointments

- “A tenure-track appointment represents a probationary period in which a faculty member works toward achieving tenured status.”*

- “Contingent upon rank, a faculty member has a fixed number of years to earn tenure, not to exceed six years.”*

- “The decision to grant tenure is based on the faculty member’s demonstrated superior performance and the expectation that this performance will continue.”*

* From the 2007 Teaching Faculty Handbook
## The Tenure Timetable

<table>
<thead>
<tr>
<th>Faculty Rank</th>
<th>Apply not earlier than the Fall Semester of</th>
<th>Apply not later that the Fall Semester of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistant Professor</td>
<td>Year 4</td>
<td>Year 6</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>Year 3</td>
<td>Year 4</td>
</tr>
<tr>
<td>Professor</td>
<td>N/A</td>
<td>Year 2</td>
</tr>
</tbody>
</table>

A faculty member who is not recommended for tenure or is denied tenure by the Board of Visitors will be given a one-year terminal contract.
The Decision

“The decision to grant tenure is based on the faculty member’s demonstrated superior performance and the expectation that this performance will continue.”*

The granting of tenure in particular is tantamount to a “second hiring.” Each candidate must make a strong positive case.*

* From the 2007 Teaching Faculty Handbook
THE PROCESS

1. By November 1, the applicant submits a declaration of their "Intent to Apply for a Change of Status" to the department chair.
2. The department chair acknowledges and forwards a copy to the dean.
3. The applicant downloads the "Application for Tenure" from the website and submits the completed application to the departmental evaluation committee by January 15.
4. The evaluation committee provides its assessment to the department chair by January 31.
5. The chair forwards the tenure documents with the departmental recommendation to the dean on or before February 4.

6. At the same time the chair forwards a copy of the recommendation and justification to the faculty member.

7. The dean sends the tenure documents with a recommendation to the Provost by February 10.

8. At the same time the dean forwards a copy of the recommendation and justification to the faculty member.
9. The Provost shall forward all promotion, tenure, change in contract type, leave, and sabbatical cases that have not been approved at the department and school or college level to the University Review Committee for review. The committee makes recommendations to the Provost.

10. The Provost makes recommendations to the President.

11. The President make recommendations to the Board of Visitors.

12. The Board of Visitors makes all final decisions on tenure and promotion.
IMPORTANT DATES

November 1 – Declaration of Intent to Change Status
January 15 – Applications due to departmental evaluations committees.
January 31 – Departmental evaluation committee assessments due to department chairs.
February 4 – Chair must send departmental recommendation and justifications to the dean and the faculty member.
February 10 – Dean must send a recommendation and justification to the Provost and the faculty member.
The Categories*

- Teaching
- Research: scholarly activity and grantsmanship
- Service: professional development and service, university service and community service

* From the 2007 Teaching Faculty Handbook
The Standards

<table>
<thead>
<tr>
<th>Faculty Rank</th>
<th>Standard Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistant Professor</td>
<td>Very Good</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>Excellent</td>
</tr>
<tr>
<td>Professor</td>
<td>Exceptional</td>
</tr>
</tbody>
</table>
Preparing Your Portfolio

Highlighting Your Strengths

by Larry Mattix
Making Your Case?

- A Portfolio (Self-assessment)
- Classroom observations
- Structured interviews
- Instructional rating surveys
- Tests or appraisals of student achievement and attitudes
- Review of classroom records
- Alumni surveys
THREE BASIC QUESTIONS

- Which characteristics will be evaluated?
- How will data be collected?
- Who will do the evaluation?
Know Who Will Do The Evaluating?

- Self (Portfolio)
- Students
- Faculty Peers
- Department Head
- Dean
- Alumni
- Other appropriate administrators
- Others participating in class-related activities
What Do You Need as Proof?

- Examples of student work
- Copies of publications
- Letters of support
- Lists of references
- Abstracts of presentations
- Samples of syllabi and assignments
How much is enough?

- Tell your own story.
- Quality, not Quantity.
- Use examples, and excerpts
- Use short, clear summaries.
- Make your portfolio an easy read.
- Make it clear, short, and sweet.
The Portfolio

- Demonstrate in your narratives descriptions how your teaching, scholarship, professional development and service is consistent with departmental, school and institutional strategic priorities, vision and mission.

- Make sure your portfolio presents valid documentation and evidence of your performance in the designated Appendix.
The Portfolio

- Include on portfolio binder cover sheet and inside cover sheet the year & title of portfolio, your name, rank, school, department, submission to: Departmental Evaluation Committee and submission on: (date of submission).

- Include a detailed table of contents.

- Include a list of appendix items for each Appendix Section.

- Make style format of each section of your portfolio consistent.

- Include headers for each section of your portfolio.

- Number all pages in your portfolio.

- Use a three-ring binder with labeled tabs for sections and appendices.
The Portfolio

- Include only information for the probation period.

- Balance your portfolio with information from self, from others and from students.

- Demonstrate coherence among the components of your portfolio to reveal effectiveness in teaching, scholarship, development and service that ties to your practice philosophy.
Highlighting your Strengths in the Portfolio

- Summarize your strengths in each category with a short paragraph up front.

- List each item where you perform and include documentation (for both required and selected items).
  - List the accomplishment under each item.
  - Reference the documentation in your appendices.
  - Be clear but, **most of all**, be brief.
The Teacher/Scholar Model

What is Exceptional Faculty Work?

by Charles Ford
CHARACTERISTICS OF EFFECTIVE TEACHING

- Knowledge and uses of the research on teaching and learning
- Clearly stated learning outcomes with appropriate assessment procedures
- Effective and appropriate use of technology
- Appropriate mix of alternative learning strategies
- Good organization of subject matter and course
CHARACTERISTICS OF EFFECTIVE TEACHING

- Effective communication
- Knowledge of and enthusiasm for the subject matter and teaching
- Positive attitudes towards students
- Fairness in assessment and grading
- Flexibility in approaches to teaching
WHAT IS SCHOLARSHIP IN A DEPARTMENT

- **Discovery**: Original research as defined by your discipline.

- **Integration**: Synthesizing and integration of knowledge as pertinent to your discipline.
What is Scholarship in a Department?

- **Application**: Professional practices in your discipline to build knowledge

- **Teaching**: Transformation of knowledge through your teaching methods
Faculty Scholarship:
Inclusive of Professional and Creative Works and Research

- The activity enters into new ground or is innovative.
- The activity has the ability to be replicated or elaborated.
- The activity requires a high level of discipline-related expertise.
Recognizing Faculty Scholarship (cont.)

- The work and its results can be documented in the professional arena for the discipline.
- The work and its results can be reviewed by peer in the discipline.
- The activity has significance or impact in the discipline.
Six Scholarship Assessment Standards

- Clear goals
- Adequate preparation
- Appropriate methods
- Significant results
- Effective presentation
- Reflective critique
Definition of Professional Development

Professional Development: Refers exclusively to activities engaged in that further enhances one’s professional expertise in their discipline.

- Conferences
- Workshops
- Courses
- Webinars
Definition of Professional Service

- **Professional Service:** Refers exclusively to work that draws upon one’s professional expertise and is an outgrowth of one's discipline
  - ✔ Review Panels
  - ✔ Advisory Boards
  - ✔ Book or Publication Reviews
  - ✔ Conference Planning Committees
Definition of University Service

- **University Service**: Refers to work that involves multiple disciplines working together on behalf of the university to support its vision, mission, strategic plan and administrative priorities.
  - First view
  - Recruitment
  - Sponsoring Student Organizations
Definition of Community Service

- Community Service: Refers to a set of activities utilizing faculty expertise to solve societal problems or to help others to do so, intended to benefit the public and to contribute to the welfare of society.
  - Civic Organizations
  - Volunteerism
  - Community Boards
“HIGHLIGHTING YOUR STRENGTHS”

Spring 2005
PORTFOLIO DEVELOPMENT TRAINING

Larry Mattix
Antoinette A. Coleman
Create a Format Check List for Yourself to Work With!

- Include on portfolio binder cover sheet and inside cover sheet the year & title of portfolio, your name, rank, school, department, submission to: Departmental Evaluation Committee and submission on: (date of submission).
- Include a detailed table of contents
- Include a list of appendix items for each Appendix Section
- Make style format of each section of your portfolio consistent
- Include headers for each section of your portfolio
- Number all pages in your portfolio
- Use a three-ring binder with labeled tabs for sections and appendices
Create a Content Check List for Yourself to Work With!

- Include only information for the evaluation period
- Balance your portfolio with information from self, from others and from students
- Demonstrate coherence among the components of your portfolio to reveal effectiveness in teaching, scholarship, development and service that ties to your practice philosophy
Create a Content Check List (cont.)

- Demonstrate in your narratives descriptions how your teaching, scholarship, development and service is consistent with departmental, school and institutional strategic priorities, vision and mission.

- Make sure your portfolio presents valid documentation and evidence of your performance in the designated Appendix.
Create a Content Check List
(cont.)

- Make sure your portfolio clearly and specifically presents the relevance of professional development, research, scholarly activities, service and commitment to the enterprise of teaching.

- Demonstrate how products used for student learning indicate successful teaching.
Create a Content Check List
(cont.)

- Clearly and specifically present with documented evidence efforts to improve teaching (i.e. methods, material, evaluation and outcomes, goals, etc.)

- Clearly and specifically present in narrative description and documented evidence a profile of your individual style, achievement and personal discipline as it relates to your teaching, scholarship, development and service.
HIGHLIGHTING YOUR STRENGTHS IN THE PORTFOLIO

- Summarize your strengths in each category with a short paragraph.
- List each item where you perform and include documentation (for both required and selected items).
  - List the accomplishment under each item.
  - Reference the documentation in your appendices.
- Be clear but be brief.
Use the summary to outline your plans for your development in the category

- Get the help of a mentor
- Be honest with yourself and your mentor

Use the summary to tell how well you accomplished what you planned

- List only what you can document in the portfolio appendices
Sample
Portfolio Binder Cover Sheet
and
Inside Cover Sheet
2004
Teaching Faculty Evaluation Portfolio

Submitted By: Dr. Wilma Wise
Professor
School of Education
Department of Special Education

Submitted To: Departmental Evaluation Committee

Submitted On: February 1, 2005
Sample

Table of Contents
# Table of Contents

## Category I Teaching

<table>
<thead>
<tr>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Teaching Philosophy</td>
</tr>
<tr>
<td>B. Teaching Responsibilities</td>
</tr>
<tr>
<td>C. How Courses are Taught</td>
</tr>
<tr>
<td>D. Student Ratings</td>
</tr>
<tr>
<td>E. Curriculum Revisions</td>
</tr>
<tr>
<td>F. Teaching Improvement Techniques</td>
</tr>
<tr>
<td>G. Teaching Goals for Next 5 Years</td>
</tr>
</tbody>
</table>

## Category II Scholarly Activities

<table>
<thead>
<tr>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>II.1 Scholarship</td>
</tr>
<tr>
<td>A. Research Projects Supervised and Conducted</td>
</tr>
<tr>
<td>B. Creative Works</td>
</tr>
<tr>
<td>C. Publications</td>
</tr>
<tr>
<td>D. Paper Presented</td>
</tr>
<tr>
<td>E. Published Material Reviewed</td>
</tr>
<tr>
<td>F. Technical Applications and Policy Reports</td>
</tr>
<tr>
<td>G. Awards and Recognitions</td>
</tr>
<tr>
<td>II.2 Grantsmanship</td>
</tr>
<tr>
<td>A. Grant Submissions</td>
</tr>
<tr>
<td>B. Grants Funded</td>
</tr>
<tr>
<td>C. Grants Renewed</td>
</tr>
<tr>
<td>D. Assist Authors of Funded Grants</td>
</tr>
<tr>
<td>E. Paid Consultant</td>
</tr>
</tbody>
</table>
# Table of Contents (cont)

## Category III  Professional Development and Services

### III.1 Development

- Meetings, Conferences, Symposia, Seminars, Forums, Workshops, etc. 
  Attended. 24
- Studies toward a Higher Degree 25
- Fellowships Received 26

### III.2 Services

- Meetings, Conferences, Symposia, Seminars, Forums, Workshop, etc. Organized 29
- Membership in Professional Organizations 30
- Reviews Grant Proposals 31
- Professional Assistance to Educational or Other Agencies 32
- Professional Recognitions 33

## Category IV  University Service

- Departmental Committees 36
- School Committee 37
- University-Wide Committee 38
- Curriculum Enhancement Submissions 39
- University Sponsored Activities 40
- Required Departmental Meetings 41
- Required School Meetings Attended 42
- Required University Meetings Attended 43
- Resources Procured for the University 44
- Student Recruitment Activities 45
# Table of Contents (cont)

## Category IV University Service (cont)
- K. Mentoring Other Faculty or Staff...
- L. Advising / Mentoring Student Organizations...
- M. Lecture / Workshop Participation...
- N. Awards and Recognitions...
- O. Other University Service...

## Category V Community Service (Optional)
- A. Volunteer Activities...
- B. Art or Cultural Activities...
- C. Awards and Recognitions...

## Category VI Other Official Appointments and Assignments*
- A. Release Time...
- B. Department Chairperson Appointment...
- C. Directorship Appointment...
- D. Associate / Assistant Dean Appointment...
- E. Other Administrative Assignment...

## Appendix I Teaching Documentation
- Appendix II Scholarly Activities Documentation
- Appendix III Professional Development and Service Documentation
- Appendix IV University Service Documentation
- Appendix V Community Service Documentation
- Appendix VI Other Official Appointments and Assignments*
CATEGORY I: TEACHING

A. Teaching Philosophy

My goal is to continue fostering interest in Chemistry and science in general, especially in the areas of polymer chemistry and its applicability to industry. The lectures and labs I have taught encourage active participation of the students as a part of the learning process, e.g. appointing a "group leader" to be..."
A. Teaching Philosophy

My role, as I see it, is to bring the field of biology to the students and to help them learn and understand its basic tenets. I aim to illustrate the uses and applications of basic concepts in biology in the real world. I work hard to foster my students' ability to learn and think critically while building their problem-solving skills.

To achieve this goal, there should be good rapport between the teacher and her students. This includes being accessible to students, both within

(See Appendix I ï Teaching Documentation)
A. Teaching Philosophy

All of the courses I teach are required. A minimum grade point average (2.7 GPA) must be maintained in order to continue in the program; hence, Pace students majoring in communication sciences and disorders are usually highly motivated. In addition, ê .

Of the five courses I teach, four are heavily content based. Content-based information can often be dry and overwhelming, and I discourage my students from memorizing the materials. I emphasize concepts that help students learn what Őmakesé .
### CATEGORY I: TEACHING

#### B. Teaching Responsibilities

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course #</th>
<th>Title</th>
<th>Hrs.</th>
<th>Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spr. 2004</td>
<td>ENG 101</td>
<td>Comm. Skills</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Spr. 2004</td>
<td>ENG 102</td>
<td>Comm. Skills</td>
<td>3</td>
<td>29</td>
</tr>
<tr>
<td>Spr. 2004</td>
<td>ENG 341</td>
<td>Sur. Amer. Lit</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

(See Appendix I ï Teaching Documentation)
C. How Courses Are Taught

My classes are taught using Lectures with demonstrations, video presentations and critiques, classroom and online discussions, study sessions and quizzes that relate to identified course outcomes. I employ my discipline expertise in my classes through ... (See Appendix I: Teaching Documentation)
CATEGORY I: TEACHING

D. Student Ratings

My mean converted student ratings for Spring and Fall 2004 were 3.95 and 3.62, respectively. In reviewing my student ratings, I find é.

(See Appendix I ï Teaching Documentation )
CATEGORY I: TEACHING

D. Student Ratings

I believe that my teaching values have an effect on student behavior and achievement. When students feel my standards are high and fair, their achievement becomes that much more meaningful to them. On a scale of 1 to 5 (1= poor teaching and 5=excellent teaching), my ratings for the 2004 year averaged 4.65 (range: 4.45 – 4.92).

(See Appendix I – Teaching Documentation)
G. Teaching Goals for Next Five Years

I plan to become fluent in the use of "Blackboard" and other instructional technologies. I will implement the use of "ChemDraw".

My goal is to improve the passrate in my classes to 70% through the use of...
CATEGORY I: TEACHING

G. Teaching Goals for Next Five Years

Short-Term Goals
To continue to evaluate the content and methods of teaching the various courses that I teach each semester with outcome assessment in mind, specifically, HIS 101, HIS 103, ééé. See Appendix I Teaching Documentation

Long-Term Goals
To be granted a sabbatical and use the time to complete instructional internships related to the content areas of the courses I teach.
To participate in one of the Global Study Programs offered through NSU in order to enhance my teaching of World History.
To Investigate the use ofééé (See Appendix I Teaching Documentation)
EXAMPLES

CATEGORY II: SCHOLARLY ACTIVITIES

II.1 Scholarship

A. Research Projects Supervised and Conducted
My research program involves an analysis of the effect of U.S. Middle-Eastern on the economy region and its impact on the global economy. It has been clear that the recent conflicts have.. (See Appendix II Scholarly Activities)

C. Publications
I published two manuscripts in 2004:
2. Like Father, Like Son: An Analysis of the Foreign Policy of George W. é .. (See Appendix II Scholarly Activities)
EXAMPLES

CATEGORY II: SCHOLARLY ACTIVITIES

II.1 Scholarship

A. Research Projects Supervised and Conducted

My research program is in two distinct areas: involving the use of textile fibers and fabrics as a support matrix for the sorption of organic and inorganic contaminants from the...

C. Publications

I published two refereed journal articles in 2004:


2. Jones, R. and Hsieh, Y., Synthesis of Divinylbenzene (See Appendix II 'Scholarly Activities')
EXAMPLES

CATEGORY II: SCHOLARLY ACTIVITIES

II.2 Grantsmanship

A. Grants Submissions
In 2004 I submitted two grant proposals to the Carnegie Foundation and the National Endowment for the Art, respectively for a study of 6th Century Renaissance. 
(See Appendix II ï Scholarly Activities)

B. Grants Funded
One proposal was funded by the Carnegie Foundation in the amount of $20,000. This was match by a $10,000 a RIA from the Office of Sponsored Programs. The project period began on October 15, 2004 and will extend through 
é é é (See Appendix II ï Scholarly Activities)
EXAMPLE

Category III Professional Development & Service
III.1 Development
A. Meetings, Conferences, Symposia, Forum, etc. Attended

I participated in a Regional Teaching Advancement Seminar located in Richmond, Virginia, sponsored by the Virginia Consortium of Universities and Colleges on March 12-15, 2004. The focus of this regional seminar is to introduce new teaching methods using technology to enhancing writing competencies across disciplines, etc.

(See Appendix III Professional Development & Service Documentation).
EXAMPLE

Category III Professional Development & Service
III.2 Service

B. Membership in Professional Organizations

For the 2004 calendar year I held membership in the National Association of Social Workers, Council on Social Work Education, Association of Gerontology in Higher Education. (See Appendix III Professional Development & Service Documentation)
A. Departmental Committees

During the 2004 calendar year, I served on three departmental committees in the Department of Social Science: the Curriculum Committee, the Recruitment Committee, and the Budget Committee. I served as chair of the Budget Committee. (See Appendix IV - University Service)

While I chaired the Budget, we succeeded in securing a 50% increase in the departmental budget, including a 100% increase in travel and faculty development funds. While on the recruitment committee (See Appendix IV - University Service)

C. University Committees

I also served on the Recruitment Committee for the School of Liberal Arts and the University-wide Library Committee. (See Appendix IV - University Service)
Category IV. University Service

E. Required School Meetings

I attended nine (9) required school meetings held in the 2004 Spring and Fall semesters. My reports at the school meetings included my contributions to the department to spearhead the use of advance technology to enhance master level students’ learning; expansions of research database for doctoral studentsééééé (See Appendix IV University Service Documentation)
CATEGORY IV: UNIVERSITY SERVICE

J. Student Recruitment Activities
During the 2004 calendar year, I represented the Department of History in "First View" and traveled with the Admissions Office to three High Schools to recruit.

K. Mentoring Other Faculty or Staff
I, also, served as a mentor to Dr. John Wilman, a junior faculty in the department through the University Faculty Development Program. I help Dr. Wilman develop his portfolio and his plan for:

L. Advising / Mentoring Student Organizations
In Fall 2004, I served as advisor to the Phi Alpha Pi, the Student Historical Honor Society. We inducted:

(See Appendix IV in University Service)
EXAMPLE

Category IV. University Service

L. Advising / Mentoring Student Organizations

I served as the advisor to the English Club during the Spring and Fall 2004 semesters. I worked with the club to establish student tutors from the English Department to volunteer in the NSU Access Program; establish student volunteer literacy campaign at NSU. (See Appendix IV University Service Documentation)
Category V Community Service (Optional)

A. Volunteer Activities

For calendar year 2004, I served as Vice Chair for United Way of South Hampton Roads Community Funding in a volunteer capacity with the responsibilities of co-chairing meetings, review allocation panel decisions. In addition, I served on the Board of Directors for the Alzheimer Association of Southeastern Virginia with the Board assignments to develop and implement the organization’s strategic plan. (See Appendix V Community Service Documentation)
Category V Community Service (Optional)

B. Awards and Recognitions

My awards and recognitions received in calendar year 2004 are Virginia Museums Outstanding Cultural Contributions and Services Award, Norfolk Public School Excellence in Music Appreciation Volunteer Program Award, et al. (See Appendix V Community Service Documentation)
General Session V: Enhancing Student Engagement
Dr. Lawrence Dotolo, President, Virginia Tidewater Consortium for Higher Education
Enhancing Student Engagement

Norfolk State University

May 12, 2010

Presenter

Dr. Lawrence G. Dotolo, President

Virginia Tidewater Consortium for Higher Education
What is Student Engagement?

Pair up with the person sitting next to you.

Discuss what you think student engagement is with your neighbor.

Write down some of the common ideas and be prepared to report out to the group.
How Do We Enhance Student Engagement?

Let us discuss some of the ways you think we can engage our students in the classroom.

Pair up again. I will give you a few minutes.
Engaging Students

It Includes:

- Role Playing/Simulation
- Demonstration
- Peer Teaching
- Cooperative Learning
- Classroom Discussion
- Unstructured Group Discussion
- Brainstorming
Engaging Students (cont.)

- Open ended problems
- Student Debates
- Keeping Journals or Logs
- Student-Led Review Sessions
- Analyze Case Studies
- Student Written Test Questions
- Others
Engaging Students (cont.)

Using Technology:
- Blackboard
- E-Mails
- Face Book
- Blogging
- Twitter
- Clickers
- Other
The Role of the Teacher in Engaged Classroom

- Teachers do learning tasks less
- They do less telling
- Teachers do more design work
- Faculty do more modeling
- Faculty do more to get students learning from and with each other
- Faculty work to create climates for learning
- Faculty do more with feedback
Determining Objectives

- Recall and recognize
- Comprehend
- Apply
- Analyze
- Synthesize
- Evaluate

Bloom's Taxonomy
Questioning Skills

- Word Question Clearly
- Respond appropriately
- Ask lower and higher cognitive questions
- Provide “wait time”
- Ask convergent and divergent questions
Benefits of Discussion

- It helps students see different perspectives.
- It helps students understand ambiguity.
- It helps students develop their assumptions.
- It encourages attentive, respectful listening.
- It increases intellectual agility.
- It helps students connect to the topic.
- It shows respect for students’ experiences.
- It helps develop skills of synthesis.
Benefits of Discussion

- It helps students develop communication skills.
- It helps develop a sense of community.
- It develops habits of collaborative learning.
- It makes students tolerant of other opinions.
Classroom Assessment Techniques

Checking on the Progress of the Learner

1. Focused listing
2. Minute paper
3. Muddiest point
4. Directed paraphrasing
5. The one-sentence summary
6. Application guide
7. Student-generated test questions
Effects of Classroom Assessment on Students

1. Increases active involvement in learning
2. Increases cooperation and sense of “the learning community”
3. Increases student satisfaction
4. May improve course completion rates
Barriers to Student Engagement?

1. Faculty dissatisfaction with students, i.e., bad test performance by students, poor attendance, and lack of classroom preparation.

2. Strong sense of disinterest shown by students.

3. Student dissatisfaction with course, faculty, institution, etc.

4. Engagement takes work and planning.
Barriers to Student Engagement? (Cont)

1. The classroom itself

3. No interpersonal relationship between faculty and students

4. Positive feeling about a class (on behalf of students and faculty) begin to dissipate about 4-6 weeks into the class; maybe even before a test is ever given. (Dr. Joe Lowman, Professor of Psychology, UNC).
Overcoming Barriers to Student Engagement

1. Be Positive
2. Be Real Positive
3. Really Be Positive
4. Never Give Up on A Class

Thanks for inviting me. Have a Great Summer!
General Session VI: Attendance
Let's Keep them Coming!!!
Mrs. Sharon Lowe, Vice President for Student Affairs & Student Affairs Staff
Division of Student Affairs

An Overview

Sharon B. Lowe, Vice President for Student Affairs

May 2010
Mission

The Division of Student Affairs adheres to the philosophy that student success is maximized through the enhancement of personal and academic growth in a cooperative living and learning environment which includes the utilization of educational, recreational, health and safety themed programming.

The Division of Student Affairs is committed to working and communicating with all of its constituents, including students, parents, alumni, and the entire academic community, in an effort to proactively address student concerns, ensure organizational effectiveness, and provide a learning environment focused on supporting the academic mission of Norfolk State University.
**Attendance: Keep Them Coming!**

Some students come to Norfolk State University (NSU) with complex issues that can have a major impact on class attendance. The normal stressors typically associated with the college years may be compounded by social, health, financial, family, and work issues. As a result, some students may experience a decline in academic performance, engage in harmful behaviors such as substance abuse and attempts at suicide, or exhibit other symptoms of distress.

As a faculty or staff member, you may come into contact with students who share information or exhibit behaviors that indicate that they are in need of assistance with a problem. This contact provides you with a unique opportunity to refer students to appropriate resources. Such action may be a critical factor in improving students’ class attendance and ultimately, academic success.

Robert Schiming purports there are a number of factors impacting class attendance. Some studies suggest that attendance is statistically significant in explaining class grades and overall performance of students.

Students who frequently miss class significantly increase their odds of a poor grade in a given course (Schiming, 2007).

At Arizona State University, John Haeger, President, installed an electronic system that detects when each student with an identification card walks through the door to some large classroom. The system produces an attendance report for the instructor. The purpose of the system is to improve class attendance thereby improving academic performance (Ryman, 2010).

At Midwestern University, Nancy Fjortoft conducted a study of focus groups that found the most frequently identified motivator for class attendance was class content and faculty engagement, a small class size, and few external distractions (Fjortoft, 2005).
At NSU, the Division of Student Affairs plans to implement a program called Attendance: Keep Them Coming! The goal of the program is to establish a collaborative effort between academic and student affairs to increase class attendance among the student body.

To maximize the success of the program, faculty are encouraged to take daily attendance. When a student has missed two consecutive classes (unexcused), the faculty member is encouraged to contact the student by e-mail or telephone.

Upon the third unexcused absence, the faculty member is asked to contact the Office of the Vice President for Student Affairs. When notified, student affairs personnel will attempt to contact the student in order to conduct a wellness check. The wellness check will consist of discussing issues and/or concerns that may be impacting the students’ class attendance. Appropriate referrals will be made when deemed necessary.

References

Clayton, M. This May Be College But We Are Still Taking Attendance. The Christian Science Monitor January 29, 2002


Ryman, A. Skipping Class? NAU high-tech system will know. The Arizona Republic. April 27, 2010.

Career Services is responsible for the overall planning, development, and implementation of the University’s career services program for students and alumni. By identifying and developing employment opportunities and preparing students to successfully interview for jobs, the Office of Career Services contributes to student learning and development, which continues after graduation.

Programs and Resources

- Career planning and coaching (one-on-one)
- Seminars – resume writing, interviewing, job search strategies, how to work a career fair and dressing for success
- Classroom presentations
- Mock interviews (employer participation)
- Etiquette dinner (employer participation)

Events

- Full-time internships and co-op employment opportunities
- Courses for academic credit – Career Exploration (CED 250) and Internship/Co-op (CED 350 and CED 450)
- 24/7 dynamic employment database (SpartanLink)
- Spartan Career Planning Guide
- Fall and spring career fairs
- Graduate and Professional School Day
- On-campus interviewing program
- Employer information sessions
Career Services Cont’d.

Internship/Co-op Placements

- According to the National Survey of Student Engagement (NSSE) reports for 2008 and 2009, 51% and 52% respectively, NSU students participated in some form of practicum, internship, field experience, co-op or clinical assignment. A total of 449 students were placed and received academic credit for summer 2009 to spring 2010 (47 did not register for academic credit).

Employer Partnerships

- Northrop Grumman Corporation
- Norfolk Southern Corporation
- National Security Agency (NSA)
- BB&T
- Central Intelligence Agency (CIA)
- Disney World
- Defense Intelligence Agency (DIA)
The Counseling Center provides a range of free professional services to students seeking help with personal concerns. The counseling services provided are individual, couples, group, crisis, and family counseling services.

Students come to the Counseling Center to attend counseling for a variety of reasons including problems adjusting to college, stress management, anger management problems, trauma related issues, intimate partner violence, substance abuse and depression.

In addition, Counseling Center staff members consult with members of the university community including faculty, staff, parents and students on various student life issues including depression, interpersonal problems and other topics. A variety of outreach programs and seminars are provided to students through the Counseling Center addressing student development and psychological health issues.

The Counseling Center offers students the opportunity to attend several educational classes each semester to assist them in their personal development. Each class addresses a specific topic.

Don't Cancel That Class Workshops
- Adjusting to college
- Dealing with procrastination
- Stress management
- Student mental health issues
- Substance abuse education
- Developing healthy relationships

Educational Classes
- Alcohol other Drug Education
- Anger Management
- Conflict Resolution
- Decision Making Skills

Personal Development Groups
- Adjustment to College Group
- Healthy Relationship Group
- Veterans Support Group
Counseling Center Cont’d.
When to Refer a Student to the Counseling Center
Emergency and Non-Emergency Referrals

**Emergency Referrals.** Faculty and staff should immediately report any of the following behaviors to the NSU Police Department at 823-9000:

- Statements of wanting to hurt oneself
- Expressions of self-loathing/suicidal intent/aggression
- Written essays or verbal statements
- Problems testing reality
  - Individual insists that he or she is behaving normally while other people perceive the behavior to be abnormal
- Talks about giving up important life goals and/or expressions of hopelessness
- Delusional beliefs
  - Individual believes he/she has magical powers or that they are someone famous or important
- Individual believes he/she has an intimate relationship with someone who is just an acquaintance
- Paranoia
  - Belief that he/she is being followed, watched, or judged without objective proof
- Hallucinations
  - Seeing objects/people, or hearing sounds/voices that are not there
    - The individual may appear to be looking at something or listening to a sound that is not there
    - The individual may be having a continuous dialogue with self
- Bizarre and aberrant behavior
  - Beyond what would be considered simply unusual or unconventional
  - Actions and words that cause people around him or her to become fearful
- Engaging in reckless behaviors
- Racing thoughts and rapid speech (mania)(mania)
  - Very fast, difficult to follow, pressured, or nonsensical speech (e.g., individual’s speech is incoherent or does not relate to topic that is being discussed).
- Excessive use of alcohol or other drugs
  - Visible intoxication, or showing signs of withdrawal (i.e., sweating, vomiting, or muscle spasms)
  - Excessive emotions, lack of emotions, or inappropriate emotions

---

**The Institution of Choice**
Counseling Center Cont’d.
When to Refer a Student to the Counseling Center
Emergency and Non-Emergency Referrals

Non Emergency Referrals: Other situations are of concern, but immediate action is not needed. Faculty and staff can intervene by discussing counseling options with the student and referring student to the Counseling Center located in Room 116A, Bowser Building (823-8173).

- Student reports having interpersonal/relationship issues
- Student appears sad or tearful
- Student appears anxious or stressed
- Student reports difficulty adjusting to college
- Student discloses past trauma or physical/sexual assault
- Abrupt change in student’s presentation (i.e. dress or speech)
Counseling Center Cont’d.
Behavior Assessment and Response Team (BART)

About the Behavior Assessment and Response Team (BART)

BART was created to help ensure members of the University Community a safe, secure learning environment that is free from threats, intimidation and violence.

BART: Evaluates threats made by individuals against NSU faculty, staff, students or property; makes recommendations to the University Community on how threats can be addressed; and facilitates actions to deal with threats.

BART is Co-Chaired by:
Chief of the NSU Police Department and the Director of the Counseling Center

Other Members:
Director of Residence Life and Housing
Representative from the Office of the Vice President for Student Affairs
Faculty Representative with expertise in mental health issues

Chief Medical Officer for the Spartan Health Center
Representative from Norfolk Community Services Board Emergency Services
Representative from the Human Resources Department (as needed)

*Other professionals may be brought on to the team in a consultative capacity when deemed appropriate.
When to call BART: Some red flags to suggest a situation may warrant reporting.

An individual:
• Has difficulties controlling anger
• Makes threats against others
• Expresses hostility in verbal comments or written communications
• Holds a belief that he is being singled out for unfair treatment
• Expresses violent fantasy contents in writings and/or drawing
• Abrupt changes in an individual’s presentation (i.e. now dresses slovenly)
• Fascination with previous shootings
• Actions or statements that make others feel uncomfortable or fearful

Contact BART or make a report by calling:

Chief Anthony Walker
NSU Police
823-9000
ahwalker@nsu.edu

or

Dr. Curtis Greaves, Director
Counseling Center
823-8173
cgreaves@nsu.edu
Disability Services
Room 116A, James A. Bowser
or
240 Lyman B. Brooks Library
823-2409 or 823-2014
http://www.nsu.edu/disabilityservices/

Director: Beverly Harris

The mission of the Disability Services Department is to promote the academic success of students with disabilities through high-quality educational assistance, faculty and staff seminars, workshops, and assistive technology. Students requiring assistance are afforded the opportunity to learn in the same milieu as students not needing the services.

Types of accommodations

• Note takers for hearing impaired
• Extended time for testing
• Readers for exams
• Digital books from publisher
• Voice recognition software that can type for the student - mobility issues
• Distraction free environment
• Text magnifiers
• Unanticipated class absences-professor discretion as to limit
• Attendance at duplicate lecture sessions when possible
• Tape recorders in class
• Disregarding spelling errors for in-class work
• One-on-one tutoring
• Disability related counseling

The Institution of Choice
International Student Services  
Room 116A, James A. Bowser  
823-2409  
http://www.nsu.edu/internationalstudents/  

Coordinator: Beverly Harris

The Office of International Student Services serves to assist international students with matters related to immigration as well as promote international education and intercultural understanding.

Services

- Issuance of visa documents
- Advisement of students
- Processing of immigration petitions
- Serving as a liaison between the international student and the university/government agencies
- Provide programs and services that support the cultural, immigration, adjustment, and academic needs of the international student community
- Educate and advise the entire University community on immigration rules, procedures, and benefits that pertain to the University’s student visa holders.
- Maintain University compliance with governmental regulations and reporting to ensure the University's continued sponsorship of international student visa holders.
The Office of Residence Life & Housing (ORLH) Program: The ORLH seeks to create a living-learning well-maintained facilities environment that both challenges and supports the personal, social, cultural, and academic development of residential students by providing safe, clean, and that promote an environment conducive to learning and enhancing personal growth. Norfolk State University has eight traditional residence halls and one apartment-style residential complex, housing approximately 2,600 students. A recent Academic Affairs-Student Affairs collaboration is the implementation of the Honors Residential College which encourages collaboration between faculty fellows and student affairs professionals to include a live-in faculty member and ORLH graduate assistant.

ORLH uses a holistic programming model which reflects a commitment to “Challenging Views and Expanding Horizons” and has a strong focus on enhancing critical thinking skills to better prepare global leaders and critical thinkers in the 21st century. More than 400 programs are held annually with an average attendance of more than 8,000 students. The model is assessed as a part of the University’s R.E.A.S.O.N. model utilizing program mapping strategies to enhance intentional learning initiatives and enhance learning outside the classroom. The director recently presented a synopsis of the model (“Program Mapping: A Tool to Facilitate Intentional Involvement of Student Affairs Units in QEP Implementation”) at the annual SACS COC Conference in Atlanta, Georgia.
Residence Life/Housing Cont’d.

Living and Learning Communities

- Residential First Year Experience
- The Artists Colony
- Emerging Spartan Leaders
- Nursing
- Honors Residential Scholars Community
- STEM (Science, Technology, Engineering, Mathematics)

Student Affairs – Academic Affairs
Collaborative Projects (2009-2010)

- Conversations with a Professor
- Mid-Rise Honors Residential College
- ORLH Retention Program
- Residential First Year Experience Program
- Senior Seminars
- Spartan Student Leadership Academy
- Welcome Week Program

The Institution of Choice
Spartan Health Center
Spartan Station
623-3090
http://www.nsu.edu/studentaffairs/spartanhealthcenter.html

Director: Dr. John Anderson

The Spartan Health Center, contracted through InoMedic, provides basic health services that include diagnosis and treatment of minor illnesses and injuries; supervised care in designated observation beds; general and emergency medical services; health education counseling; maintenance of health records; provision of forums and materials on preventive health; mental health services; and allergy serum injections. The services provided at the Spartan Health Center are available free of charge to full-time students. The Health Center is staffed with a part-time physician, a full-time LPN, and one support staff member.

Services

• Monitor and provide vaccines for students
• Perform physicals for students and organizations
• Monitor health and immunization records through Datatel
• Oversee and manage medical crises
• Provide educational resources for common diseases as they impact African Americans
The Office of Student Activities & Leadership's mission, in collaboration with faculty and staff, is to enhance the co-curricular experiences and learning for an ethnically and culturally diverse NSU student population. An array of comprehensive educationally purposeful Student Activities programming is provided. Included is intellectual, cultural, social, and intramurals/recreational programs, and management/ advisement of student organizations and student publications. Moreover, these programs allow students opportunities to engage in various aspects of critical and analytical thinking outside of the classroom. It also allows the student to continue the socialization process, participate in group interaction and relationships, and develop leadership skills, thus resulting in long-term positive impacts on personal growth and development.

**Programming/Services**

- Commuter Student Program
- Event Management System (EMS)
- Greek Affairs
- Intramurals
- Student Activities
- Spartan Echo Newspaper
- Spartan Echo Online
- Student Leadership Program
- Student Organizations
- Spartan Reflections Yearbook
- Spartan Wellness Center

**Director:** Tarrye Venable
Student Services/Judicial Affairs
Room 217, Police Building
823-8222
http://www.nsu.edu/studentjudicial/

Associate Vice President for Student Affairs: Dr. Jannie Robinson

The NSU Judicial System serves to promote order and discipline inherent in and essential to the educational process of its students. The Office of Judicial Affairs oversees proceedings in accordance with the NSU Student Disciplinary Policies and Procedures.

In an effort to ensure the safety of our students, staff and faculty, the Office of Student Services/Judicial Affairs shall

• make available the Disciplinary Policies and Procedures to all students, parents, faculty and staff online http://www.nsu.edu/studentjudicial/policy.html;
• insure the right to due process for all students;
• conduct and coordinate the scheduling of informal and formal hearings;
• oversee the functioning of the student court;
• review and coordinate student grievances;
• impose and monitor sanctions designed to facilitate learning experiences and deter inappropriate behaviors;
• validate the authenticity of excuses presented by students;
• respond to background inquiries for employment; and
• provide judicial clearance for SGA and student organizations.

The Institution of Choice
Student Support Services
Room 110B, James D. Gill Gymnasium
823-8677
http://www.nsu.edu/studentaffairs/supportservices.html

Director: Valerie Holmes

Student Support Services is a federally funded program that provides a variety of supportive services for eligible program participants enrolled at NSU. The program provides tutorial services, skills development, counseling, cultural and educational enrichment activities, and other support services that help increase student learning, retention and graduation from NSU.

Services
• Tutoring/Peer Mentoring
• Academic advisement
• Grant aid
• Educational and cultural enrichment
• Computer labs and support
• Financial literacy exposures
• Special assistance for the disabled
• Graduate and professional school visitations and preparation activities
• Personal and social counseling
Upward Bound is a federally funded program that assists eligible high school students with gaining entry into their higher education program of choice to attain a college education. Development of academic skills, counseling (educational, personal and career awareness), tutorial services, field trips and other cultural and educational enrichment activities are provided throughout the year. Upward Bound is staffed by a director, one professional associate, and one support staff member through the U.S. Department of Education Trio Programs. Students enrolled in public high schools from the cities of Norfolk and Portsmouth, Virginia are eligible for acceptance into the program.

**Academics**

- During the academic year, students meet bi-weekly on Saturday mornings. In these meetings (Saturday Academy) students develop skills that will make them stronger and more efficient at doing their school work as well as prepare them for success in college.

**College Preparation**

- Preparing involves taking college-bound courses during high school, learning how to study effectively, and understanding terms such as credit/semester hour, Pell Grant, graduation analysis, etc.
Upward Bound Cont’d.

The Upward Bound Summer Program
- Students experience college life first-hand by living in one of Norfolk State University's residence halls.
- Students take classes in math, science, foreign languages, language arts, and a technology seminar to prepare them for classes they will take during the upcoming academic year.
- In the evenings, students learn and participate in creative arts and sports—sign language, social graces, arts & crafts, and kickboxing. These are activities that can be enjoyed throughout their lifetimes.

Summer Bridge Program
- Upward Bound Bridge students enroll into two college level courses and the Bridge Seminar. All Upward Bound activities are free, and transportation to sponsored activities is provided. Students also receive a stipend for their attendance.
- Serve as the university’s liaison with local, state, federal offices and organizations that support veterans’ activities
- Advise university leadership on veterans’ concerns regarding federal and state legislative issues

The Institution of Choice
The Office of Veterans Affairs (VA) provides specialized services to members of the various branches of military service, veterans, and eligible family members. The services include registration for VA benefits, VA information, general assistance for university admission, counseling, and VA Educational Plan assistance. This department serves as a bridge between government offices charged with veteran programs and the University program. Providing this connection allows students receiving veterans benefits to matriculate into the University and benefit from receiving an education.

**Services**

Coordinates all veterans educational benefits from the U.S. Department of Veterans Affairs for active duty service members, reservists, veterans, and their eligible dependents. Information, counseling, and certification of enrollment services for veterans are available from the campus veterans’ advisors. The office is working towards the following goals and objectives:

- Identify and maintain an up-to-date accurate contact list of the veterans on campus and communicate with them regularly via listserv email regarding state and federal VA educational benefits
- Provide basic tutorial services for all veterans and veterans’ dependents matriculating at the University
- Provide work-study job opportunities
- Enhance the visibility and recognition of our campus veterans’ community
- Establish and operate an informal veterans’ support group
- Actively build strategies in recruiting veterans and veterans’ dependents
- Seek and promote veterans’ involvement in community service engagement opportunities
- Provide referrals to veterans for both on-- and off-- campus services
- Solicit scholarships and grants to assist student veterans

**The Institution of Choice**
Departmental Work Sessions
Plenary Session I & II: Effective Online Learning

Dr. Dorothy L. R. Jones, Professor, Department of Accounting, Finance, and Information Management and Dr. Joyce Harvey, Associate Professor, Department of Nursing and Allied Health
Man's mind, once stretched by a new idea, never regains its original dimensions.

~Oliver Wendell Holmes
What type of employee are you?

- Retired on job
  Don’t even care what happens

- Do nothing employees—wonder what happened

- Has a great burst of initial enthusiasm, but quickly loses it—watches what happens

- Produces a relatively strong but stable output—makes things happen
EFFECTIVE ONLINE LEARNING

Student Engagement
Virtual Way of Life

- More than two-thirds of American workers surveyed have engaged in virtual work
- 61 percent of employees in large companies have participated in virtual project teams.
- 95 percent found the experience productive and enjoyable
- 95 percent said they liked the experience
- 84 percent have never met the entire virtual team face-to-face
- 60% reported they anticipated working on virtual teams will become a standard part of their job in the next five years.

Course Design Considerations

1. Focus on the pedagogy, not the technology
2. Become engaged—read technology blogs, download vodcast/podcast; register for RSS feeds
3. Explain to your students why you are integrating a new technology and how it will enhance their learning
4. Consider Copyright Guidelines (Fair Use)
5. Be flexible! Be flexible! Be flexible!
Section 107 contains a list of the various purposes for which the reproduction of a particular work may be considered fair, such as criticism, comment, news reporting, teaching, scholarship, and research. Section 107 also sets out four factors to be considered in determining whether or not a particular use is fair:

- The purpose and character of the use, including whether such use is of commercial nature or is for nonprofit educational purposes
- The nature of the copyrighted work
- The amount and substantiality of the portion used in relation to the copyrighted work as a whole
- The effect of the use upon the potential market for, or value of, the copyrighted work
1. What is the average age of the undergraduate student population? 24
2. What percentage receive financial age? 91.46
3. What is the average age financial aid award? $15,573
4. What percentage graduate within six years? 42%
5. What is the percentage of males vs. females? 35% male and 65% female
6. How many online courses do the University offer? 107
7. What is the average age of faculty? 57

Source: NSU Fact Book 2009
Twelve Major Concerns

1. Inadequate student engagement and active learning
2. Misplaced focus (teacher-centered instead of learner-centered)
3. Inadequate alignment between assignments and real-world employment activities
4. Insufficient real-time assessment and peer evaluation
5. Limited integration of co-learner feedback
6. Lack of a centralized work area to organize, write, and edit assignments
7. Insufficient student accountability documentation
8. Turnaround time to submit assignments
Concerns (cont’d)

9. Submission of final work product (lost pages in transmission, ease of adding pages after submission, etc.)

10. Problems with integrating multimedia files and packaging with work product

11. Inadequate visual learning opportunities

12. Need for a greater sense of online community
Seven Principles

• Encourages contacts between students and faculty
• Develops reciprocity and cooperation among students
• Uses active learning techniques
• Gives prompt feedback
• Emphasizes time on task
• Communicates high expectations
• Respects diverse talents and ways of learning

Constructivist Framework

- Knowledge is constructed from **experience**
- Learning
  - is a **personal experience**
  - is an **active process**
- Growth comes from
  - sharing **multiple perspectives**
  - through **collaborative** learning
Constructivist Framework (cont’d)

• Learning should be concerned with
  – real situations

• Information should be connected with
  – real activities

Constructivist Framework (cont’d)

- Encourages **active inquiry**
- Guides learners to question assumptions
- Involves coaching

Self-Regulated Learners

- Learner exploration
- Intellectual growth
- Team work
Learner Engagement

- Instructional strategies to help students reach course goals and objectives
- Clear guidance on how to use course content to achieve stated learning outcomes
- Activities encourage higher order thinking (problem solving, analysis, critical reflection, etc.)
- Evidence of individualized learning experiences (e.g., remedial or advanced activities)
Interaction and Collaboration

- Both asynchronous (discussions, blogs, wikis, etc.) and synchronous (chat, videoconferencing, virtual classroom, etc.) activities
  - opportunities for reflection, problem-solving, and/or other higher-order thinking
  - real-time presence allowing for interactions
Collaboration

• Activities to help acquire content AND improve leadership and TEAMbuilding skills
  – Learner-to-learner interaction
  – Learner-to-facilitator interaction
  – Learner-to-facilitator interaction
Ultimate Goal

• Student Success
  – More learner interaction and learner empowerment
  – Enhanced learning by enriching the quality and increasing the quantity of interactions
Please identify the corresponding percentage for each of the average learning styles:

1. Lecturing
2. Practice by doing
3. Discussion groups
4. Demonstration
5. Audio Visual
6. Reading
7. Teaching others

Source: National Training Center’s Pyramid Graph of Average Learning Retention Rates
National Training Center’s Pyramid Graph of Average Learning Retention Rates
Strategies and Tools

- Constructivist Theoretical Framework
  - Collaborative/cooperative learning
- Team-based Approach
- Active Learning
Strategies and Tools

• Web 2.0 technologies—synchronous and asynchronous
  – Wikis
  – Blogs
  – Podcasts
  – Skype™
  – Virtual Classroom/Chat
  – Ning™
• Adobe Connect Pro
• Windows Movie Maker
Strategies and Tools (cont’d)

• Interactive course syllabi—SoftChalk LessonBuilder™
• Supplemental instructional videos--Camstasia™
• Five-minute online class attendance/log-on quizzes
• Case competition—external validation component (Safe Assign)
• Digital Presentations (Self and Peer Assessment)
## PERFORMANCE APPRAISAL FORM

Instructions: Within 24 hours after the published deadline for each team assignment, please work as a team to rate the factors below, entering the number [4, 3, 2, 1, 0], with 4 being the highest (you can also use the + and - if desired) which best represents your HONEST evaluation of each team member’s performance. Provide only ONE rating for each category. Explain each assigned rating. If one of your team members has dropped the course, please place “n/a” in that column. Assign the rating of zero (0) for lack of participation. The PM’s rating is final. (Any team member can also share CONFIDENTIAL information with the instructor.)

### FACTORS TO BE RATED

<table>
<thead>
<tr>
<th></th>
<th>PM</th>
<th>APM</th>
<th>RATE</th>
<th>ACS</th>
<th>TS</th>
<th>ATS</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accuracy:</strong> the correctness of duties performed regardless of volume. Performed assigned role.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Quantitative:</strong> ability to complete assignment in allotted time. Carried out specified workload and reviewed work in a timely manner.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Job Knowledge:</strong> ability to understand assignment. Understood assigned job role.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Relationships and Cooperation:</strong> the willingness to cooperate as a team member. Showed respect and consideration for others and was an effective team member.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Initiative and Creativeness:</strong> Willingness to carry out responsibilities and resourceful in making suggestions. Made the effort to enhance the individual and/or team submission of assignment in a timely manner.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dependability:</strong> fulfills responsibility; consistent and reliable work habits. Completed all assigned tasks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attendance and Punctuality:</strong> Participated in all schedule sessions—email, cyber, telephone, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SCORE

<table>
<thead>
<tr>
<th>Project Manager’s Name</th>
<th>Assistant Project Manager’s Name</th>
<th>Communications Specialist’s Name</th>
<th>Assistant Communications Specialist’s Name</th>
<th>Technical Specialist’s Name</th>
<th>Assistant Technical Specialist’s Name</th>
</tr>
</thead>
</table>

---

**Note:** Each column represents a different team member, and the score is calculated based on the ratings given.
PERFORMANCE APPRAISAL FORM

Instructions: Within 24 hours after the published deadline for each team assignment, please work as a team to rate the factors below, entering the number (4, 3, 2, 1.0; with 4 being the highest—you can also use the + and - if desired) which best rates your HONEST evaluation of each team member’s performance. Provide only ONE rating for each category. Explain each rating. If one of your team member’s has dropped the course, please place "n/a" in that column. Assign the rating of lack of participation. The PMs rating is final. (Any team member can also share CONFIDENTIAL information with instructor.)

<table>
<thead>
<tr>
<th>FACTORS TO BE RATED</th>
<th>RATE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PM</td>
<td>APM</td>
</tr>
<tr>
<td><strong>Accuracy:</strong> the correctness of duties performed regardless of volume. Performed assigned role.</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td><strong>QUANTITY OF WORK:</strong> ability to complete assignment in allotted time. Carried specified workload and reviewed work in a timely manner.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>JOB KNOWLEDGE:</strong> ability to understand skills and the job</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FACTORS TO BE RATED</th>
<th>RATE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PM</td>
<td>APM</td>
</tr>
<tr>
<td><strong>Accuracy:</strong> the correctness of duties performed regardless of volume. Performed assigned role.</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>QUANTITY OF WORK:</strong> ability to complete assignment in allotted time. Carried specified workload and reviewed work in a timely manner.</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Thanks for all your help Joe. We pulled it together in the end!!!

Wednesday, 09/09/2009 11:23 PM by [Name]  | Delete

No problem! We got it together now! We about to start doing these assignments easy. To all... I will be in the Cyber Cafe Thursday from around 5:45pm if you have to discuss with me your grade I gave or the input on someone else's grade

Wednesday, 09/09/2009 11:29 PM by [Name]  | Delete

I feel we all worked well as a team and together completed the assignment. Thanks everyone.

Thursday, 09/10/2009 3:46 PM by [Name]  | Delete

Thanks everyone. I agree now that we have one down. We will be much better this time around.

Thursday, 09/10/2009 11:26 PM by [Name]  | Delete

Add Comment
<table>
<thead>
<tr>
<th>Name</th>
<th>User Name</th>
<th>Total Page Saves</th>
<th>Total Lines Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>27% (59/218)</td>
<td>29% (1277/4366)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19% (42/218)</td>
<td>25% (1110/4366)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15% (32/218)</td>
<td>16% (681/4366)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10% (21/218)</td>
<td>13% (589/4366)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19% (41/218)</td>
<td>8% (351/4366)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5% (11/218)</td>
<td>6% (241/4366)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6% (12/218)</td>
<td>3% (117/4366)</td>
</tr>
</tbody>
</table>
BUS Communications FAQ

This blog has been designed for two purposes:

(1) to provide answers and/or recommendations on how to resolve questions or concerns asked previously by students.
(2) to provide a space where students can ask a question and get an answer or recommendation from another student currently enrolled in the course or from the professor.
# Podcast

## Business Communication--Spring Semester 2010 Podcast

**Description:** Podcast episodes about course content

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8/10</td>
<td><strong>Using the Wiki Tool for Team Assignments and Completing the e-Portfolio Assignment</strong></td>
</tr>
</tbody>
</table>
| 1/8/10 | **Module 1--Chapter 1: Establishing a Framework for Business Communications**  
This podcast episode covers the following topics: (1) Purposes of Communication (2) The Communication Process (3) Communication Within Organizations |
| 1/9/10 | **Module 2--Chapter 2: Focusing on Interpersonal and Group Communication**  
This podcast episode covers the following topics: (1) Behavioral Theories that Impact Communication (2) Nonverbal Communication (3) Listening as a Communication Skill (4) Group Communication (5) Meeting Management |
| 1/9/10 | **Module 3--Chapter 3: Planning Spoken and Written Messages**  
This podcast episode covers the following topics: (1) Determining the Purpose and Goals (2) Formulating the Audience and Message |
| 1/9/10 | **Module 4--Chapter 4: Using Writing to Develop Business Skills**  
This podcast episode covers the following topics: (1) Using Writing to Develop Business Skills (2) Narrative Writing (3) Expository Writing (4) Argumentative Writing |
| 1/9/10 | **Module 5--Chapter 5: Developing Speaking Skills**  
This podcast episode covers the following topics: (1) Public Speaking (2) Persuasion (3) Public Speaking (4) Nonverbal Communication |
| 1/9/10 | **Module 6--Chapter 6: Developing Writing Skills**  
This podcast episode covers the following topics: (1) Writing for Business (2) Writing for the Web (3) Writing for Social Media |
| 1/9/10 | **Module 7--Chapter 7: Developing Speaking Skills**  
This podcast episode covers the following topics: (1) Public Speaking (2) Persuasion (3) Public Speaking (4) Nonverbal Communication |
| 1/9/10 | **Module 8--Chapter 8: Developing Writing Skills**  
This podcast episode covers the following topics: (1) Writing for Business (2) Writing for the Web (3) Writing for Social Media |
| 1/9/10 | **Module 9--Chapter 9: Developing Speaking Skills**  
This podcast episode covers the following topics: (1) Public Speaking (2) Persuasion (3) Public Speaking (4) Nonverbal Communication |
| 1/9/10 | **Module 10--Chapter 10: Developing Writing Skills**  
This podcast episode covers the following topics: (1) Writing for Business (2) Writing for the Web (3) Writing for Social Media |

---
TO: Carolyn Smythe, Purchasing

FROM: Director of Human Resources

DATE: March 23, 2010

SUBJECT: Response to the request for CNV be added to the volunteer program. Carolyn, your interest in the Dawson and Eagles employee volunteer program is commendable. Without employee interest and cooperation, the program would not be successful. In the interest of fairness, all employee requests are considered.

Cooperation between all company employees is crucial to company unity. Religion and political preference are two very diverse affiliations that will divide the strongest organization. Thus, in the interest of fairness to all D&E employees, organizations need to be neutral on political and religious grounds to be a part of D&E’s volunteer program. The CNV organization conducts peace camps in the summer and has a history of protecting military solutions to political problems; the conflict-resolution strategies in their schools are politically neutral, but D&E and our...
# Evaluations

Click on a name below to begin an evaluation. The names may be anonymous. Evaluations can be modified or reviewed until the end of the evaluation.

<table>
<thead>
<tr>
<th>Status: Not Started</th>
<th>Points Allocated: 0 / 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status: Not Started</td>
<td>Points Allocated: 0 / 28</td>
</tr>
<tr>
<td>Status: Not Started</td>
<td>Points Allocated: 0 / 28</td>
</tr>
<tr>
<td>Status: Not Started</td>
<td>Points Allocated: 0 / 28</td>
</tr>
</tbody>
</table>

## Submission

| Video | File Size 10907544 bytes | File Type video/x-ma-wmv |

## Criteria

### Criteria Completion Status

<table>
<thead>
<tr>
<th>Criteria 1</th>
</tr>
</thead>
</table>

### VIDEO PRESENTATION TEAM REVIEW EVALUATION RUBRIC

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
</table>
Collaboration Sessions

<table>
<thead>
<tr>
<th>Session Name</th>
<th>Tool</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS-330-90-092 02/09/10 Cyber</td>
<td>Virtual Classroom</td>
<td>Feb 9, 2010 9:00:00 PM EST</td>
<td>Recordings</td>
</tr>
<tr>
<td>Office Hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS-330-90-092 02/16/10 Cyber</td>
<td>Virtual Classroom</td>
<td>Feb 16, 2010 9:00:00 PM EST</td>
<td>Recordings</td>
</tr>
<tr>
<td>Office Hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS-330-90-092 03/02/10 Cyber</td>
<td>Virtual Classroom</td>
<td>Mar 2, 2010 9:00:00 PM EST</td>
<td>Recordings</td>
</tr>
</tbody>
</table>

Dialogue:

"aley: I don't have any additional questions... thanks for your time. Mar 24, 2010 10:17:54 PM EDT
"ames: Don't forget to proof... one more time. Mar 24, 2010 10:18:05 PM EDT
"illiams: No ma'am. Mar 24, 2010 10:17:54 PM EDT

"illiams left the session] Mar 24, 2010 10:18:13 PM EDT
"aley: okay Mar 24, 2010 10:18:21 PM EDT
"ames left the session] Mar 24, 2010 10:18:32 PM EDT
"illiams: I got a lot to do. Mar 24, 2010 10:18:46 PM EDT

"illiams: We submit via the SafeAssign tool right? Mar 24, 2010 10:19:00 PM EDT
"aley: me too... Mar 24, 2010 10:19:05 PM EDT
"aley: yes Mar 24, 2010 10:19:12 PM EDT

"illiams: Ladies: Don't forget the peer review. Mar 24, 2010 10:19:21 PM EDT
"aley: ok, i gotta go Mar 24, 2010 10:19:56 PM EDT

"illiams: We probably should have met on tues. but its okay Mar 24, 2010 10:20:06 PM EDT
"illiams: Laronda I changed the color of the font after you reviewed mine. Is that what we all were to? Mar 24, 2010 10:20:09 PM EDT

"illiams: Okay, I plan to look back over the wiki. Mar 24, 2010 10:20:26 PM EDT
"illiams: Or should we keep it that way for proof of peer review? Mar 24, 2010 10:20:29 PM EDT
"aley left the session] Mar 24, 2010 10:21:14 PM EDT

"illiams: No let's change it back to black. She can see if another member changed something. Mar 24, 2010 10:22:29 PM EDT
BUS 330 Business Communications
Course Syllabus, Policies, Calendar, Team Roles, and Evaluation Rubrics

Contents

Page 1
COURSE SYLLABUS
- Instructor Contact Information
- Office Hours
- Course Description, Prerequisites, Co-requisites
- Course Rationale
- Course Goals and Measurable Intended Student Learning Outcomes
- Course Materials, Required Text, Supplementary Readings, and Oral Presentation Requirements
- Oral Presentation
- Primary Methods of Instruction
- Related University-Wide and Course Specific Requirements
- Evaluation and Assessment Methods
- Academic Integrity Standards
- Blackboard Instructions
- Americans with Disabilities Act (ADA) Statement
- University Assessment Statement

Page 2
COURSE POLICIES
Lessons Learned

- Be flexible! Be flexible! Be flexible!
- Students may not comfortable with or adept at new Internet-based technologies
- Regular communication and timely feedback
- Online courses are not right for all students
- Ask students what works and what doesn't
- Keep navigation of site simple
- Specify acceptable file formats for assignment submissions
- Make sure students understand the difference between self-paced courses and online courses
Audio and Podcasting

- Audacity
- Wavosaur
- GarageBand
- Podcast Producers
Video-Based Multimedia

- Camtasia
- Jing
- You Tube (YouTude.edu)
- Animoto
- Slideshare
- JayCut
Visual Narrations

- XtraNormal
- ZimmerTwins
- Make Beliefs Comix
Visual Narrations

Faculty Development

Why do I have to attend these Faculty Development Workshops?

Dorothy L. R. Jones

Did you learn anything?

Yes, I did! You can teach an old dog some new tricks!

This comic strip was created at MakeBeliefsComix.com. Go there to make one yourself!
Life is trying things to see if they work...

~Ray Bradbury
Contact Information

Dorothy L. R. Jones, Ph.D.
Professor, School of Business
Norfolk State University
700 Park Avenue
Norfolk, VA 23504

Voice: 757.823.2141  Fax: 757.823.2506
Email: dljones@nsu.edu  Website: www.nsu.edu
Questions for Discussion

1. Question:
   What are three major components of an online course?
   
   Response:
   - Content
   - Interaction
   - Assessment

2. Question:
   What is the first step in developing an online course?
   
   Response:
   Write outcome objectives for the course.

3. Question:
   What is the second step in developing an online course?
   
   Response:
   Design Assessment
   - Multiple Assessments

4. Question:
   What is the third step in developing an online course?
   
   Response:
   Build the content.
   Chunking
   - Modules
   - Units

5. What is the fourth step in developing an online course?
   
   Response:
   Create Interaction
   - Discussion Forum
   - Learning Communities
      - Groups
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What are three major components of an online course?</td>
</tr>
<tr>
<td>2.</td>
<td>What is the first step in developing an online course?</td>
</tr>
<tr>
<td>3.</td>
<td>What is the second step in developing an online course?</td>
</tr>
<tr>
<td>4.</td>
<td>What is the third step in developing an online course?</td>
</tr>
<tr>
<td>5.</td>
<td>What is the fourth step in developing an online course?</td>
</tr>
</tbody>
</table>
Plenary Session III: Mentoring for Academic Improvement
Patricia Smith, Special Assistant to the Dean, CSET and Vanessa Jenkins, NSU Counseling Center
How to Assist Emotionally Distressed Students Through Referrals

Norfolk State University Counseling Center
NSU COUNSELING CENTER

- Location: Bowser Building Room 116A
- Telephone Number: 823-8173
- Office Hours Fall and Spring Semesters:
  - Mon – Thurs 8:00 a.m. to 8:00 p.m.
  - Fri 8:00 a.m. – 5:00 p.m.

After Hours Emergencies
Call University Police 823-9000
For On-Call Counselor Assistance
Goals and Objectives

After this presentation, you will:

- Be aware of policies, procedures, and structures put in place by NSU to assist emotionally distressed students
- Be aware of legislation that governs confidentiality and responsibility for assisting distressed students
- Understand confidentiality and its limits
Goals and Objectives

- Be able to recognize the signs that a student is emotionally distressed
  - Understand how the reporting process works

- Gain knowledge about NSU Counseling Center (CC) services

- Be aware of how to refer a student to the CC
Who attempts suicide?

Faces Exercise
Students
Students

Angela 15 yrs.

Angela 16 yrs.

Arron Dawn 15 yrs.

Hugh 17 yrs.

Bill 17 yrs.

Cody 18 yrs.

“DJ” 11 yrs.

Blair 17 yrs.

Robert 18 yrs.

Brian 16 yrs.

Audrie 14 yrs.

Billy 18 yrs.

Danielle 17 yrs.

Derek 15 yrs.

Emily 14 yrs.
Students

[Images of students with their names and ages]
Emotional Distress: Myths and facts about suicide

- Myth: People who talk about suicide are just trying to get attention. They won’t really go through with it.
  - Fact: Almost everyone who attempts suicide has given some clue or warning.
    - They are in pain and often reach out to others.

- Myth: If a person is going to attempt suicide, nothing is going to stop them.
  - Fact: Most people who attempt suicide remain uncertain of their decision until the final moment.
    - Most people do not wish for death- they wish to stop pain.
Emotional Distress: Myths and facts about suicide

- Myth: People who commit suicide are unwilling to seek help.
  - Fact: studies of suicide victims show that more than half have sought professional help within six months prior to death.

- Myth: Anyone who attempts suicide must be crazy or psychotic (delusions, hallucinations).
  - Fact: Most people are not psychotic, but many are depressed.
Legal Issues

Americans with Disabilities Act
Ferrum College and Virginia Tech Cases
Family Educational Rights and Privacy Act (FERPA)
Virginia Code Addressing Suicidal Students
Legal Issues: Virginia Tech and Ferrum College Cases

  - Cho murdered 32 members of the Virginia Tech community (both faculty and students were murdered)
  - What can we do different to prevent such a tragedy from happening again?

  - Complaint Suit - The Estate of Frentzel in their claim for wrongful death, the plaintiff alleged that the defendants were negligent in failing to take adequate steps to prevent Frentzel from committing suicide.
Ferrum College Case Facts

- Ferrum College was aware that Frentzel, age 20, had emotional problems

- Ferrum College had previously required Frentzel to seek anger management counseling before returning to school

- Frentzel was found by campus police alone in his room with bruises on his head that he disclosed were self-inflicted

- The defendants (Dean Newsome) required Frentzel to sign a statement that he would not harm himself

- Ferrum College knew that around the time of his suicide he had sent a letter to his girlfriend stating that he wanted to kill himself
Ferrum College and Virginia Law

- Virginia law recognizes that a special relationship can give rise to a duty to take affirmative action to assist or protect another.

- Virginia Courts ruled that a special relationship did exist between Frentzel and the College, and there was a duty by Ferrum College to protect Frentzel.
Ferrum College and Virginia Law

- According to the courts ruling, this duty was *not fulfilled* in the manner necessary given the information and resources available to Ferrum College.

- Ferrum College was held liable for the wrongful death of Frentzel.
Ferrum College Case Conclusions

- Faculty and Staff are held responsible for the safety of student(s) in situations when they are aware of threats to the safety of a student(s).

- This liability does not end at the university level but may be extended to the personal level (e.g. Professor A, Director B) in lawsuits.

- Ferrum College RA was sued but not held liable.
FERPA (Family Educational Rights and Privacy Act) and Confidentiality

Confidentiality and *emergency* situations

- We can disclose confidential student information in emergency situations in order to secure the safety of the student or others.
FERPA (Family Educational Rights and Privacy Act) and Confidentiality

- Example: Lisa is threatening to Professor Deleon that she wants to harm herself. However, she lives off campus.

  - We can contact her local police and inform them of this situation so that they can intervene with her.

  - We could also contact her family if we believe this will assist in securing her safety or aid in providing medical care to the student.
FERPA (Family Educational Rights and Privacy Act) and Confidentiality

- FERPA and *non-emergency* situations
  - Are our communications with students *always* confidential in *non-emergency* situations?
FERPA Continued

- Trick question!
  - Yes they ARE confidential between the student and NSU (both faculty and staff)
  - But they are NOT between the student and an individual university employee
  - (*unless this occurs at the Counseling or Health Centers, where such communications are treated as medical records).
FERPA (Family Educational Rights and Privacy Act) and Confidentiality

• In non-emergency situations:
  • Disclosures can occur across university personnel and departments if this communication pertains to a legitimate educational purpose regarding the student.
    • Ex. An English teacher can tell a student’s football coach that he has been missing class and appears tired if the English teacher believes that this information pertains to the student’s education

• Disclosures should be limited to a “who needs to know” basis.
Americans with Disabilities Act

- The ADA prohibits discrimination on the basis of disability in employment, state and local government, public accommodations, commercial facilities, transportation, and telecommunications.

- As it relates to NSU:
  - People have the right to be educated and receive accommodations if they have a mental illness.
  - It is not the university’s responsibility to identify such individuals. They must register with the NSU Department of Disabilities Services.
What structures does NSU have in place to assist distressed students?

- Medical Clearance Committee  
  (Arises from NSU Assisting Emotionally Distressed Students Policy 24:002 procedures)

- Behavior Assessment and Response Team (Threat Assessment Team) Policy 24:003  
  (Virginia Law requirement after Va. Tech shooting)

- Assisting Emotionally Distressed Students Policy 24:002  
  (Stems from Policies Addressing Suicidal Students law)
Virginia Code 23-9.2:8 Policies addressing suicidal students

- Each university will:
  - Develop and implement policies that advise faculty and staff of proper procedures for identifying and addressing the needs of students exhibiting suicidal tendencies or behaviors.

- Policy will state no student will be penalized for a suicide attempt
  - or for seeking help with suicidal thoughts or behaviors
Medical Clearance Committee

- Purpose: to review cases where students present to the university community as emotionally distressed and in need of intervention.
  - Makes recommendations to the Vice-President for Student Affairs concerning how to assist these students with regard to their care and standing within the university.
  - Concerns about a student’s mental health can be voiced to the Chairperson of the MCC (the Director of the NSU Counseling Center).
  - Current membership same as BART
NSU BART

- Behavior Assessment and Response Team
  - Designed to ensure a safe and secure environment for all faculty, staff, students and visitors to NSU campus
  - Consists of:
    - Representatives from NSU police dept., Counseling Center, Spartan Health Center, Office of Residence Life and Housing, Norfolk Community Service Board, Office of the V.P. For Student Affairs, Teaching Faculty, Human Resources and others as needed.
  - Involves:
    - Resolving threatening situations in a systematic manner
    - Establishing collaborative relationships with local and state law enforcement and mental health agencies
If you think an individual is potentially dangerous or a threat to the NSU community, report to one of BART’s Co-chairs
- The NSU Chief of Police
- The Director of the NSU Counseling Center (Dr. Greaves)

Other resources for identifying dangerous/threatening individuals
- [http://www.nsu.edu/cc/ “Red Flags Violence”](http://www.nsu.edu/cc/)
NSU Policy: Assisting Emotionally Distressed Students

“The university’s procedure to assist an emotionally distressed student who either:

- Attempts suicide
- Makes a threat or gesture of suicide
- Harms or attempts to harm him or herself
- Undergoes severe emotional distress (i.e. reporting having hallucinations and/or discloses delusional thought content)”
Assisting Emotionally Distressed Students, cont.

• What’s the reporting process?
  • If faculty or staff become aware of such behavior, *immediately report it to the NSU police dept.*
    • (757) 823-9000
  • NSU police dept. then assesses the situation and takes action
    • Student summons filed or emergency hearing to Office of Judicial Affairs
  • Student then required to undergo evaluation by a university counselor at a location deemed safe by the Police Department. Norfolk Community Service Board evaluates the student with CC facilitating evaluation.
Assisting Emotionally Distressed Students, cont.

- Counselor makes recommendations regarding student’s care
- Counselor submits recommendations to the Medical Clearance Committee
- Medical Clearance committee then meets to make recommendations to the Vice President for Student Affairs regarding student’s case
Assisting Emotionally Distressed Students, cont.

- Student then required to follow these recommendations until he/she receives decision on status
  - Recommendations and final decision come from Vice President for Student Affairs
  - If student does not comply, he/she faces judicial action
Assisting Emotionally Distressed Students, cont.

- If a student is absent from NSU due to mental health problems, psychiatric hospitalizations and/or interim suspension:
  - Required to attend counseling
  - Attend a psychiatric evaluation and follow recommendations
  - Submit a letter from psychiatrist to Medical Clearance Committee
    - With recommendations and opinion about student’s ability to succeed in university environment
Assisting Emotionally Distressed Students, cont.

- If a student is absent from NSU due to mental health problems, psychiatric hospitalizations and/or interim suspension:
  - Must attend a clearance evaluation with a university counselor
  - Not permitted on NSU campus or to participate in sponsored-off campus activities until cleared
- Student may be administratively withdrawn from university for medical reasons
Emergency or non-emergency referral?

- Situations where faculty and staff should report to the NSU police department their concerns immediately if they observe certain behaviors
  - i.e. “Emergency Referrals”

- Other situations are of concern but immediate action is not needed. Faculty and staff can intervene by discussing counseling options with the student
  - i.e. “Non-Emergency Referrals”
Signs that suggest a student may not be able to provide adequate self care: Require Emergency Referral

- Some signs that a student’s behavior warrants an “Emergency Referral;”
  - Statements of wanting to hurt oneself
  - Expressions of self-loathing/suicidal intent/aggression
    - Written essays or verbal statements
  - Problems testing reality
    - student insists that he or she is behaving normally while other people perceive the behavior to be abnormal
  - Talks about giving up important life goals and/or expression of hopelessness
Signs that suggest a student may not be able to provide adequate self care: Require Emergency Referral

- Delusional beliefs
  - The student believes he/she has magical powers or that they are someone famous or important
  - The student believes he/she has an intimate relationship with someone whom is just an acquaintance

- Paranoia
  - Belief student is being followed, watched, or judged without objective proof
Signs that suggest a student may not be able to provide adequate self care: Require Emergency Referral

- Hallucinations
  - Seeing objects/people, or hearing sounds/voices that are not there
  - The student may appear to be looking at something or listening to a sound that is not there
  - The student may be having a continuous dialogue with self
- Bizarre and aberrant behavior
  - Beyond what would be considered simply unusual or unconventional
  - Actions and words that cause people around him or her to become fearful and suspicious
Signs that suggest a student may not be able to provide adequate self care: Require Emergency Referral

- Engaging in reckless behavior
  - Reckless driving
- Racing thoughts and rapid speech (mania)
  - very fast, difficult to follow, pressured, or nonsensical speech
    - (e.g. student’s speech is incoherent or does not relate to topic that is being discussed).
- Excessive use of alcohol or other drugs
  - Visible intoxication, or showing signs of withdrawal (i.e. sweating, vomiting, or muscle spasms)
  - Excessive emotions, lack of emotions, or inappropriate emotions
Non-Emergency Referrals

- Some observed behavior or student reports of behavior warrant a Non-Emergency Referral.
- Provide the student with a referral to the Counseling Center for the following types of issues:
  - Interpersonal/relationship issues
  - Student appears sad or tearful
  - Student appears anxious or stressed
  - Student reports difficulty adjusting to college
  - Student discloses past trauma or physical/sexual assault
Counseling Center Non-Emergency Student Referrals

- In cases where a student’s safety or the safety of others is not an issue, any member of the NSU community can refer a student to the Counseling Center (757-823-8173) for counseling in one of three ways:

- If you would like to know if the student has followed up with the referral by law the student will have to sign an authorization to release information form in order for the Counseling Center to be permitted to acknowledge the student’s attendance.
Counseling Center Non-Emergency Student Referrals Cont.

1) If you are meeting with the student you can contact the Counseling Center (phone# 823-8173) during this meeting and note that there is a student who you would want to meet with a counselor. Please let us know if you would like the student to be seen the same day. Then have the student speak with the Counseling Center staff member, who will schedule the student to meet with a counselor.

2) You may bring the student to the Center located in 116A Bowser Building, and have the student schedule an appointment in person.

3) You may ask the student to contact the Counseling Center and schedule an appointment.
Why Might You Be Hesitant to Refer Someone to the Counseling Center?

- I might embarrass the student
- I won’t know what to say
- He or she might get angry with me
- I don’t know what resources are available to the student
- The student could get defensive
- It will effect our working relationship
Role Play Helping A Student

- Break up into groups of 2
  - 1 person will be the student
  - 1 person will be the helpful NSU staff or faculty member
How Do I Refer a Student to the NSU Counseling Center?

• Before you intervene:
  • Identify the issues you wish to address with the student
    • Review factual events: Observation of student’s behavior (i.e. withdrawn socially, looks sad, interpersonal problems – seen arguing with her boyfriend, missing classes)
    • Avoid labeling (i.e. you are suffering from depression)
  • Approach the student and ask to talk with them **privately**
    • Ask the student “When is a good time today to sit down and talk one-on-one?”

• Let the student know you **care and are concerned about them**
How Do I Refer a Student to the NSU Counseling Center Cont.

- Begin with reminding student of something positive you observed in him or her if you can. (i.e. you seem like a hard worker)

- Tell them what has prompted this conversation. Namely, your observations of their behavior and mood
  - “I’ve noticed you seem upset in class today and you’ve missed classes the past two weeks.”
How Do I Refer a Student to the NSU Counseling Center Cont.

- Ask the student what is going on in their life:
  
  - “I’m concerned about you because I care about how you are doing. What has been bothering you?”

  - “I’m concerned that whatever is going on in your life will negatively impact your ability to do as well in this class as I know you can. What has been bothering you?”

  - Is there anything going on that you would like to talk to a counselor about?

    "Is there anything bothering you that you would like to talk to someone about?"

    "Is there something you would like a counselor to help you with?"
How Do I Refer a Student to the NSU Counseling Center Cont.

- Student may be reluctant to tell you about what has been going on and that’s O.K.
- Inform the student about the Counseling Center
  - “I am sorry to here that you are having these problems. I think you might benefit from speaking to a counselor at the Counseling Center to help you cope with the stress you are dealing with /cope with your problem. Do you know about the NSU CC?”
- Provide them with information about CC location and services. Location 116A Bowser. Phone 823-8173
- Make student aware that counseling is FREE
How Do I Refer a Student to the NSU Counseling Center Cont.

- Allow the student to respond to your concerns

- Expect that some students may get defensive

- Avoid debating with students about your observations and concerns
  - Listen carefully, non judgmentally and with empathy
Referral Tips

- Be aware of your limitations. Don’t take on the role of mental health counselor stay within your job description.
  - It’s your job to watch, support, refer, & sometimes report
- Do not promise blanket confidentiality with the student regarding your discussion with him or her (Remember FERPA)
- Feel free to consult with someone at the CC about the student before you intervene
- Practice what you plan to say to the student with a faculty/staff peer or visually rehearse the interaction in your mind
  - How might the interaction play out?
  - What will you do if the student reacts in a way you don’t expect?
Referral Tips

- Avoid being critical, labeling, or diagnosing the student’s problem
  - alcoholic, troublemaker, anger management problem
  - Separate the action from the person.

- Have the CC phone number and location on hand to give to the student
- Suggest he or she attend one session before deciding whether counseling would be helpful or not
Referral Tips

• Find a private place to speak with the student
• If you feel threatened by the student, call the NSU Police (823-9000) and they will assist in finding a secure location for the CC to evaluate the student.

• Avoid making sweeping promises of confidentiality
• particularly if a student represents a safety risk to him or her-self or someone else
• Students who are suicidal need swift professional intervention, and assurances of absolute confidentiality may get in the way
Referral Tips

- Remember, the CC sees students struggling with a wide range of problems
  - Relationship issues, adjusting to college, anxiety, depression, thoughts of suicide
  - Talk to students about how personal problems can negatively impact our ability to reach our fullest potential
    - The CC can help identify these issues and provide support for dealing with problems
    - Some research shows that students who utilize counseling perform better in school
I’ve Made the Referral but the Student Didn’t Go to the CC

• A successful intervention is one that has *actually occurred*
  • Doing *nothing* would be the same as simply accepting the situation you observe

• Even if you see no immediate change, you may have planted the seeds for future change
• Don’t let a situation such as this undermine your future attempts to assist other students
• There have been many cases where students have reported that they have been referred to the Counseling Center by someone who expressed concern about them
CSET Enrollment and Retention Data
Goal 1: Increase Student Enrollment from 1,721 to 3,000 with Improved Quality during 2008-2013.

- Objective 1: Improve applications and yield for freshman enrollment
- Objective 2: Increase transfer agreements with community colleges and four year institutions
Goal 1: Increase Student Enrollment from 1,721 to 3,000 with Improved Quality during 2008-2013.

- Objective 3: Improve the quality of incoming students through the DNIMAS Program and the Honors College
- Objective 4: Expand satellite programs using online courses, certificates and programs
- Objective 5: Expand certificate programs, continuing education programs and selected masters degree programs

- Objective 6: Upgrade our high school feeder methods to include not only traditional feeder schools but magnet schools and those with strong Science and Technology emphases.
- Objective 7: Work with the Admissions Office so that they can become more proactive in pushing information to us especially regional college fairs, applications to the Computer Science Program.
Goal 1: Increase Student Enrollment from 1,721 to 3,000 with Improved Quality during 2008-2013.

- Objective 8: Strengthen our College/University feeder methods to include more majority institutions. (Graduate Program)

- Objective 9: Build additional outreach efforts to support high and middle school computer science instructors in curriculum development and systemic changes.

Goal 2: Improve Freshmen to Sophomore Retention Rate from 64% to 80%

- Objective 1: Improve retention through carefully monitored freshmen and sophomore year experiences

- Objective 2: Improve freshmen preparation through the use of bridge or transition programs

- Objective 3: Develop the sense of a learning community and instill the importance of scholarship in freshmen
Goal 2: Improve Freshmen to Sophomore Retention Rate from 64% to 80%

- Objective 4: Implement a Computer Science Bridge Program through external funding.

Goal 3: Increase the Graduation Rate from 31% to 60%

- Objective 1: Enhance programs for under prepared students
- Objective 2: Create innovative curricula and emphasize co-curricular activities
- Objective 3: Improve student performance through the use of technology and student-centered pedagogy.
Goal 3: Increase the Graduation Rate from 31% to 60%

- Objective 4: Provide research opportunities and/or clinical experiences for all CSET students
- Objective 5: Provide mentoring to all CSET students
- Objective 6: Seventy percent (70%) of students in CSET will indicate that they are satisfied/highly satisfied with advising.

Goal 3: Increase the Graduation Rate from 31% to 60%

- Objective 7: Build a scholarship program through NSF S-STEM and alumni efforts.

- Objective 8: Reconstitute the Computer Science Advisory Board.

- Objective 9: Set up an alumni relations coordinator to act as a "shadow board" and potential networking partners.
<table>
<thead>
<tr>
<th>Programs</th>
<th>Fall 1999</th>
<th>Fall 2000</th>
<th>Fall 2001</th>
<th>Fall 2002</th>
<th>Fall 2003</th>
<th>Fall 2004</th>
<th>Fall 2005</th>
<th>Fall 2006</th>
<th>Fall 2007</th>
<th>Fall 2008</th>
<th>Fall 2009</th>
<th>Change Since 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allied Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Services</td>
<td>24</td>
<td>17</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funeral Services (Certificate)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Information Management</td>
<td>35</td>
<td>17</td>
<td>15</td>
<td>6</td>
<td>3</td>
<td>9</td>
<td>20</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Services Management</td>
<td>40</td>
<td>34</td>
<td>36</td>
<td>38</td>
<td>40</td>
<td>35</td>
<td>34</td>
<td>40</td>
<td>63</td>
<td>71</td>
<td>84</td>
<td>↑ 33%</td>
</tr>
<tr>
<td>Medical Technology</td>
<td>18</td>
<td>25</td>
<td>31</td>
<td>35</td>
<td>36</td>
<td>45</td>
<td>41</td>
<td>38</td>
<td>33</td>
<td>39</td>
<td>36</td>
<td>↑ 9%</td>
</tr>
<tr>
<td>Biology</td>
<td>207</td>
<td>221</td>
<td>288</td>
<td>243</td>
<td>281</td>
<td>270</td>
<td>272</td>
<td>287</td>
<td>295</td>
<td>309</td>
<td>315</td>
<td>↑ 7%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>129</td>
<td>114</td>
<td>103</td>
<td>104</td>
<td>100</td>
<td>79</td>
<td>90</td>
<td>80</td>
<td>72</td>
<td>87</td>
<td>105</td>
<td>↑ 46%</td>
</tr>
<tr>
<td>Computer Science (B.S.)</td>
<td>374</td>
<td>425</td>
<td>462</td>
<td>426</td>
<td>388</td>
<td>266</td>
<td>220</td>
<td>210</td>
<td>188</td>
<td>232</td>
<td>248</td>
<td>↑ 32%</td>
</tr>
<tr>
<td>Computer Science (M.S.)</td>
<td>20</td>
<td>37</td>
<td>38</td>
<td>43</td>
<td>50</td>
<td>58</td>
<td>69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>↑ 38%</td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronics (B.S.)</td>
<td>55</td>
<td>40</td>
<td>39</td>
<td>31</td>
<td>52</td>
<td>54</td>
<td>71</td>
<td>83</td>
<td>70</td>
<td>84</td>
<td>86</td>
<td>↑ 23%</td>
</tr>
<tr>
<td>Electronics (M.S.)</td>
<td>4</td>
<td>11</td>
<td>15</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Optical (B.S.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optical (M.S.)</td>
<td>17</td>
<td>29</td>
<td>39</td>
<td>55</td>
<td>49</td>
<td>51</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>↓ 8%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>42</td>
<td>36</td>
<td>37</td>
<td>37</td>
<td>51</td>
<td>47</td>
<td>52</td>
<td>46</td>
<td>38</td>
<td>34</td>
<td>50</td>
<td>↑ 32%</td>
</tr>
<tr>
<td>Materials Science (M.S.)</td>
<td>9</td>
<td>14</td>
<td>15</td>
<td>18</td>
<td>18</td>
<td>32</td>
<td>26</td>
<td>18</td>
<td>18</td>
<td>14</td>
<td>8</td>
<td>↓ 56%</td>
</tr>
<tr>
<td>Materials Science &amp; Engineering (PhD)</td>
<td>8</td>
<td>13</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing (A.S.)</td>
<td>227</td>
<td>272</td>
<td>283</td>
<td>310</td>
<td>390</td>
<td>381</td>
<td>421</td>
<td>457</td>
<td>476</td>
<td>489</td>
<td>615</td>
<td>↑ 29%</td>
</tr>
<tr>
<td>Nursing (B.S.)</td>
<td>216</td>
<td>152</td>
<td>120</td>
<td>83</td>
<td>88</td>
<td>88</td>
<td>111</td>
<td>113</td>
<td>110</td>
<td>133</td>
<td>123</td>
<td>↑ 12%</td>
</tr>
<tr>
<td>Physics</td>
<td>19</td>
<td>20</td>
<td>28</td>
<td>22</td>
<td>28</td>
<td>20</td>
<td>20</td>
<td>17</td>
<td>14</td>
<td>16</td>
<td>12</td>
<td>↓ 14%</td>
</tr>
<tr>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architectural Drafting (A.S.)</td>
<td>32</td>
<td>37</td>
<td>47</td>
<td>59</td>
<td>39</td>
<td>38</td>
<td>25</td>
<td>33</td>
<td>36</td>
<td>42</td>
<td>35</td>
<td>↓ 3%</td>
</tr>
<tr>
<td>Building Construction Technology</td>
<td>26</td>
<td>31</td>
<td>28</td>
<td>18</td>
<td>33</td>
<td>32</td>
<td>41</td>
<td>34</td>
<td>46</td>
<td>44</td>
<td>57</td>
<td>↑ 24%</td>
</tr>
<tr>
<td>Computer Technology</td>
<td>76</td>
<td>66</td>
<td>76</td>
<td>87</td>
<td>85</td>
<td>93</td>
<td>90</td>
<td>77</td>
<td>71</td>
<td>70</td>
<td>65</td>
<td>↓ 8%</td>
</tr>
<tr>
<td>Design Technology</td>
<td>34</td>
<td>27</td>
<td>23</td>
<td>29</td>
<td>25</td>
<td>28</td>
<td>16</td>
<td>10</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>↓ 80%</td>
</tr>
<tr>
<td>Electronics Technology</td>
<td>33</td>
<td>22</td>
<td>32</td>
<td>40</td>
<td>39</td>
<td>41</td>
<td>47</td>
<td>39</td>
<td>52</td>
<td>56</td>
<td>53</td>
<td>↑ 2%</td>
</tr>
<tr>
<td>Vocational/Industrial Education</td>
<td>51</td>
<td>34</td>
<td>16</td>
<td>14</td>
<td>9</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>1,647</td>
<td>1,604</td>
<td>1,687</td>
<td>1,603</td>
<td>1,753</td>
<td>1,657</td>
<td>1,720</td>
<td>1,736</td>
<td>1,721</td>
<td>1,865</td>
<td>2,045</td>
<td>↑ 19%</td>
</tr>
</tbody>
</table>
Research Articles Extracted from the Internet

Fair Use—A single copy for teacher for research, teaching, or class preparation

The 1961 Report of the Register of Copyrights on the General Revision of the U.S. Copyright Law cites examples of activities that courts have regarded as fair use: “reproduction by a teacher or student of a work to illustrate a lesson...”

Attendance: Are Penalties More Effective Than Rewards?

By Randy Moore

ABSTRACT: This study examined how developmental education students' grades and attendance rates were affected by (a) penalties for excessive absenteeism, and (b) an emphasis on the academic benefits of class attendance in a large introductory biology course. On average, students in sections of the course in which the importance of attendance was stressed throughout the semester came to class more often and made higher grades than did students in sections in which the importance of attendance was not emphasized (despite the fact that students received no academic credit for coming to class). Imposing a penalty for excessive absences did not affect attendance or grades. These results indicated that improved rates for class attendance were associated with improved academic performance and that an emphasis on the academic benefits of class attendance was more effective for boosting attendance and academic performance than penalties for excessive absenteeism.

In college classrooms throughout the country, seats are empty. Although students have paid large amounts of money to enroll in courses that they must pass to graduate from college, many students do not attend class regularly. For example, Friedman, Rodriguez, and McComb (2001) have claimed “that 25% or more of students are absent from classes on any given day” (p. 124), and Romer (1993) has reported that “about one-third of students are not in class” (p. 167). Absenteeism is highest in large, first-year courses, especially those in the natural sciences (Friedman et al.). As Romer has noted, “A generation ago, both in principle and practice, attendance at class was not optional. Today, often in principle and almost always in practice, it is” (p. 174).

Although college instructors have a variety of attitudes and policies regarding class attendance (Romer, 2003), most instructors want students to come to class because class attendance is usually associated with academic success (Brocato, 1989; Jones, 1984; Launius, 1997; Moore, 2003; Romer, 1998; White, 1992; Wiley, 1992). Absences can hurt the overall "well-being" of classes (White, p. 13) by creating "a dead, tiresome, unpleasant classroom environment that makes [students who do attend class] feel uncomfortable" (Brauer, 1994, p. 206).

Class attendance improves if students are given extrinsic rewards such as money for coming to class.

Method

Setting

This study was conducted in a special-admission college (General College, GC) of a large, state, research university in the northern Midwest. GC prepares developmental education students to transfer to one of the university's degree-granting colleges. Many students in GC are considered to be "at risk" because they have lower high school grades and ACT scores than many other students at the university. GC courses are content-rich, credit-bearing courses that count fully toward graduation from the university.

Course and Student Demographics

This study was done in 2002-2003 in several sections of a 4-credit introductory biology course (GC 1131: Principles of Biological Science). All sections of the course were taught on the same days (Tuesdays and Thursdays), at similar times (between 9:45 a.m. and 3:00 p.m.), by the same instructor, in a similar way (e.g., same syllabus, textbook, sequence, pedagogical techniques), and in the same large lecture hall. The study involved 684 developmental education students having an average age of 20 years, an average ACT compos-

Journal of Developmental Education
ite score of 20, an average high school rank of 50%, and an average course load of 14 semester-hour credits. The classes were, on average, 33% male and 47% female and were ethnically diverse: 16% African American, 2% American Indian, 17% Asian and Pacific Islander, 4% Chicano/Latino, and 61% Caucasian/other. These demographic traits were not appreciably different in any of the sections of the course.

Attendance, Exams, and Grading

Class attendance was recorded at every class period. All exams covered material presented both in class and in assigned readings from the required course textbook. Students could have earned an A on each exam if they had read and understood the readings assigned in the textbook; that is, missing classes did not preclude any student from making an A. Grades were not "curved," students were not allowed to retake any exams, and there were no extra-credit projects. Course grades were based entirely on students' abilities to demonstrate their mastery of the course's academic content and skills. No points were awarded for attendance. Students who withdrew from the course were not included in this study nor were cheaters who failed the course because of academic dishonesty.

Emphasizing Attendance and Penalizing Absences

The University of Minnesota concisely states its policy regarding attendance as follows: "Students are expected to attend all meetings of their courses" (Policies, 2002). My course syllabus added the following statement about the importance of attendance for academic success: "I expect you to prepare for and attend every class. This is important because class attendance is usually a strong indicator of course performance." On the first day of class I discussed and emphasized this part of the syllabus to students in all sections of the course. In all sections of the course I also emphasized to students that I expected them to attend class and that class attendance was associated with an indirect, probabilistic reward because (a) high attendance increased the probability of earning a high grade in the course, and (b) low attendance increased the probability of earning a low grade in the course. To minimize the occurrence of cross-contamination of results, I prepared a different syllabus for each section of the course. To my knowledge, students did not know that other sections of the course had different attendance policies. The four sections of the course used in this study differed in the following ways.

1. No additional emphasis on attendance, no penalty for absences. In this section of the course I also told students that they would automatically fail the course if they attended fewer than 60% of the classes. I mentioned this penalty for absences at least once per week throughout the course.

2. No additional emphasis on attendance, no penalty for absences. In this section of the course I also showed students a graph of how class attendance is associated with academic performance in the course and a table showing how different rates of class attendance produce different probabilities for making various grades in the course (Moore, Jensen, Hatch, Duranczyk, Staats, & Koch, 2003). I distributed copies of the graph and table to students on the first day of classes and suggested that they write an analysis of each. At least once per week for the remainder of the semester I showed students the graph in the minutes before the beginning of class.

3. Additional emphasis on attendance, no penalty for absences. In this section of the course I also showed students a graph of how class attendance is associated with academic performance in the course and a table showing how different rates of class attendance produce different probabilities for making various grades in the course (Moore, Jensen, Hatch, Duranczyk, Staats, & Koch, 2003). I distributed copies of the graph and table to students on the first day of classes and suggested that they write an analysis of each. At least once per week for the remainder of the semester I showed students the graph in the minutes before the beginning of class.

4. Additional emphasis on attendance, penalty for absences. In this section of the course, I told students that they would automatically fail the course if they attended fewer than 60% of classes. I also showed students a graph of how class attendance is associated with academic performance in the course and a table showing how different rates of class attendance produced different probabilities for making various grades in the course (Moore, 2003). I distributed copies of the graph and table to students on the first day of classes and suggested that they write an analysis of each. At least once per week for the remainder of the semester I showed students the graph in the minutes before the beginning of class.

In this section, I said nothing else to students about the importance of class attendance for academic success for the remainder of the semester, and there was no penalty for excessive absences.

Students' Expectations, Attitudes, and Grades

Students' expectations and attitudes about class attendance, studying, and course grades were obtained by administering a written survey at the beginning of the first day of class. The survey was administered before I discussed grading, attendance policies, or the course syllabus. The surveys were not analyzed until after students' final grades had been submitted.

Findings

Students' Predictions, Expectations, Attitudes, and Performance

The initial survey was tabulated at the conclusion of the study; "predicted" values were those obtained from surveys given to students on the first day of class. "Actual" values were determined empirically from students' performances on exams and on attendance-checks each day in class.

The predicted (P) and actual (A) average attendance, average grade, attendance distribution, and grade distribution for students in the various sections of the course are shown in Table 1. On the first day of class, more than 80% of the students believed that they would attend 80-100% of classes, 13-17% believed that they would attend 60-79% of classes, and only about 1-2% believed that they would attend 40-59% of classes. No student in any of the sections believed that they would attend fewer than 40% of classes. On average, students believed that they would attend 88-89% of classes. These predictions were similar in all sections of the course (Table 1).

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison of Predicted (P) and Actual (A) Attendance and Grade Distributions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attendance/Grade Distributions</th>
<th>Course Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students:</td>
<td>166</td>
</tr>
<tr>
<td>Emphasis on Attendance:</td>
<td>No</td>
</tr>
<tr>
<td>Penalty for absences:</td>
<td>No</td>
</tr>
<tr>
<td>Average attendance</td>
<td>88%</td>
</tr>
<tr>
<td>Average grade</td>
<td>90%</td>
</tr>
<tr>
<td>Attendance distribution</td>
<td>86%</td>
</tr>
<tr>
<td>Attendance 80-100% of classes</td>
<td>26%</td>
</tr>
<tr>
<td>Attendance 60-79% of classes</td>
<td>13%</td>
</tr>
<tr>
<td>Attendance 40-59% of classes</td>
<td>1%</td>
</tr>
<tr>
<td>Attendance 0-19% of classes</td>
<td>0%</td>
</tr>
<tr>
<td>Grade distribution</td>
<td>54%</td>
</tr>
<tr>
<td>A</td>
<td>55%</td>
</tr>
<tr>
<td>B</td>
<td>40%</td>
</tr>
<tr>
<td>C</td>
<td>31%</td>
</tr>
<tr>
<td>D</td>
<td>22%</td>
</tr>
<tr>
<td>F</td>
<td>0%</td>
</tr>
<tr>
<td>40%</td>
<td>20%</td>
</tr>
<tr>
<td>31%</td>
<td>18%</td>
</tr>
<tr>
<td>22%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Volume 29, Number 2, Winter 2005


Table 2
Students’ Expectations Relating Course Grade to Attendance

<table>
<thead>
<tr>
<th>Student Expectations</th>
<th>Course Section</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of students:</td>
</tr>
<tr>
<td></td>
<td>Emphasis on Attendance:</td>
</tr>
<tr>
<td></td>
<td>Penalty for absences:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Predicted Grade</th>
<th>Predicted Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>80-100%</td>
</tr>
<tr>
<td></td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>93%</td>
</tr>
<tr>
<td></td>
<td>90%</td>
</tr>
<tr>
<td>B</td>
<td>80-100%</td>
</tr>
<tr>
<td></td>
<td>84%</td>
</tr>
<tr>
<td></td>
<td>86%</td>
</tr>
<tr>
<td></td>
<td>82%</td>
</tr>
<tr>
<td></td>
<td>81%</td>
</tr>
<tr>
<td>C</td>
<td>80-100%</td>
</tr>
<tr>
<td></td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td>87%</td>
</tr>
<tr>
<td></td>
<td>82%</td>
</tr>
<tr>
<td></td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>1%</td>
</tr>
</tbody>
</table>

*Note. 93% of the students in this section of the course who expected to make an A expected to attend 80-100% of classes. No student expected to make less than a C, nor did any student expect to attend less than 40% of classes.

Table 3
Final Grades of Students by Average Attendance and Attendance Policy

<table>
<thead>
<tr>
<th>Final Grade</th>
<th>Course Section</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of students:</td>
</tr>
<tr>
<td></td>
<td>Emphasis on Attendance:</td>
</tr>
<tr>
<td></td>
<td>Penalty for absences:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students:</td>
<td>85%</td>
<td>80%</td>
<td>75%</td>
<td>58%*</td>
<td>42%</td>
</tr>
<tr>
<td>Emphasis on Attendance:</td>
<td>86%</td>
<td>81%</td>
<td>81%</td>
<td>61%</td>
<td>49%</td>
</tr>
<tr>
<td>Penalty for absences:</td>
<td>86%</td>
<td>79%</td>
<td>80%</td>
<td>60%</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>88%</td>
<td>80%</td>
<td>80%</td>
<td>63%</td>
<td>45%</td>
</tr>
</tbody>
</table>

*Note. students who made an A in this section attended an average of 85% of classes.

On the first day of classes, more than half of all students expected to earn an A in the course, regardless of how often they expected to come to class (see Table 1). Not a single student believed that they would earn a D or F. These percentages were similar in all sections of the course. On average, students in all sections fell short of their predicted grades and attendance rates by 17%.

The relationship of predicted grades and predicted attendance were similar across all sections of the course. The data reflected students’ forecast that grades would be impacted by attendance (see Table 2).

In the section of the course in which there was a penalty for excessive absences and in which there was no ongoing emphasis on class attendance, 29% of the students who made an F would have passed the course (all with a grade of D) were it not for the penalty invoked because of their poor attendance. When the penalty was supplemented by an ongoing emphasis on attendance, 23% of students who made an F would have passed the course (all with a grade of D) were it not for the penalty invoked because of their poor attendance.

Table 3 shows the average attendance rates of students who made various grades. Students who earned As had the highest average rates of attendance. Students who earned lower grades had progressively lower rates of attendance.

In all sections of the course, the overall patterns of attendance were similar. Attendance rates were high for the first two to three weeks of the semester, after which they gradually declined throughout the remainder of the term.

Students’ Attitudes

Attitudes revealed on the first-class-day surveys showed that large majorities of students believed that attendance and effort should be direct parts of their grade, that they should make at least a B in the course if they attended class regularly, and that they would probably make a higher grade if they attended class regularly. Students also believed that they should get academic credit for coming to class, that they would “make up” absences by reading the textbook or obtaining a classmate’s notes, and that their attendance would be influenced by whether they were given points for attending class. Only 9-28% of students believed that they could learn as much by “cramming” for a test as by studying every day, that there was little reason to attend class if attendance was not a direct part of their grade, and that it was not as important to attend class in college as it was in high school (see Table 4). Students’ responses to these statements were similar in all sections of the course. Virtually all (i.e., 97-98%) students in the course had taken a biology course in high school.

Discussion

In reviewing the data for patterns that might reveal reasons for poor attendance unrelated to the rewards and penalties, I found none. Comparisons examining class time of day, gender, age, and class standing data, for example, follow.

1. Although the sections were not offered at identical times of the day, all were offered on the same days between 9:45 a.m. and 3:00 p.m. None of the sections were offered at early (e.g., 8:00 a.m.) or late (e.g., 5:00 p.m.) times when students might have wanted to sleep in or leave campus. Moreover, in other studies (Friedman et al., 2001) class attendance was not affected by the time of day at which a class was offered.

2. Although college classrooms may be less hospitable places for females than males (MacKinnon, 1998), males and females in this study had similar rates of absenteeism. Similar findings have been reported previously (Friedman et al., 2001).

3. Virtually all students in this study had similar ages and class-standings; being homogenous there variables were not a factor related to attendance. Similar findings have been reported previously (Friedman et al., 2001).

Students’ Beliefs and Expectations

On the first day of classes I could not detect any major differences in students’ beliefs and expectations across the four sections of the course. For example, students in each section reported, on average, similar beliefs about attending class, making up missed classes, and studying (e.g., regarding the effectiveness of “cramming” for a test; see Table 4, page 30). Virtually all students in each section had taken a biology course in high school (see Table 4). These results suggest that the different performances of the various sections were probably unrelated to academic or demographic differences in the four populations of students on the first day of classes.

On the first day of classes, students in all of the sections were highly confident that they would attend class regularly and make high grades. These data indicate that most developmental education students understand that their efforts in learning make a difference in the rewards they will receive. This linkage by students of high grades to high rates of class attendance was supported by the facts that (a) students who expected to make a B or C in the course expected to attend fewer classes than did students who expected to make an A, (b) most students believed that they would make at least a B if they attended class regularly, and (c) more than 90% of students believed that they would earn a
higher grade if they came to class regularly (see Table 4). These results indicate that developmental education students understand the importance of attending class for academic success. Nevertheless, many students did not attend class (see Table 1, page 27).

None of the students met their self-expectations regarding grades and class attendance, regardless of the section in which they were enrolled (see Table 1, page 27). Clearly, the first-day expectations of developmental education students were unjustified. This may have resulted from students’ experiences in high school, in which higher grades have been awarded in record numbers (Henry, 2001; Moore, 2002) despite the fact that students have studied less than ever before (Young, 2002). Students may expect that exerting the same effort will result in higher grades (Launius, 1997) expected to receive academic performances of developmental education students. These results have been reported previously (Moore, 2003), indicating that attendance can be improved by regularly showing students quantitative data about the importance of class attendance. This improvement in students’ average attendance should be a direct and concrete incentive to attend class.

Penalties for Improving Attendance

In the section in which this indirect, probable reward was not supplemented by an additional emphasis on attendance or a penalty for excessive absences, attendance averaged 61%. Clearly, large percentages of developmental education students do not come to class, even after being told that class attendance greatly improves their chances of making a high grade. Merely telling students on the first day of class that attendance is important for academic success appears to be an ineffective means of improving the attendance patterns or academic performances of developmental education students.

Although some studies have reported that “mandatory” attendance improves students’ grades (Hancock, 1994), others have warned that such policies may worsen students’ grades (Hyde & Plournoy, 1986). Of course, college instructors cannot actually mandate perfect attendance, but they can impose (as I did) penalties for excessive absences. When the indirect, probable reward for attendance announced to all sections in this study was supplemented by a direct and concrete penalty for excessive absences, there was no appreciable change in either average attendance or average grades (see Table 1, page 27). These results support findings that the use of penalties for excessive absences is not effective for improving the attendance or academic performance of developmental education students.

Implications for Practice

Average rates of attendance improved when the indirect, probable rewards for class attendance were supplemented by a thorough and repeated emphasis on the quantitative benefits of class attendance. Indeed, this emphasis improved students’ overall average rates of class attendance by 20% and their average grade by 16%. Similar results have been reported previously (Moore, 2003), indicating that attendance can be improved by regularly showing students quantitative data about the importance of class attendance. This improvement in students’ average attendance should be a direct and concrete reward (i.e., points) for attending class.

The Effectiveness of Rewards and Penalties for Improving Attendance

In all of the classes I announced in the syllabus and orally in class that attendance is a strong, but not perfect, predictor of academic success. In the section in which this indirect, probable reward was not supplemented by an additional emphasis on attendance or a penalty for excessive absences, attendance averaged 61%. Clearly, large percentages of developmental education students do not come to class, even after being told that class attendance greatly improves their chances of making a high grade. Merely telling students on the first day of class that attendance is important for academic success appears to be an ineffective means of improving the attendance patterns or academic performances of developmental education students.

Although some studies have reported that “mandatory” attendance improves students’ grades (Hancock, 1994), others have warned that such policies may worsen students’ grades (Hyde & Plournoy, 1986). Of course, college instructors cannot actually mandate perfect attendance, but they can impose (as I did) penalties for excessive absences. When the indirect, probable reward for attendance announced to all sections in this study was supplemented by a direct and concrete penalty for excessive absences, there was no appreciable change in either average attendance or average grades (see Table 1, page 27). These results support findings that the use of penalties for excessive absences is not effective for improving the attendance or academic performance of developmental education students.

Table 4
Survey Responses Regarding Attendance and Grades

<table>
<thead>
<tr>
<th>Precourse Survey Statement</th>
<th>Student Response to Survey (by Course Section)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students:</td>
<td>166</td>
</tr>
<tr>
<td>Emphasis on Attendance:</td>
<td>No</td>
</tr>
<tr>
<td>Penalty for absences:</td>
<td>No</td>
</tr>
<tr>
<td>Attendance should be a direct part of my grade in this course.</td>
<td>67%</td>
</tr>
<tr>
<td>If I attend class regularly, I should make at least a B.</td>
<td>75%</td>
</tr>
<tr>
<td>I can learn as much by “cramming” for a test (e.g., not studying for a test until the night before a test, and then studying many hours) than by studying every day.</td>
<td>23%</td>
</tr>
<tr>
<td>Effort should be a direct part of my grade in this course.</td>
<td>91%</td>
</tr>
<tr>
<td>I’ll probably earn a higher grade in this course if I attend class regularly.</td>
<td>96%</td>
</tr>
<tr>
<td>If attendance is not a direct part of my grade, there’s not much reason to attend class.</td>
<td>13%</td>
</tr>
<tr>
<td>I should get academic credit for attending class.</td>
<td>69%</td>
</tr>
<tr>
<td>My decision to attend class will be influenced by whether I receive credit for attending class.</td>
<td>64%</td>
</tr>
<tr>
<td>In college, it is not as important to attend class as it was in high school.</td>
<td>22%</td>
</tr>
<tr>
<td>If I miss class I will “make up” the class by reading the textbook and/or by obtaining a classmate’s notes.</td>
<td>98%</td>
</tr>
<tr>
<td>I took a biology course in high school.</td>
<td>99%</td>
</tr>
</tbody>
</table>

Table continued on page 32.
average academic performance. Consistent with previous research, this study’s results indicated that improving students’ attendance can also improve their academic performance (Brocato, 1989; Jones, 1984; Launius, 1997; Moore, 2003; Romer, 1993; White, 1992; Wiley, 1992). Although most students did not meet their expectations regarding grades or rates of attendance, higher percentages of students met their expectations in sections of the course in which attendance was emphasized throughout the course. Students in the high-attendance sections earned, on average, higher grades than did students in the low-attendance sections of the course. There were no sections having high attendance and low grades, or low attendance and high grades. These data further underscore the importance of class attendance for the academic success of developmental students.

The association of high attendance and high grades was also valid, on average, for individual students. The different distributions of grades in the high-attendance and low-attendance sections of the course correlate with differences in attendance. Indeed, comparable average rates of attendance were associated with the same grades in all sections. Ongoing reminders to students throughout the semester—especially after the initial weeks that show highest average attendance—may be a stimulus for increasing overall attendance. A written record comparing individual student’s predicted versus actual attendance percentages “to date” could also create a reality check to impact behavior.

Limitations

The strong association between high rates of class attendance with high grades shown in this study is not causal. The correlation could result from the fact that students who make higher grades enjoy attending class, are more grade-conscious, or are more intrinsically committed to being engaged in their education. This, too, is only a correlation, and causality could go either way; higher rates of attendance might help produce better grades, or the desire for better grades might motivate higher rates of attendance, or both.

Conclusion

Attendance does not ensure learning; there is little intellectual reward for students who come to class only to get points for their grade and then read the newspaper, visit with friends, or sleep. In the final analysis, students choose whether or not to come to class, and this choice has important academic consequences. Students who are motivated enough to come to class regularly are also presumably motivated enough to study outside of class, whereas those who are not motivated enough to come to class may study less and not “make up” missed classes by reading the textbook or studying a classmate’s notes. Class attendance is also an indicator of time-on-task. Students who come to class regularly probably spend more time-on-task than do students who skip class. This difference in time-on-task may help account for the differences in students’ grades and be a basis for the conclusion by Thomas and Higbee (2000) that “Nothing re-places being present in class” (p. 229).

References


was high school GPA. SAT scores, on which students were quite different, did not prove to be a significant predictor of collegiate achievement or retention. This finding corroborates many research studies that have reported that such standardized tests are not especially successful in predicting the academic potential of academically at-risk students and that early intervention through prefreshman summer programs are indeed effective in compensating for academic deficiencies before students enter the regular collegiate curriculum.

The limited significant findings of this study suggest a few implications for practice. First, prefreshman summer programs should include the most comprehensive peer and professional tutoring services possible and should require participants to use those services. Second, rather than suggesting that the enrollment in prefreshman summer programs be kept small, we believe that it would be wise to suggest that individual class sizes and student-faculty/staff ratios be kept as small as possible. At-risk students in an intensive summer program apparently respond to as much individual attention as possible. Finally, although the award of degree credit for prefreshman summer programs had a small negative effect on student retention, programs should probably continue to award institutional credit to qualify students for financial aid.

On the basis of the findings of this study, the following are recommended for further research. First, although this study failed to find a substantial significant relationship between specific prefreshman summer program characteristics and student achievement and retention, a large number of evaluation studies have reported that prefreshman summer programs contribute to student achievement and retention. The complexity of the variables likely involved may call for a thorough qualitative study of the relationship among student and program characteristics and student achievement and retention. Such research could include an examination of students’ psychological and sociological variables and could explore the
Keep students coming by keeping them interested: motivators for class attendance

College Student Journal, March, 2004 by Steven E. Gump

A survey of attendance motivators administered to 220 undergraduates enrolled in an introductory-level survey course at a large Midwestern university in fall 2002 and spring 2003 revealed, intuitively yet contrary to many earlier studies, that the most common situation in which students are motivated to attend class is if they consider the instructor and/or the material interesting. Of the 144 students who responded to the survey, 84.7% indicated such interest was a reason they would attend class. Only 66.7% indicated they would be compelled to attend a class because credit was given for attendance, suggesting that instructors should try to make their courses as interesting as possible if they wish to improve attendance rates.

Introduction

Many studies (including Beaulieu, 1984; Galichon & Friedman, 1985; Wyatt, 1992; and Friedman, Rodriguez & McComb, 2001) have considered why college students may choose not to attend class, but only some of these studies have constructively considered factors that may help persuade students to attend class. When the reasons can be controlled by the instructor, knowing what to do to keep students coming to class can be as useful as knowing what causes students to skip class.

Methodology

On the first days of class during the fall 2002 and spring 2003 semesters, I administered an optional survey to 220 students in nine sections of Introduction to Japanese Culture, a course that enrolls a relatively representative sample of the undergraduate population at a large Midwestern university. The results and discussion presented here are based on responses to the second question, which asked students to identify situations that would increase their likelihoods to attend class. The question gave five rationales (as seen in Table 1) and asked students to choose all that apply. Also, space was provided for students to write in reasons not
already listed.

Results

I provide aggregate results of answers given to the second question on the survey instrument, for which I received an overall response rate of 65% (144 students out of 220), in Table 1. In light of earlier studies by Launius (1997) and Friedman, Rodriguez, and McComb (2001), I had expected that requiring attendance in and of itself--answer "A"--would turn out to be the leading means to motivate students to come to class. It did not. Instead, my results mirror a finding of Galichon and Friedman (1985), who report that considering a class boring is the most important factor causing students to cut a class. My findings are cast in a positive light, however: Instead of cutting class because it is boring, my students choose to attend class because it is interesting. In all nine sections I queried, the most common response was answer "C": students are more likely to come to class if they find "the instructor/material interesting." Answer "A," "I'm required to attend, because attendance is part of the grade," ranked second in seven sections and third in the remaining two.

Overall, as detailed in Table 1, nearly 85% answered that they would be more likely to come to class if the instructor/material is interesting, followed by nearly 67% for required attendance. Students were encouraged to choose as many answers as they thought were relevant to their own situations. The most popular write-in rationale (35 students) was that new material presented in class but not easily available elsewhere (e.g., in the course readings or films) would appear on quizzes or exams.

Discussion

On one level, my results suggest that students seem to be buying into what Petress (1996, p. 387) has termed a "quasi economic model": students claim that they are customers, and the seller (in this case, the instructor) is obliged to make the product (the class) appealing enough to attract students. Students today want to be kept interested: they want to be kept entertained. Indeed, in my case, remarkably few students come to the first class inherently interested in the subject matter, as Introduction to Japanese Culture fulfills either one or two general education requirements (depending on the student's college). Were the course truly an elective course, students should have more intrinsic motivation "to be present to learn what the instructor has to offer" (Friedman, Rodriguez & McComb, 2001, p. 129).

While Friedman, Rodriguez, and McComb (2001), in a study of 333 students at a similar Midwestern university, found that obligation was the most common reason for attendance, my results found obligation to be the least predictable of the five suggested rationales. (As Table 1 reports combined totals, individual section variations are not evident.) Choice "B" on the survey ("I feel obligated to attend") yielded the most variation across the nine sections: It is the only choice that ranked in all five places, tying once with "C" (interesting material or instructor) for first place but also coming in last in two sections. To contrast, choice "D" (instructor would notice absence), which was chosen by the fewest students overall, always ranked fourth or fifth in every section. Again, a difference from Friedman, Rodriguez, and McComb's study (p. 132) is apparent: "The teacher notices and cares when I am there" was the second most influential attendance reason related to behavior (after obligation) in their study; in my study, that condition ranked last.

http://findarticles.com/p/articles/mi_m0FCR/is_1_38/ai_n6073210/ 1/26/2010
Can Hybrid Course Formats Increase Attendance in Undergraduate Environmental Science Courses?

Samuel K. Riffell* and Duncan F. Sibley

ABSTRACT

A major problem for large-enrollment, introductory college courses in natural resources and life sciences is poor attendance. To ameliorate this problem, we designed a hybrid course (part online, part face-to-face) to incorporate the advantages of online learning while retaining benefits of face-to-face instruction. We taught a hybrid introductory college science course (containing online assignments) simultaneously with a traditional lecture course (containing passive lectures). Completion rates of online homework were greater than attendance rates to passive lectures, and this difference increased with higher class rank. Our results suggest that hybrid course formats might be effective for increasing student attendance, particularly upperclassmen, in introductory life sciences and natural resource courses.

MOST INTRODUCTORY COLLEGE COURSES in the natural resources and life sciences are large lecture courses (100 to 400+ students). Introductory courses for science majors are foundational courses of the discipline. For nonscience majors, introductory courses fulfill general science requirements, and more importantly, often represent the only opportunity for these students to learn how the natural sciences inform and impact their own disciplines. Unfortunately, large introductory courses are usually poorly attended (Feldmann and Carney, 1998), and performance and learning suffer (Moore, 2003).

Since the advent of the World Wide Web and internet technology, web-based teaching methods have proliferated. Web-based learning environments may be more student-centered, interactive, and flexible than many traditional course formats, but they may also fail to provide adequate face-to-face interaction with instructors and classmates (Yazon et al., 2002). However, courses that combine both classroom and online activities (hybrid courses) have the potential to capture benefits of web-based environments while retaining benefits of traditional classroom environments. Because hybrid courses retain high-quality student-faculty interaction (Navarro and Shoemaker, 2000; Riffell and Sibley, 2003) while enhancing learning outcomes (Tuckman, 2002), they are becoming an increasingly popular option (Young, 2002).

We developed a hybrid course to improve the low attendance of resident students in large, introductory science courses at Michigan State University. These introductory courses are offered through the Center for Integrative Studies, and they satisfy general science requirements for a wide variety of nonscience majors. We hypothesized that students would be more likely to “attend” online activities (attendance defined as attempting at least half the problems in an online assignment) compared with passive classroom lectures for two reasons. First, web-based technology is an increasingly familiar environment for undergraduates. Second, students may be more likely to “attend” class activities when they have more control over the time and place they participate (i.e., online assignments) compared with passive lectures, which must be attended at set times and places (St. Clair, 1999; Friedman et al., 2001). Because we wanted to avoid the pitfalls associated with wholly online courses, we retained 1 hour per week of face-to-face instruction.

To evaluate the impact of the hybrid course format, we compared attendance rates in a traditional, lecture-based environmental biology course and a hybrid version of the same course. Evaluation of online learning has focused on either student perceptions and/or academic performance of students (Dewhurst et al., 2000; King and Hildreth, 2001; Tuckman, 2002; Yazon et al., 2002; and many others), but the effects of hybrid course environments on foundational outcomes such as class attendance in higher education have not been reported. Understanding the effects of hybrid course formats on attendance rates is important because attendance rates have been repeatedly demonstrated to predict academic performance (Launius, 1997; Gatherer and Manning, 1998; Moore, 2003). If hybrid environments can improve attendance rates, then instructors could have an effective tool for increasing attendance and consequently, performance in poorly attended courses in natural resources and life sciences programs.

DESCRIPTION OF THE HYBRID COURSE

Our course, Applications of Environmental Biology, focused on applications of basic biological (e.g., photosynthesis, logistic population growth), ecological (e.g., energy flow, predator–prey interactions), and sociological processes (e.g., economic growth) to understanding major environmental issues (e.g., global warming and forest management). The hybrid course incorporated two primary components. First, active lectures met once per week in the lecture hall, and focused on cooperative, group activities for learning core skills and concepts. Second, online assignments were biweekly, web-based homework problem sets. Each week of the course, one online assignment was due the night before the active-learning lecture (Fig. 1). A second online assignment, due several days after the active lecture, reinforced and extended concepts dealt with in class.

Active Lectures

We structured our weekly meetings around active-learning exercises because active-learning increases student attention and concept retention (Ebert-May et al., 1997; Springer et al., 1999). The instructor lectured for a short period (5–15 minutes) and then presented a problem for students to complete.
Groups were informal (i.e., not assigned by the instructor) and students generally worked with their nearest neighbors. In addition to peers, students could ask questions of the instructor and teaching aide. When the problem was completed, each student turned in their own answer to be graded on machine-scored bubble sheets. The instructor summarized the activity through another short lecture period (5–15 minutes). In a single 50-minute class session, one or two exercises were completed. A more detailed description of these lessons and example activities are in Riffell and Sibley (2003).

**Online Assignments**

We replaced two-thirds of the time traditionally spent in lecture with online assignments (approximately 50 questions per week). Questions were designed to encourage reading the text for content, comprehension of major processes, and applications. Each assignment contained a mixture of multiple choice, matching, true/false, and calculation problems (Riffell and Sibley, 2003 contains example problems). Generally, online assignments (i) provide students with more flexibility and control over where and when to participate (Ostiguy and Haffer, 2001), (ii) are less passive than taking notes in lecture (Hacker and Niederhauser, 2000), (iii) are more student-centered (Sanders, 2001), and (iv) encourage students to learn in different ways (Yazon et al., 2002).

We used an early version of the open-source, web-based platform LON-CAPA (visit the software website at www.lon-capa.org; verified 16 Jan. 2004) to deliver our online assignments. Specific features of LON-CAPA are critical to our hybrid design (Speier and Kortemeyer, 2001). First, questions are individualized so that each student received a slightly different version of each question (e.g., different choices or different starting numbers for calculations) based on a random number algorithm. Individualized online assignments encouraged students to work together, but prevented students from simply copying another student’s answers. Second, students received three attempts to get full credit and received partial credit after three attempts. Multiple attempts to get full credit encouraged mastery of the content. Third, LON-CAPA provided feedback to students through pre-programmed hints received after incorrect answers and through a mechanism to contact the instructor with questions about specific problems.

**METHODS**

**Experimental Design**

In spring of 2002, we taught the hybrid course concurrently with a traditional version of the course. The traditional course included the same subject matter as the hybrid course and was taught by the same instructor. The traditional course retained the active-learning lectures, but subject matter covered in online assignments in the hybrid course was covered using passive lectures instead (Fig. 1). Lectures in the traditional course were passive in that the instructor did not provide active-learning exercises or group work during these times and did not directly query students. However, the instructor did use multiple forms of media (PowerPoint, VHS) and answered student questions during class.

Students were self-selected (i.e., enrollment was open for both courses), but neither class was aware of the nature of the research experiment. Because students were self-selected, we also measured the following characteristics to see if the two groups were different in ways that might affect attendance patterns: percentage male, percentage freshman, percentage full-time students, percentage commuter students; percentage that had previously taken an online course, and percentage that had previously taken an ISB course at Michigan State University. The only characteristic that differed significantly ($\chi^2$ test, $\alpha < 0.05$) was percentage freshman (hybrid course = 30% freshman, traditional course = 46% freshman).

**Active Lecture Attendance Rates**

Because students turned in graded exercises during each active-learning lecture, we calculated active-learning lecture attendance rates as the percent of exercises turned in by each student.

**Passive Lecture Attendance vs. Online Assignment “Attendance”**

To record passive lecture attendance rates (traditional course only), students passed their identification card through an electric card reader mounted in the lecture hall when entering and exiting class. We calculated passive lecture attendance rates as the percentage of lectures for which students were present.

---

**Fig. 1.** Experimental design involving the hybrid and traditional formats of the introductory, environmental biology course. Each rectangle represents one 50-minute instructional period (passive lecture, active lecture, or online assignment), and each set of three represents a unit (a week) of the course.

= Passive Lectures  = Active Lectures  = Online Homework
In the hybrid course, students completed two assignments per week in lieu of lecture time. To measure online assignment “attendance” rates, we considered a student to have “attended” an assignment if half of the homework problems for that assignment had been attempted. This measure is equivalent to passive lecture attendance rates because a student’s attention in passive lectures varies (e.g., wandering thoughts, sleeping, studying other subjects, etc.), and only a portion of the information may be assimilated in some lectures even though the student is physically present the entire time (Cooper and Robinson, 2000).

Students in both the traditional course and the hybrid course had similar grade incentives to attend lectures or complete assignments (students could get full credit with approximately 80% compliance). Passive lecture attendance comprised 17% of each student’s final grade in the traditional course, and was awarded based on the following scale: attend 80% of the lectures = 17%; attend 70% of the lectures = 15%; attend 60% of the lectures = 12%; and so forth. In the hybrid course, completion percentages [(Points earned / Total points assigned) × 100] of online assignments counted as 15% of each student’s final grade. However, we also provided several bonus online assignments so students could miss approximately 20% of the regular assignments and still recoup those points.

Statistical Analysis

We hypothesized that (i) active lecture attendance rates would be higher when coupled with online assignments (hybrid course) than when coupled with passive lectures (traditional course); and (ii) that online assignment “attendance” rates (hybrid course) would be higher than passive lecture attendance rates (traditional course). Although we stated hypotheses that could be one-tailed, we used more conservative two-tailed tests to retain the ability to detect effects that were in the opposite direction. Because our data often violated assumptions of the parametric t-test (i.e., unequal variance, non-normality), we used Wilcoxon’s two-sample test (Sokal and Rohlf, 1995). Because n < 20 for some of our individual comparisons (Sokal and Rohlf, 1995), we used the MC option of the EXACT statement in SAS Proc NPAR1WAY to calculate exact P values for each test (SAS Inst., 1999).

Because the hybrid course contained a lower percentage of freshman students (see Experimental Design above), we tested these hypotheses for all students as a group and for four types of students: freshmen, sophomores, juniors, and seniors. We treated each group of five hypothesis tests as a family (Westfall et al., 1999), and applied a sequential Bonferroni adjustment (Hochberg, 1988; Westfall et al., 1999) to avoid increased Type I error rates that can occur in groups of related hypotheses. We used an a priori, family-wide \( \alpha = 0.05 \) for all tests.

RESULTS

Active Lecture Attendance Rates

For all students as a group, active-lecture attendance rates were 88% in the traditional course and 81% in the hybrid course (\( T = 6428.5; n_1 = 101; n_2 = 84; P < 0.0001 \)). Active-lecture attendance rates were significantly lower in the hybrid course for freshmen (\( T = 703.0; n_1 = 47; n_2 = 25; P < 0.0075 \)), but there were no significant differences for sophomores, juniors, or seniors (\( P = 0.1022 \) to 0.2774). In both courses, active-lecture attendance rates also decreased with higher class rank (Fig. 2).

Passive Lecture Attendance vs. Online Assignment “Attendance”

For all students as a group, passive-lecture attendance rates (traditional course) were 78% while online homework “attendance” rates (hybrid course) were 93% (\( T = 10580.0; n_1 = 101; n_2 = 84; P < 0.0001 \)). Additionally, online homework “attendance” rates were significantly higher for freshman, sophomores, juniors, and seniors (\( P = 0.0001 \) to 0.007). Just like active-learning lecture attendance rates, passive-lecture attendance rates declined with higher class rank, but online homework “attendance” rates did not decline with higher class rank (Fig. 3).

Fig. 2. Active-learning lecture attendance in the hybrid vs. the traditional course by class rank (mean ±1 SE). Only the comparison for the freshmen was significant after a Bonferroni correction (Hochberg, 1988). Sample sizes for the traditional course were: freshman (47); sophomore (35); junior (10); senior (9). Sample sizes for the hybrid course were: freshman (25); sophomore (25); junior (16); senior (17).

Fig. 3. Passive lectures (traditional course) vs. online assignment “attendance” (hybrid course) by class rank (mean ±1 SE). All four comparisons were significant after a Bonferroni correction (Hochberg, 1988). Sample sizes for the traditional course were: freshman (47); sophomore (35); junior (10); senior (9). Sample sizes for the hybrid course were: freshman (25); sophomore (25); junior (16); senior (17).
DISCUSSION

Active Lecture Attendance Rates

Contrary to our first hypothesis, active-learning lecture attendance rates were not higher when coupled with online assignments (hybrid course), and were significantly lower for freshmen (Fig. 2). One of our goals in developing a hybrid class was to maintain the face-to-face interaction and incentive that is often necessary to academic success of freshman. Although the active-learning lecture attendance rates we observed in the hybrid course (84%) were still very high compared with similar courses at Michigan State University, these results indicate that even reductions in the typical frequency of face-to-face interaction (three times per week) may have small, negative impacts on the attendance of freshman students.

We also observed a striking pattern: active lecture attendance rates decreased with increasing class rank in both courses. Because our hybrid course was a general education requirement, students who delay taking these requirements (i.e., juniors and seniors) may be more likely to view them as unnecessary and place a low priority on attendance. Another possibility is that students may be more motivated to attend class when they have more control over the learning environment (St. Clair, 1999; Freidman et al., 2001). Because upperclassmen should be more self-disciplined than freshmen, they may be more strongly motivated by control than underclassmen. Thus, they may be more likely to miss classes where they do not have control over meeting times and places. These trends are disconcerting because the intent of general education science classes is to provide students with a broad educational background and the ability to see the application of life sciences to their respective majors and ultimately to their careers. Students who delay taking these courses may not receive the necessary literacy in science to meet these objectives if their level of attendance and participation is low.

Passive Lecture Attendance vs. Online Assignment “Attendance”

Consistent with our second hypothesis, online assignment “attendance” rates were significantly higher than passive lecture attendance rates for freshmen through seniors. Passive lecture attendance rates also declined with increasing class rank (Fig. 3). Upperclassmen who delayed taking this general education requirement were less likely to place a high priority on attending passive lectures. This is consistent with patterns of attendance we observed for the active-learning lectures in both courses.

This trend, however, was not apparent in online assignment “attendance” rates. Upperclassmen were just as likely to complete online assignments as were freshmen (Fig. 3). Again, because upperclassmen may be more self-disciplined than freshmen, they may value class formats (like hybrids) that give them more control (St. Clair, 1999). This preference would manifest as a preference for “attending” online assignments and a tendency to miss lectures that meet at set times and offer little control or choice to the student. We observed both in our study. Hybrid course formats may be a valuable tool for improving the impact of general education courses when students postpone enrolling in these courses past their freshman year.

CONCLUSIONS

Although increasing attendance may not be a lofty goal, like improving critical thinking skills or increasing knowledge, it is nonetheless a basic and essential goal that undergraduate courses in life sciences and natural resources must achieve. The link between attendance and student performance is well-established (e.g. Moore, 2003), and clearly students cannot learn if they do not attend class or complete assignments. Our experiment suggests that hybrid course formats may help achieve these goals because students (especially upperclassmen) are more likely to complete online assignments compared with attending passive lectures. Most of the time, increased attendance should result in better learning gains.

Our results also highlighted the importance of class rank. Upperclassmen were less likely to attend both active-learning lectures and passive lectures compared with their freshmen counterparts, but were just as likely to complete online assignments. Providing more control over their learning environment through hybrid formats may be a superior alternative for upperclassmen taking introductory or general education courses in natural resources or life sciences. In contrast, attendance rates of freshmen to active-learning lectures were lower when coupled with online assignments (hybrid course) rather than passive lectures (traditional course). This underscored the importance of face-to-face interaction to freshman academic success.

Our results suggest that, for many courses and student audiences, hybrid courses represent an improvement over traditional lecture formats because they encourage students to attend class more regularly. Instructors of large, introductory courses could improve attendance (and hence, student performance and learning) by adopting similar hybrid formats. However, our results highlight the complexity, not only of evaluating the effectiveness of hybrid courses, but also of identifying the appropriate student groups for which hybrid formats are most appropriate. Instructors should carefully consider the intended student target when developing hybrid formats, and should conduct pilot assessments (Riffell and Sibley, 2003) when hybrid courses are implemented.

ACKNOWLEDGMENTS

D. Ebert-May, G. Kortemeyer, the members of the Research On Undergraduates Learning Science laboratory (ROULS) at Michigan State University, and an anonymous reviewer provided helpful comments on earlier versions of the manuscript.

REFERENCES


Sanders, W.B. 2001. Creating learning-centered courses for the world wide web. Allyn and Bacon, Boston, MA.


Class Attendance Article

Page address: http://www.mnsu.edu/cetl/teachingresources/articles/classattendance.html

Introduction

One of the most common areas where classroom practices of individual faculty members differ is attendance policy. Some faculty require attendance. Some faculty count attendance positively in grade determination while others count the lack of attendance against the student's grade. Even most faculty who don't require attendance by their students encourage attendance in a variety of ways. Inherently most faculty probably believe that attendance is important in student success but most of us can provide only anecdotal evidence to support our belief. This newsletter contains summaries of some of the most recent research on the role of class attendance on student performance. Some recent research will also be explored that demonstrates the impact of class attendance on other variables that affect the overall academic success of an institution.

Student Performance

The first study in this survey of the impact of attendance on student classroom success is by Robert M. Schmidt ("Who Maximizes What? A Study in Student Time Allocation ", AMERICAN ECONOMIC REVIEW, May, 1983, pp. 23-28). In this study, the author measured the impact of time commitments by students to various course activities on the students' performance in the given class. The results were revealing. By far, the most valuable and important time commitment in a course was the time actually spent in the classroom. That time was the most important determinant of student success and each unit of time in the class itself provided, among all the class related activities, the greatest improvement in student performance. The next most important time spent on a class was any time spent in discussion sections that accompanied the lectures. Third in importance was any time spent studying outside of class preparing for the class session itself. Perhaps most surprising was the result that the least significant time commitment in improving student performance in a particular class was the time spent studying for the final exam. Thus the study concludes that the most productive time in any course is the time actually spent in the classroom. That time has the greatest positive impact on overall student performance. The hour or two spent in class each day (for a particular course) does the most to improve the student's grade.

In another version of the same statistical test, Schmidt also found that the time spent over the entire term on the ongoing activities of the class ( class lectures and classroom discussions, any discussion sections, and study outside of class to prepare for class) was most significant in explaining student performance in a given course. Time spent studying for any and all exams was not a statistically significant determinant in affecting student performance in that class. The results of this test reinforce the idea that the most important learning in a course takes place in the classroom and that students who do a conscientious job on a daily basis preparing for and participating in class outperform those students who skip class and try to cram for exams.

101-111). In this research (conducted with classes where attendance did not enter directly into student grade determination), the role of class attendance was statistically significant in explaining student grades in those classes.

Specifically, this research demonstrated that the lack of attendance was statistically significant in explaining why a student received a D rather than an A, a B, or a C grade in a specific class. The statistical tests employed in this article found that regular class attendance was a significant determinant in minimizing a student's chance of receiving a D or an F. This study strongly suggests that regular class attendance can aid significantly by acting as an insurance policy in avoiding a D or an F grade in a given class.

The same data were also used to determine the relative impact of each absence in the student's final letter grade for a particular course. The empirical results showed that absence from class was statistically significant in lowering the letter grade of the typical student. Specifically, each absence from class lowered a student's grade by 0.06 in a 4.00 grading system. Thus, a student with 10 absences in a given term would lower his/her grade by 0.6, which would be the difference between a C plus and a B for example.

Another research article that dealt with the impact of class attendance on student performance in a course is by David Romer ("Do Students Go to Class? Should They?" THE JOURNAL OF ECONOMIC PERSPECTIVES, Summer, 1993, pp. 167-174). The author found what he described as an alarming amount of absenteeism from the typical class in small, medium, and large schools (that were further described as elite and/or highly competitive). Small schools averaged 25% absenteeism in a typical class on a typical day. Medium sized institutions had 34% absenteeism on average while large universities had 40% absenteeism on a typical day. When absenteeism was linked to characteristics of the classes, the following patterns emerged:

1. Smaller classes had less absenteeism.
2. The more significant the mathematical component of the course, the less the absenteeism.
3. There was more absenteeism in the principles courses than in the upper level courses.
4. The better the quality of the instructor, the less the absenteeism.
5. Absenteeism was mainly concentrated in a few students who missed many classes while most students missed only a few.

When the author regressed the student's course grade against attendance (while holding constant all other explanatory variables for the grade), the mean GPA for students with strong attendance was, on average, one entire letter grade higher than that of students with poorer attendance.

**Why Students Don't Attend Class**

Another part of the discussion about attendance is the exploration of why students choose to miss classes in spite of the clear benefits of attendance. An article by Gary Wyatt ("Skipping Class: An Analysis of Absenteeism Among First-Year College Students" TEACHING SOCIOLOGY, July, 1992, pp. 201-207) explores some of this territory. By using correlations and regression analysis, he was able to clarify some of the issues. [In one telling phrase, he says that students often view tuition as an "expensive cover charge that allowed them entrance into an exciting social world – a world that was often apart from learning and class attendance". (p.201)] When he looked at the reasons students gave for missing classes that they liked, the three strongest correlations were parents' income (the greater that income, the more they missed class), time studying (the more time they studied, the less they missed class), and their GPA (the higher the GPA, the less they missed class). For missing classes that they
disliked, the following were the significant correlations: time studying (the more time they studied for the class, the less they missed), their GPA (the greater their GPA, the less they missed of classes they didn't like), their parents' income (the greater the parents' income, the more they missed class) and the frequency of alcohol consumption (the more frequently students consumed alcohol, the more they missed these classes).

From his research, Wyatt made the following observations and recommendations:

1. Since students who study miss fewer classes (both classes they like and dislike), an increased emphasis by the faculty member and the institution on scholarship and study will help overall attendance. Classroom discussion about homework expectations and proper study habits for a particular course would also help.
2. Since females missed more frequently than males, the author suggests that professors examine their classroom environment to see if it is somehow less hospitable to females.
3. If academic life can be made more appealing and exciting, Wyatt believes that students with lower grades will attend more frequently.

Impact of Attendance Policies

Judith Levine's article "The Effect of Different Attendance Policies on Student Attendance and Achievement" presented at the Annual Meeting of the Eastern Psychological Association in 1992 (in ERIC Microfiche ED 348 762) discusses how students respond to a variety of attendance policies. In general, she distinguishes three types of attendance policy: Required Explicit where attendance is required and absence does adversely affect the student's final grade; Not Required Implicit where there is no requirement for attendance, attendance does not affect the grade and there is no announcement of the attendance policy to the students; and Not Required Explicit where there is an announcement that attendance is not required or counted in the final grade but attendance was otherwise encouraged by the professor. Her conclusion reaffirmed what one would suspect would be the common sense view of the impact of course policies on attendance. The more students were required and/or encouraged to attend, the better was class attendance and, if a student missed frequently, that student was less likely to do well in that particular course. The impact of attendance policy was significant. When attendance was explicitly required, 80% of the students missed 4 times or less and less than 1% missed 8 times or more. When the attendance policy was non-required and implicit, 73% of the students missed 4 times or less and almost 7% missed 8 times or more. When the attendance policy was explicitly non-required, only 52% of the students missed 4 fewer times while 18% missed 8 times or more. The conclusion seems to be that professors do get the type of attendance that they encourage by the policy that they adopt.

Attendance and the Evaluation of Faculty

There also has been research which suggests that the student evaluation of faculty is clearly affected by the pattern of student attendance. An article by Dale E. Schlenker and Norma Coles McKinnon in 1994 ("Assessing Faculty Performance Using the Student Evaluation of Instruction " in ERIC Microfiche ED 371 667) reports on a variety of factors that affect student evaluation of teaching. The particular evaluation instrument employed in this study surveyed students' opinions about the faculty member's method of presentation, classroom management, professional skills, relationship to the students, and preparation and planning. In every one of these dimensions, the fewer absences that the student had, the more favorably they rated the instructor and the differences were always statistically significant. Their conclusion was that, "Consistently, our findings have exhibited that as absenteeism increases, student evaluations of instructor becomes less favourable (sic) on all dimensions". (p. 20)
Conclusion and Recommendations

1. Research indicates that attendance is statistically significant in explaining class grade and overall performance of students.
2. Students who miss class frequently significantly increase their odds of a poor grade in a given course.
3. At a minimum, the research supports the idea that faculty should strongly encourage attendance with both moral suasion and quality teaching.
4. Certain course practices can be used to encourage attendance. Testing extensively from material presented in class rather than material from the text can encourage better attendance. The use of in-class quizzes and other exercises will reward attendance.
5. Encouraging a greater commitment to the course by requiring more homework and reading will make students more likely to attend the class.
6. A case can be made that requiring attendance can be a successful means of improving the value added of any course.

Richard C. Schiming

Bibliography

4. Dale E. Schlenker and Norma Coles McKinnon, "Assessing Faculty Performance Using Student Evaluation of Instruction" (ERIC Microfiche ED 371 667)

Many of these articles also have their own bibliographies that may be employed to discover more about the impact of attendance on the success of the student and the class.

NOTE: If you have any comments, questions, or suggestions pertaining to this newsletter, please contact Dick Schiming, Center for Faculty Development, Box 14, or via e-mail, phone (5323), or voice mail (5855) Please pass along any experiences that you may wish to share about the impact of attendance policy on your classes or how you deal with the topic of attendance in general.
An empirical study of personal response technology for improving attendance and learning in a large class

Amy Shapiro

Abstract: Student evaluations of a large General Psychology course indicate that students enjoy the class a great deal, yet attendance is low. An experiment was conducted to evaluate a personal response system as a solution. Attendance rose by 30% as compared to extra credit as an inducement, but was equivalent to offering pop quizzes. Performance on test items targeted by in-class questions rose by an average of 21% while control test questions rose by only 3%. The effect is seen in both factual and conceptual test items. Two theories that may explain the effect are discussed.

Key Words: Personal Response System, Classroom Technology, Clickers, Attendance, Test Performance, Learning, Methodology.

I. Introduction.

It’s a problem familiar to many professors. Each semester my students wrote glowing reviews of my General Psychology course, rating the class a mean of 4.5 on a 5-point scale. In spite of the good reviews, large numbers were absent from class on any given day. This mismatch between students’ perceptions and behaviors is most often found in large classes where attendance is not easily monitored and students are largely anonymous. Indeed, the problem became pronounced after my class size increased from 60 to 210 students. The student evaluations remained very positive but attendance was reduced to roughly 50 -60% on any given day. Moreover, when students were in attendance many were inattentive, either dozing or otherwise occupied for at least part of the class period. In speaking with colleagues at campuses across the country, I found the problem to be common. The attendance and attention problem is directly related to learning because students aren’t learning the classroom material if they aren’t in class. I increased attendance to roughly 80% by giving pop quizzes throughout the semester. The system was cumbersome, however, as handing out and collecting tests from hundreds of students took a lot of time away from class. Grading them and inputting scores to grade books also proved time consuming.

I found a partial solution, however, in the use of a personal response system (PRS). PRS facilitates presentation of multiple-choice questions into any class equipped with a digital projection system. Because I was already using PowerPoint to present all my lecture material, the technology integrated naturally into my classroom. PRS requires students to purchase a remote (commonly called a “clicker”) that allows them to “click in” responses, which are recorded by a receiver. Questions can be used to check comprehension or promote discussion . With the instructor’s remote, a button click allows instant projection of class responses to provide

---

1 Psychology Department, University of Massachusetts Dartmouth, 285 Old Westport Road, North Dartmouth, MA 02747-2300, ashapiro@umassd.edu.
immediate feedback. Uploading students’ responses to a grade book also requires just a simple button click by the instructor.

PRS use in large classes has become very common nationwide but research on its learning effects is both sparse and inconclusive. Some investigations show positive effects of PRS on learning while others do not. As I will show in the following section, the underlying reason for differential findings may stem from methodological issues. For this reason, the present investigation focuses on the attendance and learning effects of PRS. It uses a methodology that offers a more fine-grained view of the learning effects in the hope of explaining and clarifying some of the literature’s contradictory results.

A. Research on PRS Effectiveness.

PRS systems have been used for a variety of purposes including teaching case studies (Herried, 2006; Brickman, 2006), replicating published studies in class (Cleary, 2008) and electronic testing (Epstein, Lazarus, Calvano, Matthews, Hendel, Epstein and Brosvic, 2002). Based on published reports, however, the most common use appears to be during lectures for assessing students’ comprehension of class material in real time and improving participation and attendance (Beekes, 2006; Poirier and Feldman, 2007; Shih, Rogers, Hart, Phillis and Lavoi, 2008). The latter function has also been the focus of more scrutiny.

A number of studies have attempted to test the effect of PRS on attendance and participation. Student volunteers using PRS in a controlled laboratory study were significantly more likely to participate than students asked to raise their hand or use laminated response cards to indicate responses to instructor questions (Stowell and Nelson, 2007). In a case study of PRS in a large introductory biology course, Ribbens (2007) reported an attendance increase of 20% after the technology was introduced in his course. PRS was also shown to enhance student participation in classes as part of an institution-wide evaluation across disciplines (Draper and Brown, 2004). One of the strongest effects of the technology in that study was its ability to promote class discussion among students. The increased participation may come, in part, from student enjoyment of the technology. Indeed, a common finding among PRS studies is that students enjoy the technology in class. For example, Hatch, Jensen and Moore (2005) report that 96% of students enrolled in their anatomy and environmental science courses agreed or strongly agreed that they liked using the technology. It is highly likely, though, that participation effects also stem from using PRS to determine required participation grades.

Not all reports have shown a clear improvement in student participation, however. Morling, McAuliffe, Cohen and DiLorenzo (2008) compared outcomes of 2 classes using PRS with 2 classes that were not. Two instructors each taught one PRS class and one no-PRS class. In the PRS classes, the technology was used at the start of each class to quiz students on assigned readings. They found that one instructor’s PRS class rated attendance as more important than the no-PRS class, but ratings were comparable between the other instructor’s classes. Neither PRS class reported being more engaged or attentive in class than their matched no-PRS class. It is important to note, however, that the PRS questions were scored for extra credit and not as a required component of the course. Moreover, PRS use in this study was limited to tests given at the start of class and only probed memory for the assigned reading, not for in-class material. There is no reason to expect that testing students about outside reading in the beginning of class would cause students to be more attentive or interested in lecture material during class. Indeed,
in a discussion of recommended best practices, Ribbens (2007) suggests integrating PRS throughout the class and using it as part of the graded requirements.

The learning benefit of PRS is another important issue that has been addressed in the empirical literature. In an assessment of students’ self-perceptions of learning, Hatch et al. (2005) report that 92% of students indicated PRS helped them identify what they did and did not know and 83% indicated that the technology helped them learn. Of course, student’s self-perceptions are not as accurate as more direct measures. In one study more directly measuring the effect, Ribbens (2007) found that students in his introductory biology course did 8% better on tests than his class 2 years prior, before adopting PRS. Morling et al. (2008) also reported higher mean test scores on 2 of 4 tests in their PRS classes than in their no-PRS classes. Morling et al.’s study is nicely controlled by its use of 4 classes counterbalanced between instructors and control groups. However, the authors do not mention how many of the test questions were directly related to the information targeted by the in-class PRS questions. The same question arises about Ribbens’ (2007) findings. That information would be useful to understanding the extent of PRS effect on students’ learning and understanding, as performance on questions not targeted by PRS may be diluting the dependent measure.

Other investigations have yielded somewhat mixed results in their analyses of learning with PRS. For example, Kennedy and Cutts (2007) found that the strength of the relationship between PRS use and learning outcome measures hinged on how successful students were in answering the PRS questions. Others have found no learning effects of PRS at all. Stowell and Nelson (2007) gave laboratory subjects a simulated introductory psychology lecture and compared test performance between groups asked to use PRS or do other sorts of participative activities during the lecture. They found no differences between groups on learning outcomes measures. Of course, the study was conducted in a laboratory so motivation to learn was different than in a live classroom.

In sum, the majority of studies on PRS point to the technology as an effective pedagogical tool and methodological issues appear to be a factor in those that do not. Specifically, assessments of PRS do not always assure internal validity through careful control of the relationship between in-class PRS use and the dependent measure. The hypothesis explored in the present study is that learning measures targeted at specific PRS questions will demonstrate a strong effect of the technology on learning. Before describing the study, the following section explains more about PRS and how it was incorporated into my classroom.

B. PRS Use in the Present Classroom.

My General Psychology class is typical of most, covering roughly one chapter of a textbook each week and spanning a cross section of the field. I use demonstrations, role-playing, audio, video, and interactive activities to demonstrate points. All of my lectures are presented with PowerPoint slides that are available on my website for students to download.

The system used in the present study was iClicker. The devices cost students $20-35 (depending on whether it came bundled with a text or was bought used). The clickers were available at the campus bookstore or through Amazon.com. A receiver connected to the instructor’s computer registers the responses. The iClicker company provides the instructor’s hardware (a receiver and 2 instructor remotes) and software at no cost. The software runs concurrently with PowerPoint, with a small function box floating on top of the slides in a place of the user’s choosing. It allows a bar graph of the class responses to be displayed.
instantaneously. Record keeping is also automated, as students’ scores are uploaded to a grade book within seconds or entered into a text only file that is transferred easily to an Excel file or Blackboard grade book. Questions can be ungraded, assigned participation points for entering any response or assigned points for correct responses only. Earned points can be factored into final grade calculations or used for extra credit.

In my class, I present roughly 50-70 credited, multiple choice questions over the course of the semester. The accumulated PRS points are scaled to a maximum score of 50 and calculated into the final grade as 50 out of a possible 350 points. Other questions, however, are not scored and are used solely to make a point or generate discussion. I typically present graded PRS questions after making an important point, explaining a theory or presenting a research finding, but only after soliciting questions and encouraging students to ask for clarifications. Some questions are factual (e.g., *What is the major difference between a punishment and a negative reinforcer?*) while others are more conceptual, requiring students to apply a principle (e.g., *Given what we know about the role of proximity and similarity in our attraction to others, in which setting are you least likely to meet a new friend or your future spouse?*). The PRS question slides are omitted from the download files I make available to students.

The purpose of incorporating PRS into the course this way was to improve attendance and to enhance student learning. The study presented here was conducted to evaluate the effectiveness of the approach. While the research summarized earlier was encouraging enough to try out PRS in my class, it also convinced me that evaluations of PRS are particularly sensitive to variables affecting external and internal validity. To maximize external validity, the study was conducted in a live classroom. To maximize internal validity, I focused on the relationship between the PRS questions and the assessment items during stimulus development. I also used control items and control groups from prior semesters. Specifically, the effect on learning was measured by pairing in-class PRS questions with specific test questions. Performance on the targeted test questions was compared with test questions that were not paired with PRS items. In addition, performance on the same test items in a prior semester that did not include PRS was used as a baseline measure. The methodology is explained in detail below.

II. Method.

A. Subjects.

Students enrolled in a 210-student General Psychology (PSY101) class at the University of Massachusetts Dartmouth during fall 2007 comprised the experimental group. All but a handful was traditional students, aged between 18-21. The majority, 81%, were freshmen, 14% sophomores, 4% juniors and 1% seniors. Because the course satisfies a university-wide distribution requirement as well as requirements within several majors, students came from all five campus colleges. 29% of the class was business majors, 23% nursing, and 40% liberal arts and sciences. The rest were distributed between engineering and visual and performing arts. Attendance and test scores of students registered in fall 2006, prior to the implementation of PRS, were used as baseline measures to evaluate the performance of the fall 2007 class. The majority were freshmen and sophomores, 84% and 14%, respectively. They represented all 5 colleges, with the bulk coming from business, nursing and social sciences/humanities, 43%, 16%, and 36%, respectively. One other attendance measure was used from a class in fall 2005. Students in that class were similar to the others in distribution of academic years (68% freshmen,
22% sophomores and the rest juniors and seniors) with most majoring in business, nursing and liberal arts and sciences, 21%, 3% and 58%, respectively. An IRB waiver was obtained prior to conducting the study.

B. Stimuli, Materials and Procedure.

The course taught to the PRS class was almost identical to the course taught to the No-PRS class, including the assigned text, all lectures and PowerPoint slides, projected with an Apple iBook G4. The difference was the addition of the PRS questions in the experimental semester. In all classes, the course material used for the study spanned half the material covered during the semester. This encompassed 6 chapters from the required text, covered on the second and fourth of 4 tests during the semester. A total of 30 test questions were targeted for analysis, five from each chapter. Of the 30 questions from each chapter, 18 were factual questions, asking about definitions, steps in a process, or other facts about the material. The other 12 questions were conceptual, requiring application of the factual material to given situations. Although students were not alerted to any relationship between the PRS items and the test questions, the relationship was the independent variable used to create 3 experimental and 2 control conditions. The test questions were chosen carefully in order match, as closely as possible, their relative degree of difficulty within each treatment condition. All PRS questions used for the study were factual, asking only about basic information presented in class.

The 5 test questions from each chapter were each used in one of the study’s 5 conditions. Sample items are provided in the Appendix. The Identical condition presented a factual test item in class as a PRS question. The Reworded condition contained factual PRS and test questions on the same topic, but the items were not identical to one another. Both the questions and the response choices differed. The Conceptual condition included a factual PRS question in class that probed the information relevant to a targeted conceptual test question. Conceptual test questions required students to apply a principle or fact to a hypothetical situation. The Control-Factual and Control-Conceptual conditions, respectively, presented factual or conceptual questions on the tests but no in-class PRS questions relevant to their content. Six of each item type (one from each chapter) were included in the study.²

The classes all met three times per week (Monday, Wednesday and Friday) for 50 minutes at 11:00am. In fall 2007, the PRS items were spread across 7 weeks of a 15-week semester. The PRS questions appeared on slides as part of the PowerPoint presentations delivered in class each day. An average of 3-6 PRS questions were given in class each week with the items relevant to the study dispersed throughout the weeks in which the targeted chapters were discussed. As the instructor explained concepts or research findings, students were encouraged to ask questions or engage in discussion about the material. PRS questions were typically asked after a concept was presented and discussed, and only after students were encouraged to ask for clarifications or additional information. Some were asked as discussion starters and others for credit. A title at the top of a PRS slide indicated to students whether a given question was for credit or discussion. All PRS questions used in the present study were credited.

When the instructor activates the iClicker system with the remote (or keyboard) a timer appears on the screen, allowing a time limit to be set for responses. Typically, 60-90 seconds was

² Due to a test production error, one of the items in the Identical condition was left off the second exam. As such, the analyses for that condition are based on results from 5 items rather than 6.
allowed for factual questions. A bar graph showing the distribution of responses and the correct answer was displayed for another few seconds after the voting was “closed”. Students were encouraged to ask questions after seeing the graph and correct answer. If there was not high agreement (90% or greater) on the correct answer, another minute or so was spent discussing the item, whether students posed questions or not. On all but a few of the PRS items used in the study, however, students scored 90% or higher and asked no questions after seeing the correct answer.

The tests in this class were not cumulative, each covering only the assigned material since the previous test. Both tests analyzed for the present study included 50 multiple-choice questions. Each test included 9 experimental test items (3 items from each of the experimental conditions) and 6 control questions (3 in each of the control conditions). A total of 4 tests were given during the semester, but only tests 2 and 4 were targeted for analysis. Test 2 was given 6 weeks into the semester and test 4 was given on the last class day of the semester.

C. Analyses.

Attendance. Attendance data in the experimental semester were gathered from the iClicker data files, which maintains a record of the number of students submitting PRS responses per day. Those data were used to calculate the mean number of students in class each day over the semester. This figure was compared to prior fall semesters in which other incentives to attend class were offered. Attendance for those semesters was determined by calculating the mean number of papers handed in on days that papers were collected. In fall 2005 and 2006 the papers were for pop extra credit or pop quizzes, respectively, given roughly once per week in each semester. Both these classes were conducted in an identical fashion to the test semester, except that no PRS was used in either of those semesters. Only minor updates or changes were made in PowerPoint slides and lecture content, none of which would be expected to affect attendance.

Learning. The study was conducted in a live classroom so it was not possible to employ a fully controlled experimental design. Because questions couldn’t be counterbalanced between PRS-paired and control conditions, item differences could be responsible for differences between conditions. Indeed, despite efforts to use items in each condition that were comparable in difficulty, there were differences between conditions in the baseline (No-PRS) semester in fall 2006. Because of these differences, directly comparing scores between conditions in the PRS semester would not be particularly informative. The analysis was conducted in such a way, however, so as to reduce error stemming from item differences. Specifically, since all the test questions used in this study appeared on tests given to the No-PRS class, the percent of the class getting each question correct in the No-PRS semester could be used as a baseline measure. This allowed condition comparisons on the basis of percent improvement over the baseline semester rather than raw scores. Thus, the analyses were conducted on the improvement scores to mitigate item differences as a potential source of error.

III. Results.

A. Effect of PRS on Attendance.

Attendance in the PRS class was equivalent to attendance in the pop quiz semester, 167 (80%) and 165 (79%), respectively. Average attendance in the extra credit semester was 128
students (61%). The attendance rate in the extra credit semester was significantly different from the other semesters, \( \chi^2 = 9.36, p < .01 \). The classes employing pop quizzes and PRS each had attendance rates roughly 30% higher than the class that offered pop extra credit as an attendance motivator. In real terms, when pop quizzes or PRS were used instead of pop extra credit, roughly 38 more students (18% of the class) on average came to class each day.

**B. Effect of PRS on Learning.**

Test items paired with PRS questions were correctly answered by 75% of the experimental class while only 62% of students in the No-PRS semester correctly answered the same questions. This is an increase of 20.9%. In contrast, an average of only 69% of students in the PRS semester correctly answered the control questions (those not paired with PRS questions), as compared to 67% of students in the No-PRS class. This is an improvement of only 2.9%. The difference in performance increase between PRS-paired and control items is statistically significant, \( \chi^2(1) = 13.5, p < 0.001 \).

Additional analyses were conducted to examine the effect of the PRS questions separately on factual and conceptual test items. Figure 1 illustrates the data for the factual test questions. It shows the mean percent correct for each condition in the PRS and No-PRS semesters with the percent difference between classes printed over each set of bars. The PRS class improved significantly more on PRS-targeted factual test questions than on control-factual items \( \chi^2(2) = 43.9, p < 0.001 \).

![Figure 1. Relative performance on the factual test items in the PRS and No-PRS classes. The percent performance increase between classes in each condition is printed above each set of bars.](image-url)

**Figure 1.** Relative performance on the factual test items in the PRS and No-PRS classes.

The percent performance increase between classes in each condition is printed above each set of bars.

Figure 2 illustrates the results for the conceptual test questions. It shows the mean performance score for each class in the PRS-Paired and control conditions, with the percent
increase printed above the bars. The PRS class improved significantly more on conceptual PRS-targeted test questions than on control-conceptual questions, $\chi^2(1) = 11.7 \ p < 0.001$.

![Figure 2](image)

**Figure 2.** Relative performance on the conceptual test items in the PRS and No-PRS classes. The percent performance increase between classes in each condition is printed above each set of bars.

### IV. Discussion

PRS and paper-based pop quizzes both resulted in attendance rates of roughly 80%, which is 30% higher than attendance rates when paper-based extra credit opportunities were offered. In a class of just over 200 students, this translated to an average of 38 more students coming to class each day. Given that PRS did not enhance attendance more than paper-based pop quizzes, one may wonder if PRS is worth the effort. After all, there is no reason to believe that students indicating responses on paper would diminish the learning effects and PRS does require an initial time investment to learn the technology and create the question slides. However, the paper method requires the distribution, collection and grading of hundreds of papers each week. In contrast, PRS is simple to use and importing grades to grade books or files requires only a button click. Because of the large number of students the technology results in a net time saving, both in and outside of class.

The PRS effects, however, were more profound than attendance alone. Students’ test performance demonstrated greater retention and comprehension of information targeted by PRS questions. In spite of the fact that the PRS questions were all factual, enhanced performance was observed for both factual and conceptual test questions. The effect can’t be attributed to the attendance increase because (1) performance on control items increased significantly less than on target items and (2) attendance was comparable between the PRS class and the No-PRS class used as a baseline.
It is clear that the benefit of PRS does not transfer to information that is not explicitly addressed by the PRS questions. That is, the learning effects were observed only for test items that were matched with PRS items and not to the control items. This point is important for two reasons. First, several prior studies used overall test score as a measure of PRS effectiveness. In discussing those reports, I proposed that PRS effects may have been diluted because items not targeted by PRS were included in the dependent measure. The results reported here support that contention. Based on the isolated effects of PRS, I do suggest that future studies isolate PRS-targeted items as a dependent measure in order to get a clearer picture of the technology’s effect. The second implication of this finding relates to pedagogy. Specifically, the result suggests that a sufficient number of PRS questions should be offered to have a meaningful effect on overall learning. Because the effects of PRS do not transfer to untargeted information the technology’s value is limited unless it is used across topics. Fortunately, the technology allows a question to be asked, answered and scored in class within 60-90 seconds. Thus, the efficiency of the technology allows a number of questions to be asked each day, each targeting key lecture points as they are presented.

Another advantage of PRS over in-class, paper-based assessment is the instant feedback provided to students. Because the correct answer and class performance are projected instantly to the class, the instructor is able to reinforce comprehension on or correct misconceptions immediately. Epstein et al. (2002) cite the immediate feedback function of PRS as one of the technology’s major advantages. Indeed, not only are students able to learn by having their misconceptions addressed, but students who are inattentive in class and incorrectly answering questions may be motivated by seeing that their performance puts them in a small minority of the class. Again, it is certainly possible to offer questions in class each day and offer feedback once the papers are collected. The manual method, however, does not make the class performance on each item available to the instructor or students in the moment, when the material is fresh.

The magnitude of the effect reported here is greater than that in some other studies and this is likely due to two methodological factors. First, the present study carefully matched the PRS items to assessment items in the present study. As noted earlier, other studies have compared overall test performance between PRS and no-PRS classes (e.g., Morling et al., 2008; Ribbens, 2007) without isolating test questions that probed information addressed by the PRS questions. Since there is no reason to suspect that PRS use would affect retention of information unrelated to the material actually addressed by PRS questions, including those items may have diluted the effect. Indeed, the control items included in the present study demonstrate that PRS effects do not transfer to untargeted information. Another difference between the study and some others is that the present study took place in a live classroom rather than a laboratory and PRS performance was factored into final grades. As such, motivational differences exist between the present study and those conducted in a laboratory or offering PRS as extra credit. Students should be more strongly motivated to score well on PRS items and test questions when they directly affect their course grades.

While the present methodology has some advantage over laboratory studies, it is a concern that the experimenter taught the classes used for the present analyses. Experimenter bias is always a concern in research, so it is important that future investigations replicate the present study, thereby validating the results as well as the methodology. The quasi-experimental design also limits the strength of the conclusions. However, one would expect that uncontrolled variables between classes that could have affected test performance would largely affect control and PRS-paired items equally. Since the amount of change from the No-PRS semester was
markedly smaller for the control items than the PRS-paired items, the most likely source of the difference is the PRS questions.

Another potential criticism of the present study is that the PRS items may be effective simply because they provided test questions in advance. Indeed, had the present study shown only that students did better on test questions in the Identical condition than the control conditions, the results would be relatively mundane. After all, one would expect students to do better on test questions they had previewed in class. What is convincing about the results is that the Reworded and Conceptual test items also showed significant performance gains. In other words, asking students about a topic in class allowed them to better retain the information and score higher on items that had never before been encountered. That the effect held for novel factual and conceptual test questions is all the more compelling.

There are two competing theoretical explanations for the effect of PRS on learning. The first possibility is that the PRS questions merely highlight important ideas for students. In other words, asking questions about particular facts signals to students which topics the instructor views as important. As such, the effect may come about by prompting students to direct attentional resources to specific items during class and in subsequent study. The second possibility is that retrieval is acting as a source of memory encoding. Known as the testing effect, it has been shown that the act of recalling a piece of information can strengthen it in memory (Carrier and Pashler, 1992; Roediger and Karpicke, 2006). As such, it is possible that, by asking students to retrieve a piece of information in the moments just after encoding it, PRS questions help students solidify memory for the relevant information. A study currently underway attempts to find support for one of these explanations over the other. If the testing effect is the source of the PRS effect on test performance, it would mean that PRS technology offers a true learning advantage rather than mere study prompts. Such a result would be important to our understanding of both learning theory and pedagogical practice.

In spite of the positive results of the data reported here there are some reasonable concerns about implementing PRS and it is important to acknowledge them. Among those concerns is the initial time investment to learn and set up the system. If one is currently using no technology in the classroom, I suggest starting slowly by moving to electronic presentations such as PowerPoint before attempting a PRS system. There is an initial time investment to learn the software and understand how the receiver and software integrate with the computer, PowerPoint and grade books. Many campuses have already standardized on a system or at least have a number of instructors using a particular system. In this case, I do recommend taking advantage of campus computing services or inquiring with one’s colleagues before getting started. Once comfortable with electronic presentations and the PRS software, adding PRS requires very little time or effort, as it requires only the addition of a few slides for each class. Questions can even be taken from test question banks provided by the text publisher. Once those items are created, they may be refined and others may be added each semester. Since the scoring and recording of grades is automatic, the initial time commitment to learn the software and create PRS slides should be recouped after the first semester of use.

Some may be concerned about technical difficulties and I have read reports describing technical challenges of working with PRS, including difficulty registering students, insufficient bandwidth, faulty remotes and other problems (Hatch et al., 2005). There are several excellent systems on the market today and there is no reason to suffer with a poor system. In my experience, the technology works with very little setup time or difficulty and is available for both Apple and PC platforms. The receiver supplied by the company has a range of 200 feet so the
size of the room should not be an issue in most cases. I do suggest conferring with computing support services and colleagues on one’s campus for advice prior to adopting a system. If one’s campus has standardized on a particular system it will be supported on campus and local help will be available to individual instructors. If one’s campus does not offer technical help, I suggest choosing a system that comes with the promise of reliable technical support online or over the phone. Again, one’s colleagues are a good source for such information.

Students do indeed have a cost associated with the system. They are required to purchase a remote just as they are required to purchase textbooks or pay lab fees in some classes. However, students are able to sell back their clickers to the campus bookstore, just as they do with their books. As PRS becomes more common, many universities are standardizing on single systems. Standardization is an excellent idea because it allows students to use their “clickers” across classes and years.

Students are also given added responsibilities when PRS is implemented in a course. They must register their clickers to get credit for their responses. With the system I adopted, registration takes just a minute or two per student. Students register simply by entering their name, student number and PRS serial number on a website. They are also required to come to class each day with their remotes and are given the responsibility to remember them. The PRS brand used in the present study, iClicker, does provide faculty with an extra remote and the ability to loan one to a student in class. With such a large class, however, I recommend a “zero tolerance” policy wherein a student gets no response credits on a given day if he or she comes unprepared. Otherwise, it will become a daily hassle to temporarily register the loaner remote and choose between multiple students asking to borrow it.

Faculty may be concerned about academic honesty with PRS. It is not possible for students to cheat by lending remotes to one another because a remote can only be registered to one person. However, just as there is no way to prevent all cheating on tests, there is some opportunity to cheat with PRS. A student skipping class could give his or her remote to a classmate to enter responses for him or her. I have made it clear that any student found with two remotes will be disciplined for cheating, as will the owner of the second remote. Nonetheless, I am quite sure I have not prevented this practice completely.

In spite of the cost and responsibilities passed on to students I am aware of no study that reports students disliking PRS in their courses. The present study did not assess student perception of the technology, but students’ informal feedback was very positive. Moreover, other studies that explicitly asked students about their attitude toward the technology have reported positive responses from students (Hatch et al., 2005; Stowell and Nelson, 2007; Trees and Jackson, 2007).

In sum, the research presented here improves on prior methodology by studying PRS in a live classroom and by pairing assessment items with PRS questions. The data indicate that students benefit from PRS because they are motivated to attend class and learning outcomes are significantly improved. There is an initial time commitment to learn the software and create the PRS items. After that commitment is met, however, PRS gives instructors the ability to engage students, keep them motivated and focused, and enhance learning for little additional time and effort.

---

3 The instructor records the registration by creating a text file of student names and clicking a button on a screen in the software to “sync” the registration records with the roster. After that, all the responses are available to the instructor in a variety of formats.

Appendix 1. Examples of Stimuli and Test Items in the 3 Experimental and 2 Control Conditions. Test items in the control conditions were similar to those in the experimental factual and conceptual conditions but were not paired with any PRS questions on their respective topics. The study included 6 items for each condition, one from each chapter covered on the tests.

<table>
<thead>
<tr>
<th>Identical</th>
<th>Test Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRS Item</strong></td>
<td><strong>Test Item</strong></td>
</tr>
<tr>
<td>The critical factor in the context effect is the influence of</td>
<td>The critical factor in the context effect is the influence of</td>
</tr>
<tr>
<td>A. maintenance rehearsal.</td>
<td>A. maintenance rehearsal.</td>
</tr>
<tr>
<td>B. retroactive and proactive interference.</td>
<td>B. retroactive and proactive interference.</td>
</tr>
<tr>
<td>C. <strong>external environmental cues in a particular situation.</strong></td>
<td>C. <strong>external environmental cues in a particular situation.</strong></td>
</tr>
<tr>
<td>D. cryptomnesia.</td>
<td>D. cryptomnesia.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reworded</th>
<th>Test Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRS Item</strong></td>
<td><strong>Test Item</strong></td>
</tr>
<tr>
<td>Tolman found that rats that were first rewarded on the 11th day for finishing a maze did just as well on the 12th day as those who were rewarded every day. This result is important because:</td>
<td>Psychologist Edward C. Tolman's studies with rats in mazes led him to conclude that:</td>
</tr>
<tr>
<td>A. It tells us that reinforcement is always vitally important to learning</td>
<td>A. <strong>reinforcement is not necessary for learning to occur.</strong></td>
</tr>
<tr>
<td>B. <strong>It tells us that learning can happen without reinforcement</strong></td>
<td>B. learning will not occur in the absence of reinforcement.</td>
</tr>
<tr>
<td>C. Partial reinforcement is necessary for learning</td>
<td>C. rats learn nothing more than a sequence of left and right turns.</td>
</tr>
<tr>
<td>D. You can always tell how much a rat has learned by watching its behavior.</td>
<td>D. continuous reinforcement is necessary for operant conditioning to occur.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conceptual</th>
<th>Test Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRS Item</strong></td>
<td><strong>Test Item</strong></td>
</tr>
<tr>
<td>A primary reinforcer is</td>
<td>“I'll make you a deal,” Leroy's mother says. “If you clean up your room, then you can have a glazed donut.” Using operant conditioning terms, Leroy's mother is using _____ to reward desired behavior.</td>
</tr>
<tr>
<td>A. something we do not have to be taught to like.</td>
<td>A. punishment by avoidance</td>
</tr>
<tr>
<td>B. something that we find intrinsically rewarding.</td>
<td>B. a conditioned reinforcer</td>
</tr>
<tr>
<td>C. often related to food, safety or comfort.</td>
<td>C. <strong>a primary reinforcer</strong></td>
</tr>
<tr>
<td>D. <strong>All of the above.</strong></td>
<td>D. negative reinforcement.</td>
</tr>
</tbody>
</table>
Control-Factual

PRS Item | Test Item
---|---
None | Punishment is most effective if:
A. it immediately precedes the operant.
B. **it consistently follows the operant.**
C. it occasionally follows the operant.
D. there is considerable delay between the operant and the punishment.

Control-Conceptual

PRS Item | Test Item
---|---
None | Jonathan frequently plays the slot machines and sometimes comes out slightly ahead in his winnings. Like all gambling behavior, Jonathan's gambling behavior is on a ____ schedule of reinforcement.
A. fixed-ratio
B. fixed-interval
C. variable-interval
D. **variable-ratio**

References


Students at Northern Arizona University who hope to skip large lecture courses may have more trouble doing so this fall: The university is installing an electronic system that measures student attendance.

The university is using $75,000 in federal stimulus money to install the system, which will detect the ID cards students are carrying as they enter large classrooms, The Arizona Republic reported on Tuesday. (The cards can be read by an electronic sensor.) Faculty members can choose to receive electronic attendance reports.

Karen Pugliesi, vice provost for academic affairs, says the project will help improve attendance, which is key to higher academic performance.

Research, she says, shows a real link between good attendance and student achievement. She says the system will improve student engagement and participation, putting more students on track to graduate.

"We want every one of our students that enrolls in a class to realize their potential and be successful in the completion of that course," she says. "It's not in the student's interest for them to drop out of a course or to fail a course."

Privacy Concerns

But many students are opposed to the new system, which they say invades their privacy. Rachel Brackett, a sophomore, started the Facebook group "NAU Against Proximity Cards," which has over 1,300 members.

Ms. Brackett says participation is more important in some classes than others, and students should be responsible for making their own decisions about attending lectures.

"Students should be able to choose to go to class, and if they fail, they have to live with those consequences," she says. "Part of growing up and becoming more mature is knowing you have to go to class."

Kathleen Templin, president of the university's student government and a junior, says she recognizes the importance of attendance, but it is hard for her to attend every class because of her extracurricular commitments.

"I'm sure students will come up with a way to get around that system," she says. "They're paying for credit hours to be here and if they choose not to come, it's their own choice."

But Ms. Pugliesi doesn't expect students to try to game the system by, for instance, giving their ID cards to friends who will attend the classes.

"The extent to which that happens is most likely to be very minimal," she says. "I don't believe in designing a policy or a system to address the outliers."

Tracy Mitrano, director of information-technology policy at Cornell University, says she worries that such a system treats college students like elementary- and secondary-school students.

"Higher education loses its meaning if it's just continuing to emphasize or even rely on a rote approach to learning like attendance," she says.

But Ms. Pugliesi says universities should be thinking about how technology can help improve student attendance, as well as further creative-learning strategies.

"It's more than just enforcing compliance with attendance through the proximity readers," she says. "We intend to make our classes compelling and attractive."

Copyright 2010. All rights reserved.
Helping Students Succeed in Introductory Biology Classes: Does Improving Students’ Attendance Also Improve Their Grades?

Randy Moore
General College
University of Minnesota,
128 Pleasant Street SE
Minneapolis, MN 55455
E-mail RMoore@umn.edu

Abstract: In one section of an introductory biology course I stressed the value of class attendance for academic success, and in another section I did not. The section in which attendance was stressed was characterized by higher average rates of attendance and higher average grades in comparison to the section in which attendance was not stressed, despite the fact that students received no credit for attending class. The correlation between higher attendance and higher grades was also strong for individual students, regardless of the section in which they were enrolled. These data are discussed relative to students’ expectations, attitudes, and performance in the course.

Key words: attendance, attitudes, grades, introductory biology

INTRODUCTION
Several researchers have tried to use students’ personality traits and other subjective factors to predict students’ academic success. For example, Barney, Fredericks, and Fredericks (1984) studied how students’ grades are affected by factors such as anomy, personality, stress, anxiety, and social class; and Baird (1984) documented how personality, aptitude, and scores on intelligence tests affect students’ grades. Although these and similar studies have often produced interesting and informative results, they have not been overly helpful to teachers wanting to answer students’ most basic question – namely, “What can I do to succeed in this course?”

My answers to this question have often been truisms such as “study hard” and “read the assigned chapters.” In response, students often reported that they did study hard and did read the assigned chapters. Perhaps they did, but such self-evaluations are often highly unreliable (Sappington, Kinsey, and Munsayac, 2002). Unlike students’ self-reported data regarding study-habits and reading compliance, class attendance is a course-related behavior that can be easily, accurately, and objectively measured.

Science professors have long been puzzled by students’ low rates of class attendance. Students pay large amounts of tuition to enroll in courses that they must pass to graduate from college, and universities hire award-winning teachers, build lecture halls and labs, and spend large amounts of money on furnishings, equipment, and supplies to ensure that students will be able to learn about science. Nevertheless, many students do not show up for class.

Absenteism is a significant problem at many colleges and universities (Romer, 1993), especially in introductory science courses (Friedman, Rodriguez, and McComb, 2001). As Romer (1993) has noted, “A generation ago, both in principle and in practice, attendance at class was not optional. Today, often in principle and almost always in practice, it is” (p. 174). This absenteeism occurs despite the fact that less than one-third of faculty feels that students are well prepared for college (Thomas, 2002).

Although several studies have focused on why students skip class (Devadoss and Foltz, 1996; Friedman, Rodriguez, and McComb, 2001), there have been surprisingly few studies of how attendance relates to academic performance. Moreover, these studies have often excluded first-year students (Devadoss and Foltz, 1996; Hancock, 1994; Van Blerkom, 1996), been restricted to elite, “highly competitive” schools (Romer, 1993), been based on small samples (Immerman, 1982), and produced conflicting conclusions. For example, some studies have concluded that high rates of class attendance correlate positively with high grades (Brocato, 1989; Jones, 1984; Launius, 1997; Romer, 1993; White, 1992; Wiley, 1992), while others have concluded that students’ grades are not related to class attendance (Berenson, Carter, and Norwood, 1992; Hammen and
This study was done (Kelland, 1994; Thompson and Plummer, 1979). Some researchers have even suggested that mandatory attendance policies could worsen students’ grades (Hyde and Flournoy, 1986). As St. Clair (1999) has noted, “research has not consistently revealed a positive relationship between attendance and achievement” (p. 172).

This study examined 1) how class attendance relates to course performance and 2) if an ongoing emphasis on the empirical value of class attendance for course performance changes students’ attendance and grades. An attempt was made to address a variety of questions. For example, do students understand the value of attendance to grades? Does coming to class make a difference? If so, what can be done (short of giving students points for merely showing up) to increase attendance? And if attendance improves, do grades improve?

METHODS

The course and students. This study was done during 2002 in a large introductory biology course at the Twin Cities campus of the University of Minnesota. Both sections of the four-credit course (GC 1131: Principles of Biological Science) were taught by the same instructor, in a similar way (e.g., same syllabus, textbook, sequence, pedagogical techniques), and in the same large lecture hall. The study included two sections enrolling a total of 301 students having an average age of ~20 years, an average ACT composite score of 20, an average high school rank of 51%, and an average course load of 15 semester-hour credits. The composition of the classes was, on average, 53% male and 47% female, and was ethnically diverse: 17% African American, 2% American Indian, 16% Asian and Pacific Islander, 4% Chicano/Latino, and 61% Caucasian/other. These traits did not vary appreciably in either of the sections of the course. Both sections were taught near mid-day.

Attendance, exams, and grading. Class attendance was recorded in 88% of the courses’ classes. All exams covered material presented both in class and in assigned readings from the required course-textbook. Missing classes did not preclude any student from making an A; that is, students could have earned an A on each exam if they had read and understood the readings assigned in the textbook. No grades were “curved”; students were not allowed to retake any exams; and there were no extra-credit projects. Course grades were based entirely on students’ abilities to demonstrate their mastery of the course’s academic content on multiple-choice and essay exams. No points were awarded for excellent attendance, and no points were deducted for poor attendance. Students who withdrew from the course or failed because of academic dishonesty were not included in this study.

The University of Minnesota has a concise, one-sentence policy regarding attendance: “Students are expected to attend all meetings of their courses” (Policies, 2002). The course syllabus added the following statement about the importance of attendance for academic success; “You are expected to prepare for and attend every class. This is important because class attendance is usually a strong indicator of course performance.” On the first day of class, this part of the syllabus was discussed with and emphasized to students in both sections of the course. In the section of the course hereafter referred to as the “low attendance” section (N = 154 students) students were told on the first day of class that 1) they were expected to attend class, 2) high attendance increases the probability of earning a high grade in the course, and 3) low attendance increases the probability of earning a low grade in the course. Nothing else was said to these students about the importance of attendance for academic success for the remainder of the semester.

In the section of the course hereafter referred to as the “high attendance” section (N = 147 students), students were told on the first day of class that 1) they were expected to attend class, 2) high attendance increases the probability of earning a high grade in the course, and 3) low attendance increases the probability of earning a low grade in the course. They were shown a graph similar to the one shown in Figure 1, which depicted how grades correlated with attendance in the course during previous semesters. The effect of different rates of attendance on the probabilities for making various grades in the course was discussed. Copies of the graph were distributed to students and it was suggested that they write an analysis of the data presented in the graph. At least once per week for the rest of the course, they were shown the graph in the minutes before the beginning of class.

Students’ expectations, attitudes, and grades. Students’ expectations and attitudes about class attendance and course grades were obtained by administering a written survey at the beginning of the first day of class. The survey was administered prior to the discussion of grading, attendance policies, and course syllabus. During the third week of class another survey was administered in which students were asked if they were receiving academic credit for attendance in other courses in which they were enrolled. During the last week of class another written survey was administered seeking students’ opinions of the course, their performance, their attendance, their studying outside of class, and their purchase and use of the course textbook. The surveys were not analyzed until the final grades had been submitted.

RESULTS

Students’ predictions, expectations, attitudes, and performance. The predicted (P) and actual (A) average attendance, average grade, attendance distribution, and grade distribution for students in the high-attendance and low-attendance sections of the course are shown in Table 1. On the first day of class,
more than 80% of the students believed they would attend 81-100% of the classes, about 15% believed they would attend 61-80% of the classes, and only about 2% believed they would attend 41-60% of classes. No student in either section believed he/she would attend less than 40% of classes. On average, students believed they would attend 87% of classes. More than 90% who expected to make an A also expected to attend all classes, and more than 80% who expected to make a B also expected to attend all classes (Table 1). These percentages were not significantly different in the two sections of the course.

On the first day of class, about 55% of the students believed they would make an A in the course, about 40% believed they would make a B, and only 5% believed they would make a C. No student in either section believed he/she would make less than a C (Table 1). These percentages were not significantly different in the two sections. Virtually all students expected to make an A or B in the course regardless of how often they expected to attend class (Table 1). On average, students in both sections fell short of their predicted grades and attendance rates (Table 1).

Students’ attitudes about attendance and grades on the first day of class are presented in Table 3. The majority of students (65-97%) believed they should get points for attending class, they would make a higher grade if they attended class regularly, they should “make up” missed classes by reading the textbook and/or a classmate’s notes, and their decision to attend class would be influenced by whether they received credit for attending. About 40% of the students believed that excused absences would not affect their grades as much as unexcused absences. Somewhat less than half the students believed their grades should be based only on what they know and learn in the course (Table 3). The percentages shown in Table 3 were not significantly different between the high-attendance and low-attendance sections.

Table 1. The predicted (P) and actual (A) average attendance, average grade, attendance distribution, and grade distribution in the high-attendance, low-attendance, and the combined sections of an introductory biology course. All numbers in the table are percentages. Attendance was based on measurements taken in 88% (21 of 24) classes.

<table>
<thead>
<tr>
<th></th>
<th>COMBINED</th>
<th>LOW</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average attendance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>87</td>
<td>86</td>
<td>87</td>
</tr>
<tr>
<td>A</td>
<td>64</td>
<td>59</td>
<td>70</td>
</tr>
<tr>
<td>Average grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>90</td>
<td>90</td>
<td>91</td>
</tr>
<tr>
<td>A</td>
<td>69</td>
<td>64</td>
<td>73</td>
</tr>
<tr>
<td>Attendance distribution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended 80-100% of classes</td>
<td>83</td>
<td>85</td>
<td>82</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>32</td>
<td>24</td>
<td>41</td>
</tr>
<tr>
<td>Attended 60-79% of classes</td>
<td>15</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>26</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>Attended 40-59% of classes</td>
<td>2</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>27</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>Attended 20-39% of classes</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>12</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>Attended 0-19% of classes</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Grade distribution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>55</td>
<td>55</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>B</td>
<td>40</td>
<td>41</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>C</td>
<td>5</td>
<td>28</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>D</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>23</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 2. How students’ expectations on the first day of classes for final course grades relate to their expected rates of course attendance.

<table>
<thead>
<tr>
<th>Expected Grade</th>
<th>Expected Attendance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>81-100</td>
</tr>
<tr>
<td></td>
<td>H</td>
</tr>
<tr>
<td>A</td>
<td>93</td>
</tr>
<tr>
<td>B</td>
<td>82</td>
</tr>
<tr>
<td>C</td>
<td>12</td>
</tr>
</tbody>
</table>

*For example, 91% of the students in the low-attendance section who expected to make an A in the course expected to attend 81-100% of classes. No student expected to make less than a C, nor did they expect to attend less than 60% of classes. Tae and low-attendance sections of an introductory biology course as expressed on the first day of class. Numbers in the table reflect the T-percentages of students who agreed with the statements. None of the differences between the sections were statistically significant.
The relationship of course grades and class attendance is shown in Figures 1-3. In the graph representing the combined sections (Fig. 1), the correlation coefficient $r$ was 0.76362, and the coefficient of determination ($r^2$) was 0.583 (i.e., attendance accounted for 58.3% of the variation in grades). In the graph representing the high-attendance section (Fig. 2), the correlation coefficient was 0.75482, and the coefficient of determination ($r^2$) was 0.570 (i.e., attendance accounted for 57.0% of the variation in grades). In the graph representing the low-attendance section (Fig. 3), the correlation coefficient was 0.76152, and the coefficient of determination ($r^2$), was 0.589 (i.e., attendance accounted for 58.0% of the variation in grades). All of these correlations are statistically significant ($p < 0.001$).

A survey taken during the last week of class provides input from students in the two sections concerning attendance, whether they had purchased and read the textbook, the percent reading assignments they completed, the number of hours they studied per week, and the relative difficulty of the course as compared to their other courses (Table 4). Students in both sections reported similar rates of textbook purchase, course attendance relative to other courses, hours spent studying outside of class, and reading assignment completion. The only response in which there was a significant difference involved their view of the difficulty of the course. Significantly more students in the high-attendance section believed the course had been easier than they had expected (Table 4).

**Figure 1.** The relation of class attendance to course grades in a large introductory biology class. The equation for these data is $y = 40.563 + 0.50501x$, and the correlation coefficient ($r$) = 0.76362.
Figure 2. The relation of class attendance to course grades in a large introductory biology class in which the empirical importance of class attendance was stressed throughout the course. The equation for these data is $y = 40.213 + 0.52208 \times x$, and the correlation coefficient ($r$) = 0.75482.

Figure 3. The relation of class attendance to course grades in a large introductory biology class in which the empirical importance of class attendance was not stressed. The equation for these data is $y = 40.903 + 0.48584 \times x$, and the correlation coefficient ($r$) = 0.76152.
Table 3. Students’ opinions about class attendance and grades in high-attendance and low-attendance sections of an introductory biology course on the first day of class. Numbers in the table reflect the percentages of students who agree with the statements. None of the differences between the sections were statistically significant.

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>HIGH (%)</th>
<th>LOW (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>My final grade should be based primarily on what I learn, not on whether I attend class.</td>
<td>48</td>
<td>44</td>
</tr>
<tr>
<td>I should get academic credit for attending class.</td>
<td>71</td>
<td>68</td>
</tr>
<tr>
<td>Effort should be a direct part of my grade in this course.</td>
<td>88</td>
<td>89</td>
</tr>
<tr>
<td>Grades should be curved if students do poorly on exams.</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>If attendance is not a direct part of my grade, there’s not much reason to attend class.</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>I can learn as much by “cramming” for a test (e.g., not studying for a test until the night before a test, and then studying many hours) than by studying every day.</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>I will purchase and read the course textbook.</td>
<td>96</td>
<td>94</td>
</tr>
<tr>
<td>Attendance should be a direct part of my grade in this course.</td>
<td>65</td>
<td>69</td>
</tr>
<tr>
<td>If I attend class regularly, I should make at least a B in the course.</td>
<td>76</td>
<td>74</td>
</tr>
<tr>
<td>My decision to attend class will be influenced by whether I receive credit for attending class.</td>
<td>68</td>
<td>65</td>
</tr>
<tr>
<td>I took a biology course in high school.</td>
<td>97</td>
<td>99</td>
</tr>
<tr>
<td>I’ll probably make a higher grade in this course if I attend class regularly.</td>
<td>95</td>
<td>97</td>
</tr>
<tr>
<td>If I miss class I will “make up” the class by reading the textbook and/or by obtaining a classmate’s notes.</td>
<td>89</td>
<td>92</td>
</tr>
<tr>
<td>In college, it is not as important to attend class as it was in high school.</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>An excused absence will not affect my course grade as much as an unexcused absence.</td>
<td>43</td>
<td>42</td>
</tr>
</tbody>
</table>

Table 4. Students’ evaluation, at the end of the course, of their performance in high-attendance and low-attendance sections. Numbers in the table are percentages.

<table>
<thead>
<tr>
<th>Statement</th>
<th>High (%)</th>
<th>Low (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I attended this class ____ my other classes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More often than</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>Less often than</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>About the same as</td>
<td>65</td>
<td>68</td>
</tr>
<tr>
<td>I bought the course textbook.</td>
<td>97</td>
<td>99</td>
</tr>
<tr>
<td>I read about ____% of the reading assignments.</td>
<td>59</td>
<td>58</td>
</tr>
<tr>
<td>I studied about ____ hours per week outside of class.</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>This course has been ____ than/as I thought it would be.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>harder</td>
<td>43</td>
<td>54</td>
</tr>
<tr>
<td>easier</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>about the same difficulty</td>
<td>47</td>
<td>44</td>
</tr>
</tbody>
</table>

DISCUSSION
No significant academic or demographic differences in the two populations of students could be determined on the first day of classes. Virtually all (i.e., 97-99%) students had taken a biology course in high school, and students in each section had, on average, similar expectations and attitudes about attending class, buying and reading the course textbook, reading assignments, studying for exams (i.e., the effectiveness of “cramming” as compared to studying every day), making up missed classes, and the importance of excused as compared to unexcused absences. These results suggest that the different performances of the two sections were probably not due to academic or demographic differences existing on the first day of class.
**Students’ expectations.** On the first day of classes, students in both sections are highly confident that they will make high grades and attend class regularly (Tables 1,2). Students in both sections believed they would make a higher grade if they attended class regularly (Table 3). These results indicate that students understand that high grades are associated with high attendance. They believe they will make higher grades if they come to class regularly and make up the classes they miss.

Most students failed to meet their first-day expectations regarding attendance and course performance. For example, 1) far fewer students who believed that they would make an A or B actually made an A or B, 2) far more students made a C, D, or F than students predicted, and 3) the mean final grades in the course (69%) was far lower than the mean grade (90%) that students had predicted (Table 1). These results indicate that students’ expectations on the first day of classes are often unrealistic. These high expectations may result from a mistaken assumption that college courses have the same academic rigor as high school courses, in which grades are higher than ever (Henry, 2001, Moore, 2002) despite the fact that students are studying “far less” than ever (Young, 2002, p. 36). When these students enroll in college, they often feel that the same effort that produced their high grades in high school entitles them to the same high grades in college (Young, 2002).

Although most students in both sections of the course did not meet their first-day expectations for class attendance and academic performance, a larger percentage of students met first-day expectations in the high-attendance section. Students in the high-attendance section of the course had higher average grades and higher attendance rates than did students in the low-attendance section of the course. These results suggest that a thorough, empirical, and ongoing emphasis on the correlation between class attendance and academic success (i.e., as was done in the high-attendance section of the course) can help introductory biology students meet their academic (i.e., grade) and behavioral (i.e., class attendance) expectations.

**Attendance and grades.** In both sections of the course, high attendance increased students’ probability of earning high grades, and low attendance increased students’ probability of earning low grades. For example, the average attendance rate in the high-attendance section was 70% as compared to 59% in the low-attendance section. This difference in attendance correlated positively with the average grade in the high-attendance section of 73% as compared with 64%, in the low-attendance section. These data emphasize the importance of class attendance for the academic success of introductory biology students.

In both sections of the course, attendance accounted for about 58% of the variation in grades. These data are similar to those of Wiley (1992), who reported that students’ absences explained 57% of the variation in students’ grades in an introductory business course, and Street (1975), who reported that student absences explained 52% of the variation of students’ grades. Launius (1997) reported correlation coefficients (r) for attendance and grades ranging from 0.24 to 0.46. , class attendance is important for students’ academic success.

Although most introductory biology students believe that attending class will improve their grades, they may base this belief on the view that students should get academic credit for attending class (Table 3). Almost three-fourths of the students in this study reported that they were receiving academic credit for attending most of the classes in which they were enrolled. In such classes, there is a clear and direct reward for attendance. This is what most students expect; most students believe that 1) attendance and effort should be a direct part of their grades, and 2) they are entitled to at least a B if they attend class regularly (Table 3). Similarly, most students’ decisions to attend class may be influenced by whether they receive academic credit for attending class; less than half of students believe that their grades should be based on what they learn rather than on whether they attend class (Table 3). Similar results have been reported by Launius (1997) for students taking introductory psychology. When students do not get points for attending class (as in this study), they apparently become skeptical of the value of class attendance, and their attendance drops. This is consistent with the report of Friedman, Rodriguez, and McComb (2001) that the top reasons for missing class (excluding illness) are that attendance does not influence students’ grades, that attendance is not taken, that absences are not noticed, and that course-material is available from other non-classroom sources (e.g., textbooks, web sites). When students miss classes, their grades suffer (Figs. 1-3; also see Brocato, 1989; Jones, 1984; Launius, 1997; Romer, 1993; White, 1992; Wiley, 1992).

Differing rates of class attendance may affect the “chemistry” of a class. Brauer (1994) has reported that poor attendance can “create a ‘dead,’ tiresome, unpleasant classroom environment that makes [students who do attend class] feel uncomfortable” (p. 206), and White (1992) has observed that absences can diminish a class’s overall “well-being” (p. 13). In this study, however, the similar slopes of lines in Figures 1-3 indicate that students who attended similar percentages of classes earned similar final grades, regardless of the attendance rates of their classmates (i.e., regardless of whether they were in the high-attendance or low-attendance section of the course). Thus, although different rates of overall class attendance may affect the dynamics of some classes (Brauer, 1994; White, 1992), the different rates of overall class attendance did not alter the importance of class attendance for the
academic success of individual students in this study (Figs. 1-3).

Several studies have investigated how attendance is affected by incentives such as points, food, and money (e.g., Robertson, Johnson, and Bethe, 1980; Beaulieu and Sheffer, 1985; Kopelman and Schneller, 1983). In this study, the incentive for students was indirect. Instead of receiving cash or movie tickets for coming to class, students were repeatedly reminded that coming to class regularly would improve their chances of earning a higher grade. As noted in Figures 1-3, this approach was effective.

Class attendance is important for success in introductory biology classes (Figs. 1-3; Brocato, 1989; Jones, 1984; Launius, 1997; Moore, 2003; Romer, 1993; White, 1992; Wiley, 1992). Data presented in Figures 1-3 suggest that we can improve some students’ attendance and learning by emphasizing the empirical relationship between attendance and grades. This emphasis on attendance does not ensure academic success, but it does increase the probability of academic success. Nevertheless, correlation is not causality; attendance alone doesn’t guarantee that a student is learning. This is illustrated by the fact that some students who came to class regularly did poorly in the course. However, the more typical result is that failure follows students who—despite our best efforts—choose to skip classes. As Thomas and Higbee (2000) have noted, “The best ... teacher, no matter how intellectually stimulating, no matter how clear in providing explanations and examples, may not be able to reach the high risk freshman who has no real interest in learning ... and will certainly not be successful with the student who fails to show up for class” (p. 231). Students have a responsibility for their own success, and effort usually brings reward. To again quote Thomas and Higbee (2000), “Nothing replaces being present in class” (p. 229).

The strong correlation between class attendance and academic success is also valid in high school. For example, Peterson and Colangelo (1996) showed in a large study of high school students that poor students skip or are tardy for many more classes than are good students. Thus, emphasizing the value of class attendance may be an effective way for advisors, professors, and counselors to improve students’ chances for academic success.

LITERATURE CITED


Thomas, K. (2002). Professors find freshmen prepared for college. *USA Today, November 5; p. 6D*.


---

**Call for Applications**

**John Carlock Award**

This Award was established to encourage biologists in the early stages of their professional careers to become involved with and excited by the profession of biology teaching. To this end, the Award provides partial support for graduate students in the field of Biology to attend the Fall Meeting of ACUBE.

**Guidelines:** The applicant must be actively pursuing graduate work in Biology. He/she must have the support of an active member of ACUBE. The Award will help defray the cost of attending the Fall meeting of ACUBE. The recipient of the Award will receive a certificate or plaque that will be presented at the annual banquet; and the Executive Secretary will provide the recipient with letters that might be useful in furthering her/his career in teaching. The recipient is expected to submit a brief report on how he/she benefited by attendance at the meeting. This report will be published in Bioscene.

**Application:** Applications, in the form of a letter, can be submitted anytime during the year. The application letter should include a statement indicating how attendance at the ACUBE meeting will further her/his professional growth and be accompanied by a letter of recommendation from a member of ACUBE. Send application information to:

Dr. William J. Brett, Department of Life Sciences, Indiana State University, Terre Haute, IN 47809; Voice -- (812) 237-2392  FAX (812) 237-4480; E-mail -- lsbrett@scifac.indstate.edu

If you wish to contribute to the John Carlock Award fund, please send check to: Dr. Pres Martin, Executive Secretary, ACUBE, Department of Biology, Hamline University, 1536 Hewitt Ave., St. Paul, MN 55104.
Encouraging Student Attendance

By Merry J. Sleigh and Darren R. Ritzer
George Mason University

When I took my required public speaking class in college, the professor repeatedly admonished us to ‘know your audience.’ This rule of thumb served me well during my college class and thereafter. As I have prepared and taught my own classes, I try to make my messages understandable and meaningful to those who will hear them. Of course, this rule of thumb assumes there is an audience. Unfortunately, as teachers, we often spend less time cultivating an audience than we do preparing for that audience.

WAYS STUDENTS BENEFIT WHEN THEY ATTEND CLASS

Most teachers would agree that class attendance facilitates learning in a variety of ways. The auditory presentation of material supplements reading assignments. Multimedia classroom presentations, that provide an auditory/visual supplement to reading assignments, target a broader range of learning styles than textbooks alone. Also, students who are in class hear discussion and elaboration of important concepts, including the teacher's perspective on the material, and teachers often offer more current information than that found in the textbooks. In addition to learning from the teacher's explanations of class material, students who are in class hear questions and comments from others, and share their own.

Teachers can use class discussion to enhance students' critical thinking skills. They can ask them to explain the material in their own words, pose questions that require students to make connections between different elements of the class material, or challenge students to relate class material to other areas of psychology or to realms outside of the field. The more students examine and analyze material, the better their retention will be. In general, class attendance also influences course grades (Buckalew, Daly, & Coffield, 1986; Simpson & Nist, 1992) and the development of academic skills (Terenzini, Theophilides, & Lorang, 1984).

The development of academic skills transfers to other realms. For example, to take quality notes, students must prioritize, organize, and synthesize the material being presented, and skills developed in one classroom generalize to other courses. Also, regular class attendance requires discipline and time management. These tools are beneficial no matter what career path students follow. In a broader sense, attending class increases students' personal interaction with a variety of faculty members, raising the likelihood of finding mentors and role models who can help guide their academic, career, and personal development.

WAYS FACULTY BENEFIT WHEN STUDENTS ATTEND CLASS

Good attendance is cost effective to faculty. Most faculty put a great deal of effort and time into their teaching. It is students who provide the intellectual and interpersonal stimulation from being in front of, and with, a class. Teachers share excitement about a topic, students often reflect back the same level of enthusiasm. In addition, contact with students allows faculty to get to know those who are struggling, talk with them, increase rapport, and taught my own classes, I try to make my messages understandable and meaningful to those who will hear them. Of course, this rule of thumb assumes there is an audience. Unfortunately, as teachers, we often spend less time cultivating an audience than we do preparing for that audience.

Student feedback is critical to modifying and improving faculty teaching. The presence of students in the classroom is, therefore, a learning opportunity for the teacher. Teachers need student feedback in order to gauge their level of understanding and thus improve how they meet students' needs and help them learn course material. The classroom is a faculty's chance to share and renew enthusiasm for psychology. When teachers share excitement about a topic, students often reflect back the same level of enthusiasm. In addition, contact with students allows faculty to get to know those who are struggling, talk with them, increase rapport, schedule meetings with them out of the classroom, and help them improve their course performance. With good attendance, faculty receive a positive return on their investment.

IS ATTENDANCE IMPORTANT TO STUDENTS?

Students seem to agree that class attendance is important. We surveyed over two hundred students, both upper-level and lower-level, at George Mason University. Only 8 percent reported that getting class notes from a missed class is as useful as attending class. Those who thought borrowed notes were as good as attending class had significantly lower reported grade point averages than those who valued attendance more than borrowed notes. Most students also reported a strong relationship between number of absences and the final course grade.

Although the majority of students reported that attending class is important, about two-thirds indicated that they would miss more classes if they could get the missed notes from a professor. Students miss class for a variety of reasons, most frequently because they need to complete other course work, find the class boring, are ill, or have social obligations (Van Blerkom, 1992). Although we have limited control over some of these situations, we do have control over the structure and content of our classrooms. These elements deserve further attention.

IMPROVING STUDENT ATTENDANCE

Teachers have little to lose and much to gain by implementing strategies for motivating students to attend
class. Keep in mind that what you do to increase and maintain attendance may differ for courses with primarily lower- versus upper-level students, and for large and small courses.

**Class Structure and Content**

One approach is to structure class so that those who attend experience obvious benefits, such as better grades, personal growth, and "informative entertainment."

- Test on material covered in class. All material presented, including class discussion, video clips or guest speakers, should be fair game, conveying that class time is of value, whether the instructor is lecturing or not. In a recent survey in our classes, the number one factor that influenced student attendance was the amount of in-class material that would be on the test (Sleigh, Ritzer, & Casey, in press).
- Avoid repetition of the textbook or assigned readings. If students have access to the same material covered in class, they often perceive little reason to be there.
- Notes provided to students from a remote location, such as a website, should not be a transcript of class.
- Recognize that being informative and being entertaining are not mutually exclusive. Using performance skills to convey information captures students' attention and interest. For a detailed discussion of this topic, see Mester and Tauber (2000).
- When the subject matter is made personally relevant, understanding and comprehension are deeper and more meaningful. Students will be more motivated to attend lectures that reflect elements of their background, interests, or future.
- Structure class meetings so students who must be in class for one activity, such as an in-class writing activity, also participate in another, like reviewing feedback on an exam.

**Policies**

Because college students are adults or on the cusp of adulthood, some faculty believe they should be free to decide whether to attend class. Others believe attendance should be mandatory. Regardless of your perspective, expectations regarding attendance should be clearly explained and attainable because students are often more willing to comply with policies when they understand the reasoning behind them. Such communication also conveys a level of adult-to-adult respect between faculty and students. Present your policies in oral and written formats, and follow through with established consequences. Students learn to ignore policies that are not enforced.

- Require attendance and attach it to grades. But think carefully before adopting this policy because it can be controversial. First, some schools prohibit attendance-based grading. Second, this level of control may not be appropriate for adults. Third, providing external justification for attendance may diminish a student's intrinsic desire to learn.
- If students are penalized for missing class, they are going to want an opportunity to explain their absences. Teachers can find themselves in the position of trying to evaluate the validity of a range of excuses, which can create a difficult situation.
- Some faculty with an attendance policy do not try to validate excuses. They ask students to tell them if they are going to miss class or to inform them as soon as possible after missing one. In the working world, one cannot just stay home and not inform someone. They ask students not to lie. The message is that the faculty member understands that life is complex and knows that students cannot always make it to class. But an attendance policy can communicate that a faculty member values student attendance.

- Grade class participation. On the positive side, grading participation makes students more conscious of their presence and behavior in class. Students who are concerned about their grade may try to be actively involved in class, which will theoretically facilitate learning. On the negative side, students may dislike this level of control. Forced participation may be less authentic, waste valuable time, and provide false feedback to the teacher. Teachers are then placed in the awkward position of evaluating "quality" of participation. Students who are quiet by nature may be particularly uncomfortable in a class that rewards extraverted behavior. Finally, it is difficult to keep track of participation in classes larger than about 12 students.

- Use in-class quizzes or assignments. We know from the field of learning that unannounced quizzes, on a variable interval schedule, increase attendance. The downside would be students perceiving a lack of control and predictability in the classroom.

- Policies that explain the consequences for missed exams or late assignments can encourage attendance. If a faculty allows students to drop one test grade, a missed exam automatically becomes the dropped grade. When policies are in place, students can make informed choices about attendance, and faculty reduce the need for judgment calls about an absence.
Model the Behavior We Wish To See

In teaching, as in parenting, we should examine our own behavior. We may be unintentionally modeling the very behavior that we deem undesirable in students by arriving late to class, being unprepared, and not keeping appointments, including office hours.

Classroom Atmosphere

The atmosphere in the classroom may be more influential in drawing students than the material presented. Students are more willing to spend time in a place where they are comfortable and valued.

- Require respect among students and model this behavior by respecting your students. Create a classroom that has a sense of community where each member has something to contribute and where disagreement is tolerated.
- Consider creative, fun ways of rewarding attendance. Elementary school teachers know the value of a smiley face sticker for encouraging student effort. You might translate this strategy to the college population by using age-appropriate incentives. Use attendance as the price to enter a raffle to win a free cup of coffee or soda. These raffles could be spaced across the semester in accordance with the faculty member's budget.

INDIVIDUAL ACCOUNTABILITY

Individual accountability is more difficult to accomplish in a large classroom but is worth the effort. We know from social psychology that students are more conscious of their behaviors when they perceive themselves to be individually identifiable and accountable for those actions. One teaching tip that has proven valuable to us is to learn student names as quickly as possible. Calling a student by name demonstrates that you have an interest in the individual as well as the group. Students rate "showing interest in them" and "knowing students' names" as the fourth and fifth most common behaviors teacher can exhibit to develop rapport (Buskist & Saville, 2001). In the same study, students reported that a positive effect of rapport was "to motivate them to come to class more often, and to pay attention in class." While it is difficult to learn students' names in large classes, an earnest attempt and even moderate success doing so, is extremely salient to students.

When you know students by name, you also can reinforce good attendance in ways other than assigning grades. You can provide individual praise and express your concern to absentees. The benefits of this personal attention extend well beyond encouraging class attendance.

CONCLUSION

Teachers can view their role as that of a strict, authority figure and utilize strategies that penalize for absences or may adopt a laissez-faire attitude and not address attendance at all. Perhaps, the best position is between these extremes. In order to reach an audience, there must be an audience present. To have an audience present, teachers must cultivate an audience by creating policies, lectures, discussions and other uses of class time, and environments that encourage attendance. Once the policies for attendance are established, focus on rewarding good attendance rather than punishing poor attendance.

The critical task for teachers is to know their audiences well enough to create classes that meet students' needs and to modify their pedagogical approaches to fit the situation. Ultimately, encouraging attendance is a critical teaching task. Without students, there is no need for a teacher.
References & Recommended Readings

Buckalew, L. W., Daly, J. D., & Coffield, K. E. (1986). Relationship of initial class attendance and seating location to academic performance in psychology classes. Bulletin of the Psychonomic Society, 24, 63-64.


Sleigh, M. J., & Ritzer, D. R. (January, 2001). Students’ perceptions of the process of taking class notes and obtaining missed notes. Presented at the National Institute on the Teaching of Psychology, St. Petersburg Beach, FL.

Sleigh, M. J., Casey, M. B., & Ritzer, D. R. (in press). Should I stay, or should I go? Student and faculty perceptions of acceptable reasons to miss class. Teaching of Psychology.


Note: This article first appeared in the November 2001 (Vol. 14, No. 9) issue of the APS Observer.
Student absenteeism appeared to me to be the greatest factor contributing to student dropout and failure. The pattern was consistent: The student would miss several lessons, become lost, fail the next quiz or test, then dropout.

As a result, last semester I required lesson make-ups for absences in my MA091 elementary algebra class, using the following attendance policy: “Upon any absence, phone or see the instructor for makeup assignment. A student will be dropped from the course if s/he accumulates more than three absences without a makeup. Three times tardy will be considered equivalent to one absence.” (An absence warning form is appended below.)

The absent student was required to visit the Math Center and view the videotaped lecture for the missed lesson. Excellent lectures keyed to each text chapter and section are available from most publishers for Prealgebra, Elementary Algebra and Intermediate Algebra texts. The video taped lectures, helpfully keyed to the text chapter and section, are very understandable and comprehensive. The main drawback is that they are not interactive. Therefore, I also require the student to visit the tutor desk or attend a scheduled weekly help session or make an appointment with me to review the missed material. This also insures that the student finds making up missed lessons to be more work than attending class. (A lesson make up verification form is appended below.)

This requirement cut my absenteeism by a factor of five from the previous semester. In the semester I began using this make-up policy, I averaged a little over one absence per class session. In the previous semester I had averaged about eight absences per session. The best part is that the absentee did not miss the lesson objective.

I dropped three students for excessive absences without make up. I believe the first student I dropped thought I was bluffing. He was both surprised and angry to find out that I was not. The next two students accumulated nine and ten absences, respectively. At first they made up all absences, but then they got so far behind in their work that they just let it go.

It took very little effort on my part to account for the absences and the make up. I passed a clipboard with the class roster that the students initialed. Students arriving after the clipboard was returned would have their attendance marked with a red ‘T’. I equated three tardies to one absence. Those absent would have their attendance marked with a Red ‘A’. Thus the accounting could not be negated by the student at the next session.

It can be a depressing, boring life for a bright youngster who drops out to face a lifetime of menial labor. What is the worth of motivating even just one more development student to persist and succeed? I consider it priceless.

Dave Bahrs, Faculty, Mathematics, Montgomery College (MD) dbbahrs@hotmail.com

* * * * *

Dear _______________________, your absence on _________ may be excused by viewing the videotape for
the missed lesson, MA091 Chapter __________, in the Math Center, performing the required homework assignment for this date, and by attending the MA091 help session. Should you prefer, you may schedule a help session with me or with the tutor at the Math Center.

Best regards,

Instructor David. L. Bahrs

* * * * *

ABSENCE WARNING FORM

Dear ______________,  

Your absence on ________________________ is your third unexcused absence. Please inform me immediately whether you plan to make up the missed lessons and continue in this course.

Sincerely,

David L. Bahrs, Instructor (include contact information: Phone, e-mail and office)

* * * * *

Dear Math Center Desk Clerk,

Please verify that the student named below checked out the specified videotape.

Student: ________________  Video tape _______________________

Signed: ________________

Dave Bahrs, Faculty, Mathematics

* * * * *

Dear Help Session Instructor or Math Center Tutor,

Please verify that the above named student attended your help session on: ________________

Signed: __________

Dave Bahrs, Faculty, Mathematics

* * * * *

The ON COURSE NEWSLETTER publishes innovative strategies for helping students become active, responsible learners. To subscribe to this bi-weekly (monthly in the summer) e-newsletter, click here and send the resulting e-mail. No need to type anything. Our computer will automatically add your return address to the list of subscribers. You're always in charge of your subscription, with a subscribe/unsubscribe link in every newsletter. Have a best practice to share? Click here and request our publication guidelines.

http://www.oncourseworkshop.com/Management010.htm
The Role of Academic and Non-Academic Factors in Improving College Retention

ACT Policy Report

VERONICA A. LOTKOWSKI
STEVEN B. ROBBINS
RICHARD J. NOETH
ACT policy reports can be viewed and printed from ACT’s website (www.act.org/research/policy/index.html). For additional information about ACT’s policy research work, copies of ACT policy studies, or to contact the ACT Office of Policy Research staff, please e-mail us at policy@act.org.
The Role of Academic and Non-Academic Factors in Improving College Retention

ACT Policy Report

Veronica A. Lotkowski
Steven B. Robbins
Richard J. Noeth
CONTENTS

ACT Policy Research ........................................ iv
Preface ......................................................... v
Executive Summary ....................................... vi

1 Introduction .............................................. 1
2 The ACT Study ........................................... 4
3 Retention Strategies .................................... 11
4 Recommendations ..................................... 20

Bibliography .................................................. 25
ACT Policy Reports ........................................ 31
ACT POLICY RESEARCH

Policy Research Advisory Panel

John C. Barnhill
Director of Admissions
Florida State University

Julie D. Bell
Program Director of Education
National Conference of State Legislatures

Don W. Brown
Commissioner of Higher Education
Texas Higher Education Coordinating Board

Antonio R. Flores
President
Hispanic Association of Colleges and Universities

Patricia M. McDonough
Professor
UCLA Graduate School of Education

Suellen K. Reed
Superintendent of Public Instruction
Indiana Department of Education

Carolynn Reid-Wallace
Former President
Fisk University

Gerald N. Tirozzi
Executive Director
National Association of Secondary School Principals

Molly J. Tovar
Chief Operating Officer
American Indian Graduate Center

Office of Policy Research Staff

Richard J. Noeth
Director

Veronica A. Lotkowski
Senior Research Associate

Diane L. Schnelker
Senior Research Associate

George L. Wimberly
Research Associate

Braden J. P. Rood
Administrative Assistant
This study, *The Role of Academic and Non-Academic Factors in Improving College Retention*, reflects ACT's interest in analyzing the critical issues affecting persistence in college. It builds on extensive ACT research on retention that includes three national studies on retention practices, six national studies on academic advising (the latest published as a monograph by the National Academic Advising Association), and 20 years of data collection and reporting of college retention and degree completion rates through ACT's Institutional Data Questionnaire.

This policy report has greatly benefited from the contributions of many individuals. Several external-to-ACT educators provided considerable help in shaping the study and reviewing draft manuscripts. These individuals include John Braxton (Vanderbilt University), Andrew Cinoman (University of Iowa), Greg Hickman (Center for the Future of Arizona), and Mary Stuart Hunter (University of South Carolina). We are also grateful to Steve Hipple (Bureau of Labor Statistics) for his assistance in obtaining unpublished tabulations of unemployment data. The ACT Policy Research Advisory Panel provided recommendations about the formulation of the study and reviews of draft manuscripts.

Numerous ACT staff members were involved in various stages of the study. The following ACT staff provided help on the structure of the study and/or manuscript review: Barbara Endel, Jon Erickson, Patricia Farrant, Paul Gore, Wes Habley, Ken Kekke, Jeffrey Nock, Wayne Patience, Cynthia Schmeiser, Diane Schnelker, and George Wimberly. Kathleen Lynch, Braden Rood, and Jacqueline Snider provided assistance in manuscript preparation and bibliographic review. Michael Rasmusson provided the graphic design and Sherry Sackfield was the editorial manager for the report.

We are grateful for the assistance and support of the aforementioned individuals but accept sole responsibility for any errors of omission or commission.

Veronica A. Lotkowski
Steven B. Robbins
Richard J. Noeth
EXECUTIVE SUMMARY

Globalization, with its accompanying socioeconomic, demographic, and technological changes, is having a significant impact on America’s workforce and its postsecondary institutions. Today, six out of every ten jobs require some postsecondary education and training.¹

To remain competitive in the global economy, we must enable a greater percentage of our college-age population to enroll in postsecondary education and complete a degree in a timely fashion. Although we have made significant advances in our high school graduation rates, improvement still is needed in our college retention rates. For example, in 1999-2000, four-year college enrollment among Caucasians was 46%, for African Americans, 40%, and for Hispanics, 34%.² However, only 55% of all undergraduates who began their studies at a given four-year institution in 1995-96 with the goal of a bachelor’s degree completed that degree within six years at that same institution (including 59% of Caucasians and 41% of both African Americans and Hispanics).³ In the face of changing workforce and educational requirements, the need to retain more students will only intensify.

The issue is twofold: attracting students to postsecondary education and retaining them so that they succeed and graduate. This report focuses on the latter—the need to enhance retention rates so that more of our students are prepared for the challenges of a dynamic and ever-expanding workplace. It explores a range of information that can help administrators and policymakers design programs to enable our diverse population of students to successfully complete postsecondary education.

This policy report provides information from our major technical study about the influence of non-academic factors, alone and combined with academic factors, on student retention and performance at four-year colleges and universities. It highlights examples of successful retention strategies and stresses the need to evaluate the bases on which retention policies and programs are created. It concludes by offering recommendations to help administrators and policymakers consider both academic and non-academic factors in the design and implementation of retention efforts.


³ 63% of students from this cohort who began at a four-year institution with the goal of a bachelor’s degree completed that degree within six years at either their initial institution or at another institution (including 67% of Caucasians, 46% of African Americans, and 47% of Hispanics). U.S. Department of Education. (2002). Descriptive summary of 1995-96 beginning postsecondary students: Six years later. Washington, DC: U.S. Department of Education, National Center of Educational Statistics.
Our findings indicate that the non-academic factors of academic-related skills, academic self-confidence, academic goals, institutional commitment, social support, certain contextual influences (institutional selectivity and financial support), and social involvement all had a positive relationship to retention. The academic factors of high school grade point average (HSGPA) and ACT Assessment scores, and socioeconomic status (SES) had a positive relationship to college retention, the strongest being HSGPA, followed by SES and ACT Assessment scores. The overall relationship to college retention was strongest when SES, HSGPA, and ACT Assessment scores were combined with institutional commitment, academic goals, social support, academic self-confidence, and social involvement.

In terms of performance, the findings indicate that of the non-academic factors, academic self-confidence and achievement motivation had the strongest relationship to college GPA. Of the academic factors, both HSGPA and ACT Assessment scores had a stronger relationship to GPA than did SES, the strongest being HSGPA followed by ACT Assessment scores and SES. The overall relationship to college performance was strongest when ACT Assessment scores, HSGPA, and SES were combined with academic self-confidence and achievement motivation.

Our findings have significant implications for designing effective retention programs. Although many programs rely on traditional academic factors to identify students at risk of dropping out, our findings suggest that this approach may be limited and may miss students who are at risk due to other, non-academic factors. Students who master course content but fail to develop adequate academic self-confidence, academic goals, institutional commitment, and social support and involvement may still be at risk of dropping out.

At the same time, of course, postsecondary institutions cannot and should not ignore the principal contribution that the academic factors make toward improvements in college retention and performance. Among the best precollege indicators of first-year college GPA is performance on standardized achievement tests (ACT Assessment) and high school GPA; and these indicators are readily available and easy to use.
Given the results of our study and review of relevant retention research, we recommend that colleges and universities:

1. **Determine their student characteristics and needs, set priorities among these areas of need, identify available resources, evaluate a variety of successful programs, and implement a formal, comprehensive retention program that best meets their institutional needs.**

2. **Take an integrated approach in their retention efforts that incorporates both academic and non-academic factors into the design and development of programs to create a socially inclusive and supportive academic environment that addresses the social, emotional, and academic needs of students.**

3. **Implement an early alert, assessment, and monitoring system based on HSGPA, ACT Assessment scores, course placement tests, first semester college GPA, socioeconomic information, attendance records, and non-academic information derived from formal college surveys and college student inventories to identify and build comprehensive profiles of students at risk of dropping out.**

4. **Determine the economic impact of their college retention programs and their time to degree completion rates through a cost-benefit analysis of student dropout, persistence, assessment procedures, and intervention strategies to enable informed decision-making with respect to types of interventions required—academic and non-academic, including remediation and financial support.**
INTRODUCTION

Globalization, with its accompanying socioeconomic, demographic, and technological changes, is having a significant impact on America’s workforce and its postsecondary institutions. To continue to successfully compete in the global economy, the United States will need an even more highly educated and skilled workforce than now exists, one that can adapt to the needs of a rapidly changing and more technically demanding work environment. Today, six out of every ten jobs require some postsecondary education and training (Carnevale & Desrochers, 2003). By 2012, the number of jobs requiring advanced skills will grow at twice the rate of those requiring only basic skills (U.S. Department of Labor, 2000; Hecker, 2004). To maintain the nation’s competitive economic edge, our workforce must have education and training beyond high school, and postsecondary institutions must attract and retain a growing number of students.

The demographic makeup of our country is also changing at a rapid pace. Hispanics are now the largest and fastest-growing minority population, constituting over 50% of all foreign-born Americans and 13% of the total United States population. And African Americans now also represent 13% of our population (U.S. Census Bureau, 2001). Projections indicate that within 30 years, Hispanics and African Americans will constitute over one-third of the American population (U.S. Census Bureau, 2002). Given these economic and demographic changes, more and more students, especially those from minority backgrounds, will need to be college educated if we are to maintain and advance our labor force.

As a country, America is more educated than ever. Yet, while high school graduation rates have increased, a high school diploma is no longer sufficient to secure employment in today’s knowledge-based economy. Because economic opportunity in the United States is increasingly based on postsecondary education, those who lack a college degree can face tremendous barriers to employment and success throughout their lives. In 2003, the average national unemployment rate for those 20-24 years of age at all education levels was 10%. Those with a bachelor’s degree had an average unemployment rate of 6% while those with a high school diploma or less had an average unemployment rate of 14%.1

---

1 These unpublished tabulations were derived from data in the Current Population Survey 2003 annual averages and provided by Steve Hipple, Economist with the U.S. Department of Labor, Bureau of Labor Statistics, Office of Current Employment Analysis.
Unemployment for African Americans and Hispanics is highest for those with a high school diploma or less, while racial differences in unemployment are statistically insignificant among all people holding bachelors’ degrees. In 2000, among those age 25 years old and over with a bachelor’s degree, the median annual income was over 60% greater than the median income of those with a high school diploma (U.S. Department of Education, 2001). Over a lifetime, the gap in earnings between those with a high school diploma and those with a bachelor’s degree or higher exceeds one million dollars (U.S. Department of Education, 2003).

Postsecondary education is the key to a stronger workforce for our nation and a better quality of life for our citizens. Better educated people clearly have a greater chance of obtaining secure jobs that provide opportunities for advancement, pay higher wages, and offer greater health and retirement benefits than do those who are less educated (Barfield & Beaulieu, 1999).

Although access to and participation in postsecondary education have increased, African Americans and Hispanics are less likely to attend and complete college than are Caucasian students. For example, in 1999-2000, four-year college enrollment among Caucasians was 46%, for African Americans, 40%, and for Hispanics, 34% (Harvey, 2003). However, only 55% of all undergraduates who began their studies at a given four-year institution in 1995-96 with the goal of a bachelor’s degree completed that degree within six years at that same institution (including 59% of Caucasians and 41% of both African Americans and Hispanics) (U.S. Department of Education, 2002). While getting students into college is important, retaining and helping them complete their degree work in no more than five or six years is just as vital to the economic and social health of the nation (Education Commission of the States, 2004).

To remain competitive in the global economy, we must enable a greater percentage of our college-age population to enroll in postsecondary education and complete a degree in a timely fashion. Although we have made significant advances in high school graduation rates, improvement still is needed in our college retention rates. In the face of changing workforce and educational requirements, the need to retain more students will only intensify. Low retention rates waste human talent and resources, jeopardize our nation’s economic future, and threaten the economic viability of our postsecondary institutions and our country’s democratic traditions.

---

2 63% of students from this cohort who began at a four-year institution with a goal of a bachelor’s degree completed that degree within six years at either their initial institution or at another institution (including 67% of Caucasians, 46% of African Americans, and 47% of Hispanics).
Given both workforce projections and rapidly changing demographics, our nation must continuously strive to increase the number of well-prepared college-educated students, especially minorities, who enter the labor force over the next few decades. Designing programs and policies that help students to prepare for and successfully complete postsecondary education is vital if our country is to remain a world economic leader.

The issue is twofold: attracting students to postsecondary education and retaining them so that they succeed and graduate. This report focuses on the latter—the need to enhance retention rates so that more of our students are prepared for the challenges of a dynamic and ever-expanding workplace. It explores a range of information that can help administrators and policymakers design programs to enable our diverse population of students to successfully complete postsecondary education.

Although colleges and universities strive to develop well-planned, comprehensive, and tailored retention programs, retention is dynamic and involves a complex interplay between academic and non-academic factors. Thus, to ensure student persistence and success, retention programs should address both academic and non-academic factors. This policy report provides information from our major technical study about the influence of non-academic factors, alone and combined with academic factors, on student retention and performance at four-year colleges and universities. It highlights examples of successful retention strategies and stresses the need to evaluate the bases on which retention policies and programs are created. It concludes by offering recommendations to help administrators and policymakers consider both academic and non-academic factors in the design and implementation of retention efforts.
We recently completed a major technical report on student retention that examined how non-academic factors, both alone and together with academic factors, influenced a student’s decision to stay in or leave college (Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004). This policy report examines the results of our technical study and discusses its implications for improving postsecondary retention programs.

Accurate and comprehensive information about students, their needs, and the factors that affect retention forms the basis of a successful retention program. Retention is typically associated with traditional measures of college readiness, such as high school grade point average (HSGPA), courses completed, rigor of the high school curriculum, and college admissions tests (e.g., the ACT Assessment) (ACT, 1997; Adelman, 1999; Kern, Fagley, & Miller, 1998; Robbins, Davenport, Anderson, Kliewer, Ingram, & Smith, 2003; Tinto, 1997). Once a student is in college, retention is also influenced by GPA (Cabrera, Nora, & Castaneda, 1993; Mangold, Bean, Adams, Schwab, & Lynch, 2003; O’Brien & Shedd, 2001). Ishitani and DesJardins (2002), for example, found that the higher a student’s first-year GPA, the less likely that student was to drop out of college.

Non-academic factors, typically assessed once the student is enrolled, can also affect retention (Braxton, 2000; Braxton & McClendon, 2002; Kennedy, Sheckley, & Kehrhahn, 2000; Mangold et al., 2003; O’Brien & Shedd, 2001; Wyckoff, 1998). Among these factors, for example, are: level of commitment to obtaining a degree, level of academic self-confidence, academic skills (time management skills, study skills, study habits), and level of academic and social integration into the institution.

The purpose of our study was to identify which academic and non-academic factors had the greatest effect on college retention and performance (GPA). Information from our study can provide the tools postsecondary institutions need to identify students at risk of dropping out and to help them determine the specific types of retention programs that should be implemented to improve retention.

---

3 Retention is the length of time a student remains enrolled at the first institution toward completion of a degree.

4 The relationship of the factors and combinations of factors to retention and performance (GPA) were measured and quantified using a multiple, step-wise regression analysis.
Identifying Academic and Non-Academic Factors

We conducted a comprehensive review of research on the topic of postsecondary retention (Robbins et al., 2004). More than 400 studies were identified, and 109 met the criteria for inclusion in this study. Those studies selected:

- Examined the relationship between non-academic and academic factors and postsecondary retention.
- Focused on full-time students enrolled in four-year U.S. postsecondary institutions.
- Used standardized measures and reported all of the pertinent study information.

We used a meta-analysis technique to identify which non-academic factors had the most salient relationship to postsecondary retention. We also identified the extent to which each factor predicted postsecondary retention. This procedure allowed the identification of those factors that were the best indicators of the risk for postsecondary dropout. We also identified the relative contributions of the more traditional academic predictors of college retention including socioeconomic status (SES), high school GPA, and postsecondary readiness scores (ACT Assessment scores). Once identified, the salient non-academic factors, together with the more traditional academic factors, were examined to see which were the best indicators of risk for dropping out.

Results

Nine broad categories of non-academic factors were constructed to both structure the analysis and report the findings (Table 1). The academic factors used in the analysis were HSGPA and ACT Assessment scores (Table 1). Colleges typically use HSGPA and ACT Assessment scores in their admissions process. This information is also used to identify students’ academic strengths and weaknesses for accurate placement purposes and to help students decide on appropriate programs of study.

Socioeconomic status was also analyzed because it has been shown to be a potential influence on college retention and performance (Table 1) (Hossler & Vesper, 1993; Pathways to College Network, 2004; Stage, 1988). SES provides additional student information that includes parents’ educational attainment and family income. Knowing financial status helps institutions determine whether a student needs to work in addition to receiving financial aid. Students having financial problems who need to work may be at a greater risk of dropping out of college than those who are more financially secure. For example, Ishitani and DesJardins (2002) found that students who receive financial aid generally have lower dropout rates than non-aided students.

---

5 Meta-analysis is a technique that combines statistical findings from many research studies and therefore produces information that has broader applicability than individual study findings.

6 Although research has shown that race and gender influence the relationship between the academic and non-academic factors and postsecondary retention, relatively few studies on race and gender satisfied the criteria for inclusion in this study.
<table>
<thead>
<tr>
<th>Non-Academic Factors</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic goals</td>
<td>Level of commitment to obtain a college degree.</td>
</tr>
<tr>
<td>Achievement motivation</td>
<td>Level of motivation to achieve success.</td>
</tr>
<tr>
<td>Academic self-confidence</td>
<td>Level of academic self-confidence (of being successful in the academic environment).</td>
</tr>
<tr>
<td>Academic-related skills</td>
<td>Time management skills, study skills, and study habits (taking notes, meeting deadlines, using information resources).</td>
</tr>
<tr>
<td>Contextual influences</td>
<td>The extent to which students receive financial aid, institution size and selectivity.</td>
</tr>
<tr>
<td>Institutional commitment</td>
<td>Level of confidence in and satisfaction with institutional choice.</td>
</tr>
<tr>
<td>Social support</td>
<td>Level of social support a student feels that the institution provides.</td>
</tr>
<tr>
<td>Social involvement</td>
<td>Extent to which a student feels connected to the college environment, peers, faculty, and others in college, and is involved in campus activities.</td>
</tr>
<tr>
<td>Academic Factors</td>
<td></td>
</tr>
<tr>
<td>ACT Assessment score</td>
<td>College preparedness measure in English, mathematics, reading, and science.</td>
</tr>
<tr>
<td>High school grade point average (HSGPA)</td>
<td>Cumulative grade point average student earned from all high school courses.</td>
</tr>
<tr>
<td>Other Factor</td>
<td></td>
</tr>
<tr>
<td>Socioeconomic status (SES)</td>
<td>Parents’ educational attainment and family income.</td>
</tr>
</tbody>
</table>
Our findings indicate that the non-academic factors of academic-related skills, academic self-confidence, academic goals, institutional commitment, social support, certain contextual influences (institutional selectivity and financial support), and social involvement all had a positive relationship to retention (Table 2). The strongest factors were academic-related skills, academic self-confidence, and academic goals. Institutional commitment, social support, the contextual influences of institutional selectivity and financial support, and social involvement had a moderate relationship. Achievement motivation and general self-concept had a weak relationship. The contextual influence of institutional size had no relationship to college retention.

Table 2
Strength of Relationships of Individual Academic and Non-Academic Factors with College Retention

<table>
<thead>
<tr>
<th>Academic Factors</th>
<th>Practical Strength</th>
<th>Numeric Value^b</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSGPA</td>
<td>Moderate</td>
<td>.246</td>
</tr>
<tr>
<td>ACT Assessment scores</td>
<td>Moderate</td>
<td>.124</td>
</tr>
<tr>
<td>Academic-related skills</td>
<td>Strong</td>
<td>.366</td>
</tr>
<tr>
<td>Academic self-confidence</td>
<td>Strong</td>
<td>.359</td>
</tr>
<tr>
<td>Academic goals</td>
<td>Strong</td>
<td>.340</td>
</tr>
<tr>
<td>Institutional commitment</td>
<td>Moderate</td>
<td>.262</td>
</tr>
<tr>
<td>Social support</td>
<td>Moderate</td>
<td>.257</td>
</tr>
<tr>
<td>Contextual influences</td>
<td>Moderate</td>
<td>.238</td>
</tr>
<tr>
<td>(Institutional selectivity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social involvement</td>
<td>Moderate</td>
<td>.216</td>
</tr>
<tr>
<td>Contextual influences</td>
<td>Moderate</td>
<td>.188</td>
</tr>
<tr>
<td>(Financial support)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achievement motivation</td>
<td>Weak</td>
<td>.066</td>
</tr>
<tr>
<td>General self-concept</td>
<td>Weak</td>
<td>.050</td>
</tr>
<tr>
<td><strong>Other Factor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>Moderate</td>
<td>.228</td>
</tr>
</tbody>
</table>

^7 The strength of the relationship refers to the usefulness of these factors in predicting college retention or performance.

The academic factors of HSGPA and ACT Assessment scores, and SES had a positive relationship to college retention, the strongest being HSGPA, followed by SES and ACT Assessment scores. The overall relationship to college retention was strongest when SES, HSGPA, and ACT Assessment scores were combined with institutional commitment, academic goals, social support, academic self-confidence, and social involvement (Table 3).

### Table 3
**Strength of Relationship of the Combination of Academic and Non-Academic Factors with College Retention**

<table>
<thead>
<tr>
<th>Combination of Academic and Non-Academic Factors</th>
<th>Strength of Relationship to College and Retention</th>
</tr>
</thead>
<tbody>
<tr>
<td>SES, HSGPA, and ACT Assessment scores combined with institutional commitment, academic goals, social support, academic self-confidence, and social involvement.</td>
<td>Strongest. This combination of factors explains 17% of the variability of college retention across students.</td>
</tr>
</tbody>
</table>

In terms of performance, the findings indicate that of the non-academic factors, academic self-confidence and achievement motivation had the strongest relationship to college GPA. The contextual influence of financial support, academic goals, academic-related skills, social involvement, institutional commitment, and social support had a moderate relationship to GPA, while general self-concept had a weak relationship. Of the contextual influences, neither institutional size nor selectivity had a relationship to GPA. Of the academic factors, both HSGPA and ACT Assessment scores had a stronger relationship to GPA than did SES, the strongest being HSGPA followed by ACT Assessment scores and SES (Table 4).

The overall relationship to college performance was strongest when ACT Assessment scores, HSGPA, and SES were combined with academic self-confidence and achievement motivation (Table 5).
Table 4
Strength of Relationships of Individual Academic and Non-Academic Factors with College GPA

<table>
<thead>
<tr>
<th>Academic Factors</th>
<th>Practical Strength</th>
<th>Numeric Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSGPA</td>
<td>Strong</td>
<td>.448</td>
</tr>
<tr>
<td>ACT Assessment scores</td>
<td>Strong</td>
<td>.388</td>
</tr>
<tr>
<td><strong>Non-Academic Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic self-confidence</td>
<td>Strong</td>
<td>.496</td>
</tr>
<tr>
<td>Achievement motivation</td>
<td>Strong</td>
<td>.303</td>
</tr>
<tr>
<td>Contextual influences (Financial support)</td>
<td>Moderate</td>
<td>.201</td>
</tr>
<tr>
<td>Academic goals</td>
<td>Moderate</td>
<td>.179</td>
</tr>
<tr>
<td>Academic-related skills</td>
<td>Moderate</td>
<td>.159</td>
</tr>
<tr>
<td>Social involvement</td>
<td>Moderate</td>
<td>.141</td>
</tr>
<tr>
<td>Institutional commitment</td>
<td>Moderate</td>
<td>.120</td>
</tr>
<tr>
<td>Social support</td>
<td>Moderate</td>
<td>.109</td>
</tr>
<tr>
<td>General self-concept</td>
<td>Weak</td>
<td>.046</td>
</tr>
<tr>
<td><strong>Other Factor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>Moderate</td>
<td>.155</td>
</tr>
</tbody>
</table>

Table 5
Strength of Relationship of the Combination of Academic and Non-Academic Factors with College GPA

<table>
<thead>
<tr>
<th>Combination of Academic and Non-Academic Factors</th>
<th>Strength of Relationship to College GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT Assessment scores, HSGPA, and SES combined with academic self-confidence and achievement motivation.</td>
<td>Strongest. This combination of factors explains 26% of the variability of college GPA across students.</td>
</tr>
</tbody>
</table>
Conclusions

Our study clearly illustrates that retention and performance are two very different college outcome processes. We explain how the relationship of various academic and non-academic factors to each of these two outcomes changes depending on the outcome. For example, HSGPA and academic-related skills and goals have a stronger relationship to retention than to performance, and ACT Assessment scores and academic self-confidence and achievement motivation have a stronger relationship to performance than to retention. These findings demonstrate how important it is to understand the different effects that academic and non-academic factors have on college retention and performance.

We believe that our results strongly support the use of both categories when trying to improve college success as we highlight the key role that both academic and non-academic factors together have in college retention and performance. Our results demonstrate that the overall relationship to each college outcome (i.e., retention and performance) was stronger when these factors were combined.

Our findings have significant implications for designing effective retention programs. Although many programs rely on traditional academic factors to identify students at risk of dropping out, our findings suggest that this approach may be limited and may miss students who are at risk due to other, non-academic factors. Furthermore, the findings suggest that retention programs that focus primarily on helping students master course content alone may only address immediate, rather than longer-term deficiencies. Students who master course content but fail to develop adequate academic self-confidence, academic goals, institutional commitment, achievement motivation, and social support and involvement may still be at risk of dropping out.

At the same time, of course, postsecondary institutions cannot and should not ignore the principal contribution that academic factors make toward improvements in college retention and performance. Among the best precollege indicators of first-year college GPA is performance on standardized achievement tests (ACT Assessment) and high school GPA; and these indicators are readily available and easy to use.

Our study highlights the need to reevaluate educational retention models such that they incorporate the use of both academic and non-academic factors. College retention and performance are two different processes affected by different factors and combinations of factors. Recognition of these differences and the factors that affect them are a step toward improvement in college retention and performance.
RETENTION STRATEGIES

Consonant with our study, this section explores various successful strategies employed at four-year postsecondary institutions to improve college retention. Some focus on academic areas, such as providing tutorials; others on non-academic areas, such as developing social support groups to increase confidence and commitment. And, as supported by our study, some address combinations of academic and non-academic needs of students in an integrative manner, such as combining tutoring with faculty-mentors and peer support (Hurd, 2000; Ramirez, 1997; Tinto, 1997).

Before any retention effort can begin, postsecondary institutions must devise ways to identify students who need help and assess the kinds of help they need. The Pathways to College Network (2004) recommends development of methods to identify underprepared students early (precollege enrollment or within the first few weeks of the college year), to accelerate their learning and to monitor their progress over time.

Postsecondary institutions often use student background information, such as HSGPA, ACT Assessment scores, and SES as an early warning and alert system to identify students and design programs to meet particular needs. For example, first-year students entering college with low HSGPAs and/or low ACT scores can be directed into special programs that focus on improving their academic performance—such as skills workshops, academic tutorials, or engaging a tutor (Johnson, 2000).

Academic Factors

Retention programs that focus on improving academic performance are based on models such as Tinto’s Theory of Student Departure (1975, 1993) and Bean’s Student Attrition Model (1980, 1985). Tinto and Bean link college retention to both past and present academic performance (Cabrera, Castaneda, Nora, & Hengstler, 1992; Cabrera et al., 1993). Tinto, Bean, and others (Cabrera et al., 1992; Cabrera et al., 1993) hypothesize that college performance influences a student’s decision to leave or stay in school.

Tinto believes that precollege education interacts with and directly influences a student’s initial commitment to the institution and to its academic goals. A student’s initial level of commitment is thought to affect how integrated he or she becomes into the social and academic life of the institution. This level of integration directly affects the decision to remain in college or depart.
Tinto also believes that social interaction has a positive effect on grade performance when students establish friendships with persons who have strong academic orientations. Furthermore, a student's initial level of goal commitment is thought to influence academic integration, which in turn affects subsequent goal commitment. Tinto explains that a higher degree of integration into the social and academic environments contributes to a greater degree of institutional and goal commitment and therefore to lower dropout and higher completion rates.

These findings support our study results that suggest that HSGPA and institutional commitment are related to college retention and that HSGPA and ACT Assessment scores are related to college performance.

Academically focused retention programs are based on the assumption that a student's academic competence in such areas as reading, writing, and mathematics is related to retention. Therefore, the higher a student's academic competence, the better the performance and the greater the likelihood of staying in school (Adelman, 1999; Bean, 1980, 1983, 1985; Fletcher, 1998; Ishitani & DesJardins, 2002; Tinto, 1975, 1997).

Postsecondary institutions, then, often focus attention on methods that improve first-year GPA as a way to motivate students to perform better academically and increase their likelihood of staying in college. These methods are based on the premise that an improved GPA will decrease the likelihood of dropping out. A recent longitudinal study by Ishitani and DesJardins (2002) supports this belief. They found that the higher a student's first-year GPA, the less likely that student was to drop out of college. Using results from assessments (e.g., in-class subject exams), essays, seminar presentations, and class participation, monitoring student performance, and observing attendance patterns can help institutions identify those students who may not be performing at acceptable levels and recommend intervention strategies.

One such widely applied, academically focused program is Supplemental Instruction (SI). SI is a unique form of academic assistance designed to help students in historically difficult college courses to master course content while they develop and integrate effective learning and study strategies applicable to that course. SI targets first- and second-year high-risk courses, rather than high-risk students (Ramirez, 1997). Studies indicate that across institutional types, disciplines, precollege student preparation levels, and ethnic groups, SI participants consistently outperform their peers who attempt the same courses on their own (Congos & Schoeps, 2003; Hensen & Shelley, 2003; Ogden, Thompson, & Russell, 2003; Ramirez, 1997).
SI focuses on both process and content. SI sessions are structured to maximize active student involvement with the course material. Learning and study strategies, such as note-taking, graphic organization, questioning techniques, vocabulary acquisition, and test prediction and preparation are integrated into the course content. Students learn to verbalize what they do understand and clarify what they do not understand. The SI leader is a model student who provides an example of how successful students think about and process the course content. The leader facilitates study sessions, but does not re-lecture or introduce new material. Although the SI leader guides students in using their own notes and reading materials to help clarify course concepts, students assume responsibility for the structure by creating informal quizzes and note cards, brainstorming, designing problem-solving activities, or predicting test questions.

Non-Academic Factors

As our study shows, college retention and performance are also influenced by non-academic factors, such as academic self-confidence, achievement motivation, institutional commitment, and social support. Contemporary motivational theories have emerged as strong explanatory models of academic achievement and other performance behavior (Robbins et al., 2003). Results of several reviews of the motivational literature (Covington, 2000; Dweck, 1999; Eccles & Wigfield, 2002) highlight the need to integrate non-academic and academic models.

To accurately identify students for retention programs, colleges and universities need information on the non-academic factors that relate to college retention and performance (Gore, Leuwerke, & Turley, in press; Schnell & Doetkott, 2003; Solberg, Gusavac, Hamann, Felch, Johnson, Lamborn, & Torres, 1998; Ting, 1997; Tracey & Sedlacek, 1984, 1989). For example, findings from our study link a student's levels of academic self-confidence, goal and institutional commitment, social support and involvement, and motivation to college retention and/or performance. It follows that information on these factors can enable postsecondary institutions to identify potential students for retention programs and the areas in need of attention.

Postsecondary institutions often use formal college surveys, such as Your First College Year Survey questionnaire, or first-year college experience orientation programs, or student profiles (ACT Assessment Student Profile Section), and inventories to identify several of these factors (Barefoot, Fidler, Gardner, Moore, & Roberts, 1999; Colton, Connor, Shultz, & Easter, 1999; Martin, 1998; Noel, Levitz, & Saluri, 1985; Schnell & Doetkott, 2003; Ting, 1997; Tracey & Sedlacek, 1984). Once identified, students can be directed into specific retention programs that focus on improving these factors. For example, to help build academic self-confidence and motivation, students may receive academic counseling and advising. To increase levels of social support and involvement, they may be encouraged to participate in social support groups, such as campus big brothers or big sisters and student organizations (Braxton & McClendon, 2002; Kennedy et al., 2000; Mangold et al., 2003; Padgett & Reid, 2003).
Orientation programs can play a pivotal role in students’ transitions from high school or work into college (Braxton, Hirschy, & McClendon, 2004; Colton et al., 1999, Fidler, 1991; Tinto, 1993). They address students’ preparedness, their identification, and connections to the academic and social cultures of the institution, and their academic goals and aspirations (Fidler, 1991; Tinto, 1993). According to Holmes, Ebbers, Robinson, and Mugenda (2000), orientation programs can help reinforce to students that they matter to the institution and will be supported as they proceed toward completion of their degrees. This validation connects the student to the institution and helps build institutional and goal commitment as well as social support networks. Holmes et al. suggest that components of the orientation program should introduce students to faculty, staff, other students, extracurricular opportunities, campus-wide grading policies, library services, career planning services (to assist them in identifying appropriate degree options), and academic support services.

In an interview with Fidler, Swanson (2003) found that increasingly more colleges and universities are focusing on the first-year as a time to effectively address retention issues (Colton et al., 1999; Schnell, Seashore Louis, & Doetkott, 2003). Tinto (1993) believes that first-year programming has significant impact on academic achievement, academic persistence, and graduation for its participants. The Pathways to College Network (2004) recommends that postsecondary institutions focus on first-year students by providing comprehensive services, such as integrating academic support with teaching and learning, a strategy that may include tutoring and study skills instruction together with social activities and personal counseling.

In a longitudinal study examining the effects of a first-year seminar program on graduation rates, Schnell et al. (2003) found that first-year students who participated in the seminar graduated at a higher rate than the matched group of students who did not. They also found that among those participants who were admitted to postsecondary institutions with low ACT Assessment scores and HSGPAs, graduation rates were also better than those of matched non-participants. These results suggest that a student’s entering characteristics play an important role in persistence to graduation, but potential for success can be increased with the addition of a first-year program. Such a program might include a first-year seminar that focuses on learning skills and techniques used by successful college students, including time management, test taking, note taking, and stress management. Their findings also support our study results that link precollege academic performance (HSGPA), ACT Assessment scores, and non-academic factors (e.g., academic-related skills, self-confidence, academic goals, commitment, and social support) to retention.
Combining Academic and Non-Academic Factors

Findings from our study suggest that retention programs can be improved if they integrate both academic and non-academic factors. For example, the majority of non-academic and both of the academic factors (HSGPA, ACT Assessment scores), plus SES, are related to college retention. However, the strongest relationship to retention occurs when all of the academic and the key non-academic factors are combined. It follows that institutions might want to consider these factors collectively and in an integrative fashion as they develop student retention programs.

As academic and social integration increases, so does the likelihood of student persistence (Asera, 1998; O’Brien & Shedl, 2001; Tucker, 1999). Nora (1993) defines academic integration as the development of a strong affiliation with the college academic environment both in and out of class. It may be developed both through learning-centered interaction with faculty, academic peers and staff, and through informal social contact with faculty involvement in student organizations (Braxton & McClendon, 2002). Studies by the Pathways to College Network (2004) recommend the integration of academic support with teaching and learning, which can include tutoring and study-skills instruction. Learning-centered interactions focus on improving both the academic factors and non-academic factors that relate to college retention and performance, such as improving academic competence as well as increasing levels of academic self-confidence and motivation.

Despite poor academic performance, many students persist because of their successful social integration and feelings of fit with their institution (Kennedy et al., 2000). Studies suggest that activities or programs that bring together students facilitate the development of social and learning communities and foster a shared consensus regarding institutional goals that promote persistence (Mangold et al., 2003). Courses and programs that build mentoring and support groups into their designs help improve levels of student involvement, motivation, and academic self-confidence and, in turn, increase levels of institutional commitment and engagement (Mangold et al., 2003; Padgett & Reid, 2003). Such findings serve as the basis of many efforts to improve retention, such as faculty-student mentoring, peer tutoring, academic counseling, and advising programs (Chenoweth, 1999; Roach, 1997, 1999; Rodriguez, 1997).
One of the primary factors affecting college retention is the quality of interaction a student has with a concerned person on campus (Habley, 2004). Academic advising is one of the few ways in which a college can formally implement this type of interaction. A recent survey of college officials conducted by ACT, in cooperation with the National Academic Advising Association (NACADA), suggests that many postsecondary institutions are underutilizing and poorly administering their academic advising programs (Habley, 2004). Specifically, survey results indicate that many colleges failed to capitalize on the benefits of quality advising, particularly, when it came to helping students stay in school. Few colleges had a formal, structured program in place to effectively promote advising as a way to increase retention.

Along with structured academic advising programs, retention efforts can also involve the implementation of special registration strategies that combine both an academic and non-academic focus. For example, with block registration, students enroll in the same courses and attend classes as a cohort. This special type of registration is based on the belief that by attending classes together, students will be more likely to form peer networks. Universities initiate a first-year student block registration and mentoring program to strengthen social support and integration into the academic community, a strategy that can lead to higher rates of persistence (Mangold et al., 2003).

In many of these programs, mentors are recruited from several departments and attend preprogram workshops that address problems and offer possible solutions for many social and personal challenges that new first-year students experience, such as alcohol and drug abuse, sexual freedom, loneliness, depression, and management of finances. Mentors can also provide students with informal social outings, such as attending institutional gatherings, lectures, shows, and athletic events. In addition, the mentors work with the students on academic-related skills and resources that can include the use of the library and the computer system.

**Special Populations**

As students become more integrated into the academic and social fabric of the campus community, their levels of commitment, academic self-confidence, and motivation increase. This in turn influences their levels of persistence. Social integration is especially important for students who are first-generation college attendees, have limited English proficiency, or are from a cultural or minority background. Many of the retention programs aimed specifically at minority and female students use a combination of academic and non-academic retention strategies. Studies suggest that faculty-student and peer-interaction programs such as mentoring, counseling, and advising have had
positive effects on retention of minority and female students, especially when faculty are representative of these special populations (Flowers, 1998; Good, Halpin, & Halpin, 2002; Huffman, 2001; Hurte, 2002; Landry, 2002; Mangold et al., 2003; Roach, 1997, 1999; Rodriguez, 1997). Students need to see themselves reflected in the academic environment around them—in the faculty, staff, and faces of their peers—to avoid feelings of marginality that can undermine success (Tatum, 1997, 2004).

Several universities assign first-year students to a big brother or big sister, such as an upper-classman or a faculty member who provides academic support, peer tutoring, and instruction in study techniques. Studies indicate that these informal and formal interactions have a positive influence on student commitment and increase levels of persistence (Wyckoff, 1998). Wyckoff believes that faculty can serve as socializing agents and that interactions outside of the classroom exert a direct influence on students’ development and competence and, therefore, influence the intent to remain in college. Such interactions can lead to greater institutional commitment and increased social and academic integration.

Studies suggest that retention of special populations may improve if faculty express their sincere belief that all students are capable of learning and can be taught to learn (Flowers 1998; Good et al., 2002; Rendon, 1992). Acknowledging students and creating an environment of respect is something educators can control. This behavior can possibly motivate students enough to remain enrolled in college. Creating a classroom environment that enhances gender and racial diversity allows particular groups of students to feel comfortable and supported within the classroom and the college.

In her studies on retention at Historically Black Colleges and Universities, Chenoweth (1999) examined the positive effects that faculty and student interaction had on student persistence. These schools recruit faculty members to be advisors who meet with first-year students on academic probation, socialize with them, and help them address issues of organization. Faculty members counsel and monitor students, and meet weekly to review grades and gain feedback on student progress. They may advise those not performing well to seek further academic and non-academic assistance, such as tutorials or counseling.

Multicultural centers can provide minority students with a place to meet, retain pride in culture, and share common interests while they receive academic support through counseling, tutoring, and mentoring (Collinson, 1999; Rinn, 1995; Rodriguez, 1997). Through such centers, postsecondary institutions can provide academic and social activities and personal counseling that affirm the cultural, linguistic, and social backgrounds of minority students (Pathways to College Network, 2004). These centers are an important way for students to connect and gain social support through interaction with staff who act as mentors and with other students with whom they share a sense of identity (Landry, 2002).
Gloria and Robinson-Kurpius (2001) found that for American Indian undergraduates, interventions that increase their social support, level of comfort in the university environment, and self-confidence were associated with an increase in their decisions to stay in college. Studies by Fries-Britt and Turner (2001, 2002) illustrate the importance among African American students on predominantly Caucasian campuses to feel socially supported and integrated into their institution. Ting and Robinson (1998) found that for Caucasian women, social involvement enhanced their academic performance. A study by Sedlacek and Adams-Gaston (1992) revealed that the academic success of student athletes was strongly influenced by their levels of social support and self-confidence.

Specific colleges within the larger university community can also undertake retention efforts. For example, they can initiate special programs aimed at specific populations of students, such as minority engineering students or other underrepresented populations in a given discipline, to meet both their academic and non-academic needs (Good et al., 2002). Universities can design programs comprised of different components, such as tutorials held informally, critical thinking workshops, and interactive learning laboratories. Students can be paired with a faculty member or upper-classman who acts as a mentor. In a study by Good et al. (2002), participants in one such program reported feeling a sense of connection to the engineering community while non-participants did not.

Universities with relatively large populations of specific student populations can implement special academic and retention programs aimed at increasing their academic and social integration into the university and improving their rates of retention (Belgarde & LoRe, 2003). These programs can provide a variety of services, such as computer assistance, research and library resources, academic advisement, financial information, lectures and symposia, social events, and centers that students can regard as homes away from home.

Another part of the social safety net for minority students is summer transition programs that provide remediation work and an introduction to college (Landry, 2002). Summer transition programs often require students to take a specific set of courses the summer before their first year and some universities require these students to live on campus in dorms where they regularly interact with staff and upper-classmen. Students get a sense of what is expected of them in college and develop friendship bonds that may continue throughout their college years (Rinn, 1995; Rodriguez, 1997).

The value of retention programs that combine academic and non-academic factors has been supported by the federal government through its College Completion Challenge Grants. These grants support the development of student services that introduce incoming first-year students to college life and provide remediation classes, peer tutoring, and mentoring by faculty or upper-class students, activities to secure financial assistance, assistance with course selection, and cultural activities (Dervarics & Roach, 2000). They are aimed primarily at postsecondary institutions to serve high-risk, minority, first-generation, and low-income students.
Summary

To increase the likelihood of staying in school, academically focused programs aim at improving a student's academic performance. Non-academic factors such as academic self-confidence, achievement motivation, goal and institutional commitment, and social support and involvement also influence college outcomes and are often the principal components of college retention programs. Institutions often use previous and current achievement measures to identify students early who may be at risk of dropping out. To identify non-academic factors, colleges and universities rely on formal college surveys, student inventories and profiles such as the ACT Assessment Student Profile Section.

Programs that focus on improving non-academic areas include orientation programs, first-year seminars, social support groups, and student organizations. Academically focused programs such as Supplemental Instruction are designed to help students master course content while they develop and integrate effective learning and study strategies applicable to a particular course. Integrated retention programs are based on information derived from both academic and non-academic sources and focus on enhancement in both areas. Student integration into the campus community increases the likelihood of improved academic performance through enhancement of a student’s academic self-confidence, achievement motivation, academic-related skills, and goal and institutional commitment. This in turn positively influences a student’s decision to remain in college.

It appears that much of the literature on special populations and college retention suggests that special populations may be affected differently depending on the factors considered. For example, social support and integration into predominantly Caucasian institutions is important for African American students while for American Indians it is social support and self-confidence.

This section explored various retention programs developed and implemented by postsecondary institutions. Some focus on improving a student's academic deficiencies while others on supporting non-academic needs. However, supported by our study, the most successful programs use strategies that improve both academic and non-academic areas in an integrative way.
RECOMMENDATIONS

The findings of our study have clear implications for policymakers, administrators, and educators as they try to understand, plan, and develop programs specifically aimed at improving college retention. Our results suggest that both academic and non-academic factors relate to college retention and performance. While certain factors within each category relate to retention and performance, the relationships are strongest when these factors are combined in specific ways. To be successful, then, retention efforts must address both academic and non-academic factors. Furthermore, no one intervention strategy is likely to meet the needs of all, since students have different reasons for leaving college and are likely to respond in different ways to institutional programs. In addition, institutions have their own unique set of characteristics, requiring them to design retention programs according to their specific needs and available resources.

This policy report recommends that educational administrators and policymakers take an integrative approach to design and develop programs and policies that address both the academic and non-academic factors that relate to college retention and performance, and that recognize differences among student populations. The most successful retention strategies often use an early alert, assessment, and monitoring system based on academic factors such as high school and/or college GPA, test scores (ACT Assessment, tests in college courses), and other performance indicators such as completed assignments and class attendance. These programs integrate academic and non-academic factors as they focus on strengthening students’ formal and informal contacts with the institution. They provide academic advising and workshops in study skills, time management, critical thinking, planning, assertiveness, library use, and cultural awareness. They aim to increase levels of academic competence and confidence, motivation, and goal and institutional commitment through the creation of socially supportive and inclusive academic environments.

Given the results of our study and review of relevant retention research, we recommend that colleges and universities:
1. **Determine their student characteristics and needs, set priorities among these areas of need, identify available resources, evaluate a variety of successful programs, and implement a formal, comprehensive retention program that best meets their institutional needs.**

Retention affects the entire campus community. All members of the college community need to be committed to the welfare of the student and have a stake in the success of policies and practices that reduce student departure (Braxton et al., 2004). Design, development, and implementation of a successful retention program entail identifying areas of need, evaluating resources and potential strategies, setting priorities, planning program execution, developing an effective ongoing evaluation process, disseminating evaluation results, and making program modifications as warranted (Karp & Logue, 2002; Pathways to College Network, 2004).

The steps in this process can include:

- Acknowledgment by the institution that improved retention is desirable.
- Assembling comprehensive information about students, derived from multiple sources including ACT student records as well as other institutional student records, surveys, questionnaires, etc., to determine the academic and non-academic needs of individual students.
- Assessing the availability of retention resources with respect to the needs to be addressed.
- Reviewing and evaluating the efficacy of potential retention programs.
- Putting areas of retention need in priority order (e.g., first-year orientation, summer transition programs, tutorials, skills-related workshops, mentoring).
- Planning program execution.
- Designing and implementing a retention program evaluation process.
- Implementing the program.
- Widely disseminating results from the program evaluation.
- Modifying the program as warranted.

The campus community must be involved in a coordinated, systemic, and comprehensive effort to develop and maintain retention programs that address both academic and non-academic factors in an integrated manner (Holmes et al., 2000; Pathways to College Network, 2004). Such an effort may start with the creation of a college-wide retention committee to oversee the retention efforts and be responsible for ongoing appraisal and maintenance (Karp & Logue, 2002). It would coordinate efforts and facilitate cross-divisional cooperation to enhance communication and accountability by ensuring that all appropriate areas of the campus community are involved in the retention effort. The committee would be responsible for early outreach and continuous evaluation of the effectiveness of their efforts and recommend changes as warranted.
2. **Take an integrated approach in their retention efforts that incorporates both academic and non-academic factors into the design and development of programs to create a socially inclusive and supportive academic environment that addresses the social, emotional, and academic needs of students.**

Academic information, such as assessment results and GPA, enables postsecondary institutions to identify academic areas that may need special attention. The better a student’s academic competence, the better the performance, and the greater the likelihood of retention. The non-academic component of any retention program must address a variety of social and personal issues. Mangold et al. (2003) suggest that activities or programs that bring together students to facilitate the development of social and learning communities and foster a shared consensus regarding institutional goals will promote persistence. Such approaches are the basis of mentoring, special advising programs, block registration, and orientation programs aimed at improving retention (Chenoweth, 1999; Roach, 1997; Rodriguez, 1997).

Studies indicate that first-year orientation programs are a promising retention strategy that integrates both academic and non-academic factors to create a socially inclusive and supportive environment that addresses students’ academic and non-academic needs (Colton et al., 1999; Fidler, 1991; Tinto, 1993). Critical components of successful first-year orientation programs include academic advising, orientation, academic support systems, tutoring, learning assistance programs, first-year seminars, skills development programs, mentoring programs, and placement testing (Braxton et al., 2004; Colton et al., 1999; Schnell et al., 2003). These programs should provide opportunities for first-year students to interact with their peers and faculty through a variety of extracurricular activities, such as intramural athletics, ethno-cultural clubs, and cultural and social events (Braxton et al., 2004).

Social support is especially important to students who are away from home for the first time, are from an ethnic or minority background, have limited English proficiency, are first-generation college attendees, have low socioeconomic status, or face other obstacles that impede their ability to fit in socially (Pathways to College Network, 2004). Courses and programs that include mentoring and support groups can help improve levels of social involvement and academic self-confidence, which in turn can increase levels of institutional commitment and engagement (Mangold et al., 2003; Padgett & Reid, 2003).

Integrating academic and non-academic information enables colleges to design and implement courses and programs that address both types of needs. Such programs may include first-year orientation programs, academic advising and tutorials, workshops in study skills, time management skills, critical thinking, planning, assertiveness training, library use, and cultural awareness. These programs should aim to increase levels of academic self-confidence, achievement motivation, goal and institutional commitment, and social involvement and support. These programs should strengthen ties between faculty and students and between students and their peers, through the creation of a socially inclusive and supportive academic environment.
3. Implement an early alert, assessment, and monitoring system based on HSGPA, ACT Assessment scores, course placement tests, first semester college GPA, socioeconomic information, attendance records, and non-academic information derived from formal college surveys and college student inventories to identify and build comprehensive profiles of students at risk of dropping out.

Colleges and universities can use various types of academic and non-academic information to develop and design their retention programs. Effective retention programs use assessment data to diagnose student needs, track progress, and ensure that all students are being reached (Pathways to College Network, 2004). For example, HSGPA and ACT Assessment scores and course placement tests help colleges and universities design and develop their admissions policies, orientation programs, student placement, and a variety of retention programs, such as academic advising, mentoring, and student personnel services (ACT, 2002). Non-academic information may be derived from formal college surveys such as Your First College Year Survey questionnaire, first-year college experience orientation programs, and college student inventories and profiles, such as the ACT Assessment Student Profile Section.

Attendance records can also alert faculty and student support services staff to potential problems. Students who fail to come to class may be having academic, financial, or personal problems. By monitoring academic progress through assessments and attendance records, faculty may be able to address problems early in the academic year.

Academic and non-academic information enables colleges and universities to develop and maintain a comprehensive student profile that can serve as both a performance indicator and a way to identify potential dropouts. This information alerts institutions to students who may have potential difficulties and enables them to direct these students into retention programs before their risk of dropping out increases (Pathways to College Network, 2004).

Using the profile, institutions can develop programs tailor-made to meet the specific needs of students (Good et al., 2002) as well as monitor and improve the overall effectiveness of retention programs. To address potential problems earlier rather than later in the academic year, this profile should be continually updated and reviewed by first-year orientation and other retention program staff, and shared with individual students on a regular basis. At the end of the academic year, such a profile provides a comprehensive review of both the individual student’s progress and the overall effectiveness of retention programs. It further allows staff to identify areas for improvement such as expanding the use of tutorials, mentoring programs, skills workshops, or social support services.
4. **Determine the economic impact of their college retention programs and their time to degree completion rates through a cost-benefit analysis of student dropout, persistence, assessment procedures, and intervention strategies to enable informed decision-making with respect to types of interventions required—academic and non-academic, including remediation and financial support.**

To make informed decisions, postsecondary institutions need to assess the costs of student dropout and time to degree completion with the benefits of improved student retention and graduation rates to determine the cost effectiveness of retention strategies, assessment procedures, and interventions—including remediation and financial support. Additionally, resource availability and allocation must be assessed with respect to the costs of program provision and the benefits accrued from improved college graduation rates. And as our study suggests, retention efforts must be collaborative and coordinated involving the entire academic community to ensure that student progress is actively monitored, resources are efficiently allocated, and programs are meeting their desired goals.

Colleges and universities have a responsibility to their students to ensure that these individuals receive the best quality education and educational experience possible. Unfortunately, statistics show that college retention rates, especially among minorities, need considerable improvement. Institutions that fail to maintain high graduation rates not only jeopardize their reputations, but may do a long-term disservice to those students who drop out. Students who fail to earn a college degree are more likely to face economic hardships including longer periods of unemployment and fewer job opportunities. Clearly, quality of life expectations can be diminished with the failure to persist through to postsecondary completion.

When too many students are not completing their degrees, the nation as a whole has a smaller pool of qualified people able to meet the demands of a highly complex, technological work environment. By 2012, our national dependence on a highly educated labor force will only intensify as the pace of technological advancement quickens and the number of jobs requiring advanced skills doubles. Therefore, it is imperative that postsecondary institutions make concerted efforts to ensure that all students graduate; and effective retention programs are a primary means to that end.
BIBLIOGRAPHY


Rendon, L. (1992). From the barrio to the academy: Revelations of a Mexican American “scholarship girl.” New Directions for Community College, 80, 55-64.


ACT Policy Reports

Schools Involving Parents in Early Postsecondary Planning
George L. Wimberly
Richard J. Noeth
2004

Evaluating the Effectiveness of Technology in Our Schools
Richard J. Noeth
Boris B. Volkov
2004

Maintaining a Strong Engineering Workforce
Richard J. Noeth
Ty Cruce
Matt T. Harmston
2003

School Relationships Foster Success for African American Students
George L. Wimberly
2002

The Promise of Baldrige for K-12 Education
MaryBeth Walpole
Richard J. Noeth
2002

Creating Seamless Educational Transitions for Urban African American and Hispanic Students
With the Cooperation of the Council of the Great City Schools
Richard J. Noeth
George L. Wimberly
2002
Meet the Students:
Finding Common Ground between
Student and Institutional Goals

Mark Taylor

There are gaps between the traits, expectations, and desired outcomes from their college experience for students, especially our traditional-aged students from Generation NeXt, and what higher education institutions hope for the academic behaviors and outcomes of these same students to be. These differences in perspective and goals affect student and institutional success and outcomes. Suggestions for closing the gap for improved student and institutional outcomes will be offered.

With all due respect to the student-centered, learning, outcome, and accountability improvement initiatives in place at most colleges and universities, there remain serious issues in student persistence and completion, meaningful learning, and workplace readiness at many schools (Bok 2006; Hersh and Merrow 2005, Levine 2005a,b; Newman, Couturier, and Scurry 2004). Some of the reasons for these ongoing concerns may be traced to the gap between students’ traits, expectations, and short- and long-term goals, and the expectations, practices, and desired outcomes for students of the rest of the institution. For maximum student benefit, which is in fact institutional success and contributes to accountability and outcome measures, it might behoove everyone to be working toward shared, understood goals with shared process expectations. This session and paper will attempt to explicate these gaps and issues between students and school and offer some suggestions on improving instruction and services in ways that both align goals and improve outcomes.

The modal traits of the young people of Generation NeXt, born after about 1980, with appropriate caveats against overgeneralization, have been described by this writer and others (Kearns and Shirley 2006; Levine 2005a,b; Taylor 2003, 2004a,b, 2005, 2006a,b; Twenge 2006). The predictable product of postmodern social influences where opinion and consumer interest have tended to have more impact on value formation and day-to-day decision making than traditional values, including religious values and science, these uber-consumers tend to feel a sense of entitlement, want to negotiate, and will protest vigorously (or leave) if their expectations of ease and instant response, excellent service, and painless success are not met. Generation NeXt has little evidence that it is not all about them. (Durden 2005; Lyotard 1988; McAllister 1999; Sacks 1996; Taylor 2003; Twenge 2006) Generation NeXters themselves report that, for people their age, the most important life goals are fortune and fame, that they are disengaged from civic life and the political process (focusing instead on personal or internal issues), and that they are more likely to have casual sex, resort to violence to solve conflicts, use drugs, and binge drink (Pew 2007).

Goals, Persistence, and Completion Gaps

Even in areas where there should be high congruence between students and institutions, like the need for students to stay in school and reach academic goals, gaps appear. Both students and institutions want degrees to be awarded, though ideas about what happens between admission and graduation are miles apart, and the operational definition of education as a construct of processes and outcomes is very different to postmodern consumer students and more developmentally oriented faculty (Hersh and Merrow 2005; Sacks 1996; Taylor 2005; Twenge 2006).

For all constituencies in higher education, student persistence and degree completion are a major goal. Unfortunately, 45 percent of bachelor’s degree-seeking students fail to earn degrees in six years, and 70 percent of two-year students fail to do so in three years (Tinto 1993; U.S. Department of Education 2007). Also according to the U.S. Department of Education, fully 30 percent of students do not return for a second year of college. While student attrition is the result of many factors, dropout and completion failure rates are significant measures of school success.

Attrition may result from gaps between our educational beliefs, expectations, and services and the beliefs and expectations, and behaviors of our students. These differences were highlighted in My Freshman Year by anthropologist Kathy Small (aka Rebekah Nathan 2005) who attended classes and lived in a coed first-year residence hall for an academic year. The time pressures, difficulty in establishing community, and disconnect between what we think we offer academically and developmentally and what students actually want or receive were dramatically illustrated. Academic disengagement—the disconnect between students and college—was also discussed by Bauerlein (2005), who describes students as isolated within their social circuit and cut off from academic life. These writers describe a critical gap between the most fundamental elements of what institutions offer educationally and the experiences of students.
The view of students as customers is rebarbative to many in higher education, especially faculty members. However, students and many others on campus accept customer service as a fundamental dynamic of higher education. Some members of the faculty may question whether the ability and authority to set agendas and goals can appropriately be assigned to students. Where students may prefer to be delivered an education by amassing credits and earning degrees with as little effort as necessary, faculty members tend to expect greater personal investment by students in the form of real interest, time, and energy expended and the acceptance of faculty outcome goals (however vaguely identified those goals may be).

Students’ instant gratification expectations, short event horizons, high self-esteem, and concomitant defensiveness to criticism explain many persistence and retention issues. Record high school grade inflation in times of record low time spent studying may logically lead students to expect academic success with little effort in college. While fewer than 15 percent of first-year students report having studied more than ten hours a week during high school, and two in three reported studying less than six hours a week, a breathtaking 95 percent reported grade point averages of A or B (Pryor et al. 2007; Kuh and associates 2007). Faculty members should take some comfort in knowing that, when these same students get to college, their weekly study time increases to between thirteen and fourteen hours on average (Kuh and associates 2007).

Willingness to spend time studying is affected by compliance, interest in the topic, and perceived value of the class outcomes. While faculty members do often offer time meaningful intellectual growth, and even transformation, to engaged students willing to devote significant amounts of time and effort, these same students may not recognize either value from or need for such learning and change and may be unwilling to devote significant time to the efforts (Bok 2006; Kuh and associates 2007; Twenge 2006). Where customer-oriented students may expect ease, entertainment, immediate delivery, and acquiescence to their preferences in when, where, and how they receive all services (including instruction), faculty members tend to expect student compliance, industry, and effort as they teach in ways they prefer as opposed to using methods most likely to engage students and offer meaningful opportunities for deep learning and significant change (Tagg 2004). Students are apparently not willing or required to do what is expected of them, do not care sufficiently about class topics or material, or value intended class outcome goals at expected or desired levels. On the most fundamental levels, students’ high self-esteem, self-importance, and self-interest, exacerbated and perpetuated by the consumer-service orientations of institutions, may logically lead students to see little need for meaningfully personal development. If your opinion is right anyway, what can anyone ever teach you? If you are good enough already, why change (Olson 2007; Twenge 2006)? Gaps are critical as retention and subsequent completion are seriously impacted by students’ limited adoption of developmental goals, acquiescence to faculty agendas, and expenditure of significant effort (Kuh and associates 2007; Pryor et al. 2007).

Engaging this current cohort of students from Generation NeXt in the meaningful and often taxing processes toward significant learning and developmental outcomes is a core gap in higher education and critical to reaching meaningful outcomes. Persistence and retention are functional and necessary prerequisites to completion.

**Closing the Gap in Goals, Persistence, and Completion**

**Increasing Future Orientation and Goal Setting**

The short event horizons, entertainment orientation, and expectation of immediate gratification of Generation NeXt all conspire to keep students from Generation NeXt from meaningful planning and goal setting (Taylor 2005). Every person in the institution should have an agenda of improving future orientation and goal setting. Inquiries about student goals can be made during every campus interaction. A relentless effort to make students focus on their goals forces them into a future orientation. This future orientation increases students’ goal-directed behaviors as they can better see connection between today’s behaviors and some future desired outcome. Students’ ability to see themselves in the future helps more of today make sense, especially the less-fun parts. Instruction, to be addressed in greater detail later, must help students’ future orientation and goal setting by helping them establish the utility of learning related to their future goals.

**Increasing the Clarity of Shared Outcomes**

Learning and developmental outcomes for students, especially beyond grade attainment, should be clearly and operationally stated. Outcomes should relate to observable and ideally measurable student competencies and change. If colleges are interested in developing behavioral, personal, community, and citizenship competencies, as well as academic competencies, these should be spelled out and quantified with clear codes of conduct and transcripting of community service, student leadership, and civic activities. Linking these desired developmental goals and outcomes to students’ desired outcomes can increase persistence and completion.

**Increasing Realistic Goal Setting**

Many young people have been subjected to relentless self-esteem programming, leading them to believe that they can do anything and be anything and that their opinions are very important (Twenge 2006). They tend to believe they have talent, though they may overrate their own skills and aptitudes (Astin et al. 2002). In fact, while most students can succeed, their options are probably not limitless,
and there are careers and opportunities for which they are better suited. Realistic goal setting must include meaningful career-related assessment of talent and aptitudes by appropriately credentialed career counselors so students can focus their efforts on those areas most appropriate to them as they move from developing a generalist to a specific, and workplace-effective, skill set (Levine 2005b). These skills, related to students’ unique goals, can also help future orientation and are outcomes to which faculty members should focus their applications.

**Increasing Opportunities for Interpersonal Involvement**

Higher education has made tremendous advances in better understanding the conditions for preventing attrition and increasing student persistence and completion through impacting integration and engagement (Kuh et al. 2005; Tinto 1993). These opportunities should include active interaction in classes, informal interaction with instructors during regular office hours and at other places on campus, active and intrusive developmental advising, and an array of other student services, including active and involving clubs and organizations. Involvement increases students’ connections to the campus, and so their retention, completion, learning, and development (Kuh et al. 2005; Tinto 1993). Offering myriad opportunities for involvement is critical to closing retention and achievement gaps.

**Managing Esteem Issues**

The inflated yet fragile self-esteem of many students from Generation NeXt, compounded by their overrating their own skills, can be a serious mismatch with the conditional and often critical world of academic grading and feedback. Few if any faculty members give excellent grades for poor work to help maintain students’ egos. When Generation NeXt students do get negative feedback, the cognitive dissonance may lead them to discount the “opinion” of the faculty member or simply leave (Twenge 2006). Faculty members should be sensitive to, though not necessarily accommodating of, these esteem issues and try to offer suggestions for academic improvement along with some praise for effort with the expectation of future academic success—feedback that always relates to students’ own goals. Offering students opportunities for success early in classes may help engage them in ways that will help them weather future criticism.

**Technology Gaps**

While most campuses struggle to keep up with the technology preferences, expectations, and demands of students, major gaps remain between the technology ubiquity of the lives of students and the realities of institutional services, especially learning services. Technophobism is also necessary to satisfy the requirements of accreditors, who require that the same services be made available to distance learning students as are available to native students, and it has become a fundamental part of having credibility with students.

The relationship of Generation NeXt, the “digital natives” of “Generation Net,” to technology is fundamentally different than the relationship any other generational cohort has with technology and is frequently hard for instructors and administrators to understand (Carlson 2005; Prensky 2001). For Generation NeXt, the lines between the online and the live—the virtual and the real—are blurred or nonexistent, and many of their interpersonal relationships exist primarily online. The explosive growth in enrollment in online courses, even by native and resident students who can take live classes, indicates their preference for life online and their frequent lack of interest in traditional live academic activities. Podcasting, unheard of until recently, is now discussed even in nonacademic publications like Newsweek as a “professor in your pocket” as students’ increasing demands to impact the where, when, and how of instructional services (Tyre 2005). Unfortunately, the preferences for face-to-face services of many staff members and administrators leads to the continued creation of staff-intensive services. Students may be required to see a staff person live when they would prefer and better benefit from online, asynchronous contact.

**Closing the Gap in Technology**

**Embracing Technology**

Rather than complaining about students’ technology and online preferences, schools need to embrace technology and leverage it for academic and developmental means and ends. Many faculty members, staff members, and administrators can remember the consternation and predictions of doom when online registration actually allowed students to register themselves for classes. The world did not end when technology empowered students to select classes, instructors, and times, and no one is suggesting a return to the old ways. Improvements have been seen in all areas that have made major shifts to online and technology-augmented services. Offering technology options in everything from career counseling and financial aid to payments and advising has benefited students and has freed the time of staffers to see students who actually prefer live contact, making their time more efficient and effective. Recognizing technology preferences is also respectful and customer-centered as students see that institutions are giving them what they need and want in the ways they want it.
Bringing Technology to Teaching and Learning

The next great frontier in technology will see instruction leverage technology tools and preferences. Hardwired youth have little patience for educational methods they see as outdated, like unidirectional lecturing to rows of passive listeners. It might be easy for these students to assume that an instructor who is not aware of modern technological trends might be equally unaware of current issues in his/her own field. It was reported that a student opined about a faculty member “why should I think that he knows anything about economics when he can’t even use PowerPoint?” (Berry 2005). Meaningful faculty development in meeting and teaching through the Web, PDAs, and cell phones; asynchronous discussion and other media via Webcasting, podcasting, identification of useful and reliable Web resources, and posting must be provided on something more than a volunteer basis to interested faculty members, as is often the case. Most simply, all educational practices used in distance learning should be leveraged by live faculty members to close the technology gap with students.

Gaps in Teaching and Learning

Many of the gaps in student outcomes can be traced to issues with the most fundamental activity of the institution; instruction. Higher education has a well-documented history of recognizing fundamental difficulties in bringing about meaningful student learning and lasting student change (Barr and Tagg 1995; Gardiner 1994, 1998; Tagg 2004). To quote from the report of the Spellings Commission on the Future of Higher Education: “Many students who do earn degrees have not actually mastered the reading, writing and thinking skills we expect of college graduates. Over the past decade, literacy among college graduates has actually declined” (U.S. Department of Education 2006, 1).

Data indicate that Generation NeXt may be the most academically disengaged cohort of students ever (Astin et al. 2002). Many students see higher education as a process of memorizing content, trading content for points on a test, and redeeming those points for a grade (Nathan 2005). Much college instruction continues to be a loosely organized, unfocused curriculum, with undefined outcomes, in classes that emphasize passive listening to lectures that transmit low-level information and assessments that demand only the recall of memorized material or low-level comprehension (Gardiner 1998). Students are not learning even basic general knowledge, are not developing higher-level cognitive skills, and are not retaining their knowledge, and some would argue (based on data) that there is limited evidence of a significant difference between students who take courses and students who do not (Gardiner 1998; Tagg 2004). Content-based instruction to passive students, still the norm in most classes on most campuses, does very little to develop the skills needed in the workplace, especially critical thinking (Gardiner 1998; Tagg 2004). Many faculty members are apparently reluctant to relinquish their expert, “sage on the stage” role to allow for meaningful exploration and construction of learning and application that is necessary for retention.

Closing the Gap in Teaching and Learning

Moving to a Learning-Centered Academic Paradigm

Much has been written about maximizing undergraduate learning by developing learning-centered environments and experiences. The effectiveness of learning practices that focus on reaching student learning outcomes, on offering a variety of learning options, on objectively quantifying student change, on increasing student activity, and on helping students establish meaning for learning has been repeatedly demonstrated (Astin 1993; Chickering and Reiser 1993; Fink 2003; O’Banion 1999; Pascarella and Terensini 1991, 2005). Generation NeXt has little patience for educational methods it sees as outdated, such as unidirectional lecture to rows of passive listeners. Most graduate programs, while providing excellent foundations in a discipline’s knowledge and theory, do little to prepare graduates in methods of effective pedagogy. Faculty development in active methods for creating significant learning experiences is needed on all campuses for full-time and part-time instructors to close the gap between current and best instructional practices and outcomes (Fink 2003).

Obligating Students to Bring Content to Class

Class time is too valuable to spend transmitting information that is available elsewhere—in the textbook, through the library online database, on the Web, on the campus online support resource, in the archive of recorded lectures and faculty presentations, or through a podcast, for example. If students bring the knowledge-level content to class, they can spend class time working with the application and meaning of the information. Instructors who complain that “students don’t do the reading now” might not be truly obligating them to bring the information to class. For example, if students must pass a content-based quiz at the beginning of each class to participate in that day’s learning activities, and so to receive the quiz and participation points for that day, they might be more likely to come to class prepared to deeply learn.
Offering Multiple Learning Options

Multiple learning styles, student preferences, and our obligation to bring about student learning by any means necessary all suggest that we must offer students multiple options for learning, especially in how they access the information they are obligated to bring to class, how they demonstrate their personalization of the applications, and how they develop meanings. Technology does, and will increasingly, provide opportunities to make learning available at nontraditional places and times and must be exploited for desired outcomes.

Providing Meaning through Real-Life Application

All instructors must be challenged to articulate rationales for the necessity of their subjects based on some real-world application. Any topic, class, or field that cannot demonstrate its utility and meaning to each student will be suspect. “You have to know this because it will be on the test” or “you must take this class because it is part of the core” is guaranteed to discredit both the information and the instructor as it tends to show that there is no other use for the information than to meet meaningless requirements, without concern or connection to student need.

Conclusions

Closing the gaps between students and institutions in goals, persistence and completion, technology, and learning is critical to the success of both students and institutions as both seek student success. Unfortunately, many institutional practices are based more on tradition than on demonstrated outcome benefit or student preference; even new classrooms are often designed for lectures and not student activity. Higher education, which should be among the most progressive, data-based, and outcomes-oriented of all the social institutions, is often among the most recalcitrant to change. In this age of globalization and international competition, ineffectiveness and inefficiency in the higher education of our citizens are not luxuries we can afford. It is unconscionable for anyone to spend valuable taxpayer, contributor, and tuition resources on anything other than what has been shown to work, or is being meaningfully evaluated for effectiveness. It is even worse to waste students’ time during such developmentally ripe windows of opportunity, or our professional lives. Using best practices to close the gap between students and institutions will lead to improved outcomes for all higher education constituencies.

Notes

People interested in improving instruction and services should start with Ernest Pascarella and Patrick Terenzini, How College Affects Students, Volume 2: A Third Decade of Research (2005), an encyclopedic analysis of research in higher education with an emphasis on what changes students and how.


References


Berry, B. 2005. E-mail message to author, November 23.


Unique traits of Generation NeXt require a new approach from you. Student Affairs Today, April, 11.


Generation me: Why today’s young Americans are more confident, assertive, entitled—and more miserable than ever before. New York: Free Press.

Professor in your pocket. Newsweek, November 28, 46–47.


National Education Longitudinal Study of 1988 (NELS:88/2000), Fourth Follow-up, and Postsecondary Education Transcript Study (PETS).


Mark Taylor is Adjunct Faculty at Arkansas State University-Beebe.
The Impact of Supplemental Instruction on Students in STEM Courses:

Results from San Francisco State University

Alan R. Peterfreund, Kenneth A. Rath, Samuel P. Xenos
Educational Consultants
Peterfreund Associates
30 Boltwood Walk, Amherst, MA 01002
(413) 256-6169
alan@peterfreund.com; krath@peterfreund.com; sam@peterfreund.com

Frank Bayliss
Professor of Biology and Director of the Student Enrichment Opportunities Office
San Francisco State University
Student Enrichment Opportunities Office
Department of Biology, Science Bldg, Rm 200
1600 Holloway Ave, San Francisco, CA 94132
(415)338-1305
fbayl@sfsu.edu
The Impact of Supplemental Instruction on Students in STEM Courses:
Results from San Francisco State University

Abstract

Comparisons between participants and non-participants in supplemental instruction classes at San Francisco State University over a six year period show positive impacts in terms of increased student performance and progression through subsequent courses in a sequence, despite the lower academic indicators of the supplemental instruction participants. More females participated than were represented in the course as a whole, but the effects were greater for males. Effects were particularly striking for students from underrepresented minority groups, particularly in introductory courses.

Introduction to Supplemental Instruction

This study examines the impact of supplemental instruction as it has been implemented at San Francisco State University. Supplemental instruction (SI) as an intervention was designed by Deanna Martin of the University of Missouri-Kansas City in 1974 (Martin & Arendale, 1992). Although designed to improve the performance of low-achieving students, the focus of SI is on identifying high-risk courses, not students, and providing an environment that fosters learning within these courses. SI classes [1] are run by peer facilitators rather than professors (in most cases), and students are encouraged to work cooperatively on materials that supplement and enrich rather than review course material. These are complemented by training on study and learning skills, embedded into the context of the supported course. SI is usually voluntary (though not always—see Lyle & Robinson, 2003, for a contrary example), with students coming as they see fit. For a complete description of the SI model see Martin & Arendale, 1992.
Previous studies on the effectiveness of SI have shown specific benefits and outcomes. First, students who opt to participate in SI do better in the supported course than those who do not, both in terms of average course grades and in the percentage who successfully complete the course with a grade above a “D” (Arendale, 1997; Hensen & Shelley, 2003; Lyle & Robinson, 2003; Peled & Kim, 1996; among many others). Students who took SI were more likely to graduate from the institution than those who did not (Arendale, 1997), resulting in a substantial cost savings (Congos, 2001; Martin & Arendale, 1992). Despite these greater rates of success, SI takers typically have lower academic indicators than their peers as measured by standardized tests such as the SAT and ACT (Hensen & Shelley, 2003), making the improvements associated with SI that much more impressive. Most studies have also found that SI is equally effective with all genders and racial/ethnic groups (Arendale, 1997).

**Supplemental Instruction at San Francisco State University**

San Francisco State University (SFSU) is an urban campus, located in the city of San Francisco. In Fall 2005, the campus enrolled 28,950 students, 23,704 of whom were undergraduates and 5,876 were master’s students. The student body is very diverse: among undergraduates, approximately 59% are female, with a racial/ethnic makeup of 34% White, 25% Asian, and 36% hailing from various underrepresented minority groups [2] (San Francisco State University, 2006a). Most students commute to campus and, due to the living expenses in the Bay Area, most hold a job on the side.

As is the general pattern in the nation as a whole, SFSU has seen its students from underrepresented minority groups performing at levels below that of their peers, particularly in STEM (Science, Technology, Engineering, and Mathematics) fields. Partly due to its large number of such students, SFSU has received several grants from the National Institutes of
Health’s MORE program in an effort to increase the representation of underrepresented minorities among the ranks of research scientists (for a broader program description, see National Institute of General Medical Sciences, 2006). Most of these programs are aimed at directly funding individual students and providing enriched science experiences, but in an attempt to increase the pool of talented underrepresented minorities and impact student performance as a whole, monies from NIH MBRS RISE grants [3] have been used to set up SI classes. This decision stemmed from the work of Uri Treisman (1992), who in the late 1970’s successfully used an SI model with underperforming African American students at the University of California at Berkeley, bringing their performance up to the point where they performed better in the supported calculus course than the Chinese American students who had previously been the highest-performing group. With a substantial population of underrepresented minority students of its own, SFSU was hoping for similar effects.

The resultant SI classes began in Spring 1999. At SFSU, SI classes are registered for and students receive a grade based on attendance (thus they generate FTE for the University). Classes are held once a week for an hour and a half. Particular courses where SI is very popular may have as many as five SI classes being run in support of them in any given semester. In recent semesters, as many as 40% of the students in some courses, particularly in the Introduction to Biology and Organic Chemistry courses, have registered for SI classes.

SI classes have supported 22 different courses at SFSU in Biology (4 courses), Chemistry (12 courses), Math (3 courses), and Physics (2 courses). Over the past 7 years, the SI offerings have expanded from supporting 4 courses to in two disciplines (197 students) in the first semester to 18 courses in 4 disciplines (556 students) in Spring 2005. The most recent figure represents nearly a quarter of the students enrolled in the corresponding biology, chemistry, math and physics courses. The percentage of SI students receiving direct support from NIH MORE
programs is now less than 10%. Table 1 below shows the set of courses supported that had cumulative SI enrollments of over 40 students between the program’s inception and Spring 2005. [4], along with the total enrollment, both in and not in SI for the semesters in which SI was offered.

The list of supported courses includes both entry- and higher-level courses. The entry level courses, specifically, Introduction to Biology, General Chemistry, pre-Calculus or Calculus, are often the first college-level science and math courses taken by potential STEM majors. As such, the experience and performance in these courses often makes a significant difference in decisions about whether or not to continue with the desired major. The higher-level courses range from the second courses in the introductory sequences all the way to Genetics and Biochemistry, courses usually taken in the third year or later. The specific courses were chosen because they are common to many of the NIH-supported students, serve relatively large numbers of students, because passing them is often necessary for successfully completing a degree, and because they have historically been shown to be difficult for students [5].

Table 1: Courses and number of students supported by supplemental instruction (Spring 1999 – Spring 2005)

<table>
<thead>
<tr>
<th>Course supported</th>
<th>Number of semesters of SI offered</th>
<th>Number of students taking SI</th>
<th>Number of students not taking SI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro Biology I</td>
<td>13</td>
<td>394</td>
<td>990</td>
</tr>
<tr>
<td>Intro Biology II</td>
<td>13</td>
<td>215</td>
<td>682</td>
</tr>
<tr>
<td>Genetics</td>
<td>11</td>
<td>195</td>
<td>568</td>
</tr>
<tr>
<td>Gen Chem I (Original) [5]</td>
<td>3</td>
<td>47</td>
<td>473</td>
</tr>
<tr>
<td>Gen Chem I: Concepts</td>
<td>10</td>
<td>278</td>
<td>1511</td>
</tr>
<tr>
<td>Gen Chem II (Original)</td>
<td>4</td>
<td>45</td>
<td>397</td>
</tr>
<tr>
<td>Gen Chem II: Quant. Application</td>
<td>6</td>
<td>82</td>
<td>434</td>
</tr>
<tr>
<td>Organic Chem I</td>
<td>11</td>
<td>209</td>
<td>626</td>
</tr>
<tr>
<td>Organic Chem II</td>
<td>11</td>
<td>109</td>
<td>504</td>
</tr>
<tr>
<td>Biochemistry I</td>
<td>12</td>
<td>90</td>
<td>285</td>
</tr>
<tr>
<td>Biochemistry II</td>
<td>11</td>
<td>61</td>
<td>204</td>
</tr>
<tr>
<td>Pre-Calculus</td>
<td>5</td>
<td>73</td>
<td>480</td>
</tr>
<tr>
<td>Calculus I</td>
<td>6</td>
<td>156</td>
<td>1195</td>
</tr>
<tr>
<td>Gen Physics I</td>
<td>12</td>
<td>113</td>
<td>1216</td>
</tr>
<tr>
<td>Gen Physics II</td>
<td>9</td>
<td>97</td>
<td>694</td>
</tr>
</tbody>
</table>
At SFSU, SI class participation is tracked through institutional records; students register for SI and receive credit for completion. At other institutions where SI attendance is completely up to the student and no official records are kept, a study such as the one described here would be much more difficult.

**Description of the Study**

The findings presented in this study are the result of the collection of approximately 12,000 student-associated data from SFSU’s institutional records [7]. The data collected included, among other fields:

1) Grades and semesters taken for all STEM and supplemental instruction classes
2) Demographic variables, including SAT I scores, high school GPA, race/ethnicity, gender, and major

Data were collected for all students who had taken either the older version of General Chemistry I, the revised General Chemistry I, Introduction to Biology I, an introductory statistics course, Calculus I, Calculus II between Fall 1992 and Spring 2005 [8]. These courses were chosen because at least one was required of all students who had majors qualifying them to participate in NIH-sponsored programs. As a consequence of choosing this limited set of courses, some upper-level transfer students were excluded from the data for courses not part of the criteria for selection; these analyses thus examine only a subset of the total course participants.

In order to make the data manageable, we were forced to take certain steps:

1) Student data were excluded from the analysis of a course if they either withdrew or otherwise did not receive a grade in the supplemental instruction class or supported course. It was
found that the proportion of people who were excluded from the database did not vary substantially between SI and non-SI groups.

2) We chose to examine only the last grade achieved by a student in a given course, though we did keep track of how many times each course was taken. Because of this, the analyses assume that the SI class, if taken, corresponds to the last time the supported course was taken; in a very few cases this may not be accurate.

Discussions with SFSU SI program administrators and results from students surveys conducted over the past few years would suggest that participation in SI classes is greater than that officially noted in the institutional records used in this study; some students attend the SI classes without registering. No information is available on the identity or number of these students. The comparisons of participants and non-participants presented here place an unknown number of unrecorded participants in the non-participant category, and are, thus, likely to slightly understate differences between the groups.

Findings

The findings as a whole emphasize the importance of SI at SFSU and the benefits to both the entire body of students who choose to make use of it and, specifically, to the underrepresented minority students.

The Performance of SI Users is Higher than Non-Users

Table 2 shows performance differences between SI takers and other students for all courses. The SI group performed better than the non-SI group in all but one case (Pre-calculus). Also, in most cases the proportion passing the course is substantially higher than that in the non-SI group. The highlighted rows indicate statistically significant effects at the p < 0.05 level,
while bold font indicates statistical significance at the p < 0.005 level. The last two columns indicate the proportion of students in each group who passed with a grade of C- or better [9].

**Table 2: Course grade differences between Non-SI and SI students**

<table>
<thead>
<tr>
<th>Course</th>
<th>N Non-SI</th>
<th>N SI</th>
<th>Grade Non-SI</th>
<th>Grade SI</th>
<th>% Pass Non-SI</th>
<th>% Pass SI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro Biology I</td>
<td>990</td>
<td>394</td>
<td>2.04</td>
<td>2.35</td>
<td>73%</td>
<td>85%</td>
</tr>
<tr>
<td>Intro Biology II</td>
<td>682</td>
<td>215</td>
<td>2.43</td>
<td>2.57</td>
<td>89%</td>
<td>94%</td>
</tr>
<tr>
<td>Genetics</td>
<td>568</td>
<td>195</td>
<td>2.49</td>
<td>2.84</td>
<td>91%</td>
<td>96%</td>
</tr>
<tr>
<td>Gen Chem I (Original)</td>
<td>473</td>
<td>47</td>
<td>1.97</td>
<td>2.19</td>
<td>73%</td>
<td>87%</td>
</tr>
<tr>
<td>Gen Chem I: Concepts</td>
<td>1511</td>
<td>278</td>
<td>2.35</td>
<td>2.60</td>
<td>85%</td>
<td>92%</td>
</tr>
<tr>
<td>Gen Chem II (Original)</td>
<td>397</td>
<td>45</td>
<td>2.07</td>
<td>2.53</td>
<td>77%</td>
<td>91%</td>
</tr>
<tr>
<td>Gen Chem II: Quant.</td>
<td>434</td>
<td>82</td>
<td>2.53</td>
<td>2.54</td>
<td>85%</td>
<td>89%</td>
</tr>
<tr>
<td>Gen Chemistry I</td>
<td>626</td>
<td>209</td>
<td>2.33</td>
<td>2.70</td>
<td>84%</td>
<td>91%</td>
</tr>
<tr>
<td>Organic Chemistry II</td>
<td>504</td>
<td>109</td>
<td>2.43</td>
<td>2.71</td>
<td>88%</td>
<td>95%</td>
</tr>
<tr>
<td>Biochemistry I</td>
<td>285</td>
<td>90</td>
<td>2.40</td>
<td>2.74</td>
<td>91%</td>
<td>90%</td>
</tr>
<tr>
<td>Biochemistry II</td>
<td>204</td>
<td>61</td>
<td>2.42</td>
<td>2.97</td>
<td>93%</td>
<td>100%</td>
</tr>
<tr>
<td>Pre-Calculus</td>
<td>480</td>
<td>73</td>
<td>2.93</td>
<td>2.75</td>
<td>89%</td>
<td>92%</td>
</tr>
<tr>
<td>Calculus</td>
<td>1195</td>
<td>156</td>
<td>2.46</td>
<td>2.63</td>
<td>81%</td>
<td>87%</td>
</tr>
<tr>
<td>Gen Physics I</td>
<td>1216</td>
<td>113</td>
<td>2.42</td>
<td>2.68</td>
<td>86%</td>
<td>95%</td>
</tr>
<tr>
<td>Gen Physics II</td>
<td>694</td>
<td>97</td>
<td>2.46</td>
<td>2.61</td>
<td>91%</td>
<td>97%</td>
</tr>
</tbody>
</table>

A major problem for STEM disciplines, at SFSU as elsewhere, are the students who are “lost”: those students who achieve grades lower than C- and are thus unable to progress in the STEM field. Many of these students switch to other, less technical majors. Others leave college altogether. As Table 2 demonstrates, the pass rates are in most cases much higher among students taking SI, particularly in the crucial entry-level courses of Intro Biology I and General Chemistry I: Concepts.

While the impact of SI in the introductory courses is seen in increased pass rates, the impact in upper level course is associated with higher proportions of students obtaining A’s and B’s. This is illustrated in a comparison of grade distribution for Introductory Biology I (Figure 1) and Genetics, an upper division biology course (Figure 2).
Performance Differences Were Not a Function of SI Takers Being Better Students

Although the students taking SI classes performed better in the supported courses in most cases, they were not better students as indicated by their SAT I scores and high school GPA’s. In many cases, they were weaker students, as shown on Table 3. Statistically significant differences are highlighted.
Table 3: Differences in background demographics between Non-SI and SI students

<table>
<thead>
<tr>
<th>Course</th>
<th>Non-SI Math SAT</th>
<th>SI Math SAT</th>
<th>Non-SI Verb SAT</th>
<th>SI Verb SAT</th>
<th>Non-SI HS GPA</th>
<th>SI HS GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro Biology I</td>
<td>518</td>
<td>492</td>
<td>498</td>
<td>471</td>
<td>3.17</td>
<td>3.20</td>
</tr>
<tr>
<td>Intro Biology II</td>
<td>529</td>
<td>496</td>
<td>500</td>
<td>471</td>
<td>3.26</td>
<td>3.21</td>
</tr>
<tr>
<td>Genetics</td>
<td>517</td>
<td>514</td>
<td>488</td>
<td>493</td>
<td>3.24</td>
<td>3.24</td>
</tr>
<tr>
<td>Gen Chem I (Original)</td>
<td>519</td>
<td>488</td>
<td>479</td>
<td>456</td>
<td>3.13</td>
<td>3.19</td>
</tr>
<tr>
<td>Gen Chem II (Original)</td>
<td>508</td>
<td>497</td>
<td>483</td>
<td>447</td>
<td>3.17</td>
<td>3.24</td>
</tr>
<tr>
<td>Gen Chem II: Quant. Application</td>
<td>530</td>
<td>503</td>
<td>490</td>
<td>460</td>
<td>3.26</td>
<td>3.32</td>
</tr>
<tr>
<td>Organic Chem I</td>
<td>529</td>
<td>500</td>
<td>492</td>
<td>469</td>
<td>3.23</td>
<td>3.27</td>
</tr>
<tr>
<td>Organic Chem II</td>
<td>523</td>
<td>522</td>
<td>477</td>
<td>484</td>
<td>3.27</td>
<td>3.25</td>
</tr>
<tr>
<td>Biochemistry I</td>
<td>533</td>
<td>529</td>
<td>469</td>
<td>491</td>
<td>3.26</td>
<td>3.36</td>
</tr>
<tr>
<td>Biochemistry II</td>
<td>539</td>
<td>531</td>
<td>482</td>
<td>498</td>
<td>3.28</td>
<td>3.41</td>
</tr>
<tr>
<td>Pre-Calculus</td>
<td>488</td>
<td>470</td>
<td>466</td>
<td>463</td>
<td>3.14</td>
<td>3.16</td>
</tr>
<tr>
<td>Calculus I</td>
<td>526</td>
<td>482</td>
<td>480</td>
<td>466</td>
<td>3.20</td>
<td>3.14</td>
</tr>
<tr>
<td>Gen Physics I</td>
<td>526</td>
<td>487</td>
<td>492</td>
<td>455</td>
<td>3.20</td>
<td>3.16</td>
</tr>
<tr>
<td>Gen Physics II</td>
<td>523</td>
<td>493</td>
<td>487</td>
<td>459</td>
<td>3.24</td>
<td>3.22</td>
</tr>
</tbody>
</table>

Matching Tables 2 and 3 puts the grade differences in better context. With the notable exception of Pre-calculus, either the SI students are academically weaker students (as measured by SAT I scores) performing at the same level as their peers, academically similar students performing better than their peers, or academically weaker students performing better than their peers. The weaker academic preparation of SI students is again particularly striking in the entry-level courses such as Intro Biology I and General Chemistry I: Concepts. The reasons for the remarkable lack of success in Pre-calculus have yet to be fully explored [10].

**SI Users are More Likely to Take Subsequent Courses**

Students who take an accompanying SI class at the beginning of their sequence of Chemistry or Biology courses also take the subsequent courses in that discipline required by many majors at a much higher rate than those who do not take SI, as can be seen on Table 4. Statistically significant differences are highlighted. It is particularly interesting to note that in these courses the mix of majors for students in and not in SI is fairly comparable; it does not
seem like the difference in the tendency to proceed in the courses required by science majors has anything to do with differential requirements between the groups. For the chosen courses, only those students who took the initial course prior to Spring 2004 are included in this analysis as later takers did not have sufficient time to complete many subsequent courses.

Table 4: Rates of taking subsequent courses by SI status in entry-level courses

<table>
<thead>
<tr>
<th>Subsequent Course</th>
<th>% of SI group taking course</th>
<th>% of Non-SI group taking course</th>
</tr>
</thead>
<tbody>
<tr>
<td>For takers of Intro Bio I…</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intro Biology II</td>
<td>70%</td>
<td>54%</td>
</tr>
<tr>
<td>Cell Biology</td>
<td>43%</td>
<td>32%</td>
</tr>
<tr>
<td>Genetics</td>
<td>54%</td>
<td>42%</td>
</tr>
<tr>
<td>For takers of Gen Chem I (Original)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen Chem II (Original)</td>
<td>61%</td>
<td>39%</td>
</tr>
<tr>
<td>Organic Chem I</td>
<td>37%</td>
<td>24%</td>
</tr>
<tr>
<td>Organic Chem II</td>
<td>34%</td>
<td>18%</td>
</tr>
<tr>
<td>For takers of Gen Chem I: Concepts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen Chem II: Quant. Application</td>
<td>39%</td>
<td>32%</td>
</tr>
<tr>
<td>Organic Chem I</td>
<td>44%</td>
<td>29%</td>
</tr>
<tr>
<td>Organic Chem II</td>
<td>28%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Men Who Show Up Benefit From SI More Than Women

Table 5 shows the differences between genders in the rates of taking SI classes and the grades associated with being in and not being in those classes. The first two columns illustrate the under-representation of males in the SI classes. However, when the men do show up for SI classes, the benefit accrued by being in an SI class is substantially higher for the male students than the females attending the SI classes. Once again, these patterns show up particularly strongly in the entry-level courses of Bio 230 and Chem 115. Situations in which the difference between SI and non-SI grades is at least a discrepancy of 0.1 between genders are highlighted, as are statistically significant differences in the proportion of males in the two groups.
Table 5: Gender differences in course taking and course grades by SI status

<table>
<thead>
<tr>
<th>Course</th>
<th>% Males in SI</th>
<th>% Males Non-SI</th>
<th>Male SI course grade</th>
<th>Male Non-SI course grade</th>
<th>Male grade Diff</th>
<th>Female SI course grade</th>
<th>Female Non-SI course grade</th>
<th>Female grade diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int Bio I</td>
<td>29%</td>
<td>35%</td>
<td>2.49</td>
<td>1.98</td>
<td>0.51</td>
<td>2.29</td>
<td>2.08</td>
<td>0.21</td>
</tr>
<tr>
<td>Int Bio II</td>
<td>26%</td>
<td>34%</td>
<td>2.52</td>
<td>2.39</td>
<td>0.13</td>
<td>2.59</td>
<td>2.45</td>
<td>0.14</td>
</tr>
<tr>
<td>Genetics</td>
<td>31%</td>
<td>35%</td>
<td>2.89</td>
<td>2.38</td>
<td>0.51</td>
<td>2.83</td>
<td>2.54</td>
<td>0.29</td>
</tr>
<tr>
<td>GC I: Orig</td>
<td>34%</td>
<td>42%</td>
<td>2.06</td>
<td>1.94</td>
<td>0.12</td>
<td>2.26</td>
<td>1.99</td>
<td>0.27</td>
</tr>
<tr>
<td>GC I: Conc</td>
<td><strong>28%</strong></td>
<td><strong>46%</strong></td>
<td>2.59</td>
<td>2.17</td>
<td>0.42</td>
<td>2.50</td>
<td>2.02</td>
<td>0.48</td>
</tr>
<tr>
<td>GC II: Orig</td>
<td>31%</td>
<td>35%</td>
<td>2.66</td>
<td>2.33</td>
<td>0.33</td>
<td>2.58</td>
<td>2.36</td>
<td>0.22</td>
</tr>
<tr>
<td>GC II: QA</td>
<td>28%</td>
<td>34%</td>
<td>2.53</td>
<td>2.46</td>
<td>0.07</td>
<td>2.56</td>
<td>2.54</td>
<td>0.02</td>
</tr>
<tr>
<td>Ochem I</td>
<td>32%</td>
<td>35%</td>
<td>2.91</td>
<td>2.33</td>
<td>0.58</td>
<td>2.61</td>
<td>2.33</td>
<td>0.28</td>
</tr>
<tr>
<td>Ochem II</td>
<td>32%</td>
<td>34%</td>
<td>2.72</td>
<td>2.47</td>
<td>0.25</td>
<td>2.71</td>
<td>2.41</td>
<td>0.30</td>
</tr>
<tr>
<td>Biochem I</td>
<td>27%</td>
<td>36%</td>
<td>2.75</td>
<td>2.38</td>
<td>0.37</td>
<td>2.74</td>
<td>2.41</td>
<td>0.33</td>
</tr>
<tr>
<td>Biochem II</td>
<td>34%</td>
<td>37%</td>
<td>3.01</td>
<td>2.39</td>
<td>0.62</td>
<td>2.94</td>
<td>2.44</td>
<td>0.50</td>
</tr>
<tr>
<td>Pre-calc</td>
<td>34%</td>
<td>43%</td>
<td>2.70</td>
<td>2.91</td>
<td>-0.21</td>
<td>2.77</td>
<td>2.94</td>
<td>-0.17</td>
</tr>
<tr>
<td>Calculus I</td>
<td><strong>34%</strong></td>
<td><strong>53%</strong></td>
<td>2.61</td>
<td>2.39</td>
<td>0.22</td>
<td>2.64</td>
<td>2.53</td>
<td>0.11</td>
</tr>
<tr>
<td>Gen Phys I</td>
<td><strong>25%</strong></td>
<td><strong>38%</strong></td>
<td>2.80</td>
<td>2.36</td>
<td>0.44</td>
<td>2.64</td>
<td>2.45</td>
<td>0.19</td>
</tr>
<tr>
<td>Gen Phys II</td>
<td>36%</td>
<td>31%</td>
<td>2.59</td>
<td>2.41</td>
<td>0.18</td>
<td>2.63</td>
<td>2.49</td>
<td>0.14</td>
</tr>
</tbody>
</table>

Increase in Pass Rates are Particularly Striking for Underrepresented Minorities

In entry-level courses, the increase in pass rates associated with taking SI classes is particularly impressive for students from underrepresented minorities (URM), as seen in Table 6. Courses in which pass rate differences are statistically significant are highlighted, but while many that do not achieve statistical significance due to the low numbers of students involved, a consistent pattern of differences is evident.

Table 6: Pass rates among underrepresented minorities by SI status

<table>
<thead>
<tr>
<th>Course [12]</th>
<th>N URM SI</th>
<th>N URM Non-SI</th>
<th>% URM Pass SI</th>
<th>% URM Pass Non-SI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro Biology I</td>
<td>92</td>
<td>164</td>
<td>82%</td>
<td>57%</td>
</tr>
<tr>
<td>Intro Biology II</td>
<td>55</td>
<td>96</td>
<td>87%</td>
<td>80%</td>
</tr>
<tr>
<td>Genetics</td>
<td>43</td>
<td>77</td>
<td>95%</td>
<td>91%</td>
</tr>
<tr>
<td>Gen Chem I: Concepts</td>
<td>77</td>
<td>274</td>
<td>86%</td>
<td>76%</td>
</tr>
<tr>
<td>Organic Chemistry I</td>
<td>53</td>
<td>93</td>
<td>85%</td>
<td>84%</td>
</tr>
<tr>
<td>Organic Chemistry II</td>
<td>34</td>
<td>67</td>
<td>91%</td>
<td>84%</td>
</tr>
<tr>
<td>Biochemistry I</td>
<td>24</td>
<td>35</td>
<td>96%</td>
<td>91%</td>
</tr>
<tr>
<td>Pre-calc</td>
<td>24</td>
<td>109</td>
<td>92%</td>
<td>87%</td>
</tr>
<tr>
<td>Calculus I</td>
<td>49</td>
<td>220</td>
<td>88%</td>
<td>73%</td>
</tr>
<tr>
<td>General Physics I</td>
<td>34</td>
<td>200</td>
<td>94%</td>
<td>77%</td>
</tr>
<tr>
<td>General Physics II</td>
<td>21</td>
<td>105</td>
<td>95%</td>
<td>90%</td>
</tr>
</tbody>
</table>
Table 7 demonstrates that the benefits accrued from taking SI classes also appear to be higher for URM students than for the course as a whole in terms of absolute grades. Circumstances in which the URM SI gain is more than 0.1 different from that for the course as a whole are highlighted, as are statistically significant differences in URM representation in SI and non-SI groups.

Table 7: Underrepresented minority differences in course taking and course grades by SI status

<table>
<thead>
<tr>
<th>Course</th>
<th>% URM in SI</th>
<th>% URM Non-SI</th>
<th>URM SI course grade</th>
<th>URM Non-SI course grade</th>
<th>URM grade Diff</th>
<th>Total SI course grade</th>
<th>Total Non-SI course grade</th>
<th>Total grade diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro Bio I</td>
<td>23%</td>
<td>17%</td>
<td>2.27</td>
<td>1.55</td>
<td>0.72</td>
<td>2.35</td>
<td>2.04</td>
<td>0.31</td>
</tr>
<tr>
<td>Intro Bio II</td>
<td>26%</td>
<td>14%</td>
<td>2.31</td>
<td>2.10</td>
<td>0.21</td>
<td>2.57</td>
<td>2.43</td>
<td>0.14</td>
</tr>
<tr>
<td>Genetics</td>
<td>22%</td>
<td>14%</td>
<td>2.76</td>
<td>2.47</td>
<td>0.29</td>
<td>2.84</td>
<td>2.49</td>
<td>0.35</td>
</tr>
<tr>
<td>GChem I: Con</td>
<td>28%</td>
<td>18%</td>
<td>2.31</td>
<td>2.03</td>
<td>0.28</td>
<td>2.60</td>
<td>2.35</td>
<td>0.25</td>
</tr>
<tr>
<td>Org Chem I</td>
<td>25%</td>
<td>15%</td>
<td>2.37</td>
<td>2.16</td>
<td>0.22</td>
<td>2.70</td>
<td>2.33</td>
<td>0.37</td>
</tr>
<tr>
<td>Org Chem II</td>
<td>31%</td>
<td>13%</td>
<td>2.52</td>
<td>2.24</td>
<td>0.27</td>
<td>2.71</td>
<td>2.43</td>
<td>0.28</td>
</tr>
<tr>
<td>Biochemistry I</td>
<td>27%</td>
<td>12%</td>
<td>2.73</td>
<td>2.40</td>
<td>0.33</td>
<td>2.74</td>
<td>2.40</td>
<td>0.34</td>
</tr>
<tr>
<td>Pre-calculus</td>
<td>33%</td>
<td>23%</td>
<td>2.62</td>
<td>2.84</td>
<td>-0.22</td>
<td>2.75</td>
<td>2.93</td>
<td>-0.18</td>
</tr>
<tr>
<td>Calculus I</td>
<td>31%</td>
<td>18%</td>
<td>2.51</td>
<td>2.12</td>
<td>0.38</td>
<td>2.63</td>
<td>2.46</td>
<td>0.17</td>
</tr>
<tr>
<td>Gen Physics I</td>
<td>30%</td>
<td>16%</td>
<td>2.42</td>
<td>2.06</td>
<td>0.36</td>
<td>2.68</td>
<td>2.42</td>
<td>0.26</td>
</tr>
<tr>
<td>Gen Physics II</td>
<td>22%</td>
<td>15%</td>
<td>2.56</td>
<td>2.27</td>
<td>0.29</td>
<td>2.61</td>
<td>2.46</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Perhaps more telling, the grades earned by URM students in SI are generally as high (or higher) as those earned by the entire group of non-SI students, shown on Table 2; the non-SI URM students, especially those in entry-level courses, tend to be considerably below this average.

Finally, also on Table 7, it is clear that in every case URM students are more likely to take SI classes than their peers, and that all but two of these differences in SI enrollment patterns are statistically significant.
Discussion

The benefits students accrue from SI classes are many and clear. The presence of SI at SFSU appears responsible for getting many more students through the courses and on to bachelor’s degrees than would be possible without the program. This is especially true for URM students.

SI classes at SFSU on average have a direct cost of approximately $115/student. At the institutional level, this investment pays off in the progression of students through the core science curriculum, with a reduced number of students repeating courses and a higher retention of science majors.

The number of students who would have been “lost” from the majors had they not taken SI but instead were retained is also a significant outcome. This is especially true when one considers the recruitment and support efforts taken at institutions such as SFSU, with NSF and NIH funding, to increase the number of graduating STEM majors. An analysis of all of the courses offering SI support showed that at least 169 students have been prevented from being “lost” over the seven years in which SI classes were offered, a number calculated by examining what the expected loss rates would have been had the SI takers had the same grade distribution as the non-SI students. While we don’t know the outcome for these students, this number represents 6 to 10% of the total STEM graduates [13] during this period (San Francisco State University, 2006b).

As an important component of a pipeline initiative, SI classes at SFSU have successfully increased the pool of URM students that both progress through introductory science courses and excel in upper division courses. A success of the SFSU program has been to create an environment welcoming to URM students, as evident by the larger proportion of URM students taking advantage of the classes than among other students.
Supplemental Instruction was introduced at SFSU as a specific academic intervention to support students participating in an NIH-MORE program. The consequences of this have proven important both to the success of that program, as evident in the large number of program graduates who have picked up to pursue their doctoral degrees by Tier 1 research programs in the past few years, and to the much broader set of students at SFSU who have successfully progressed through their STEM majors. The evidence presented here and suggests that, for the latter group at least, the outcomes would not have been as impressive without SI.

This research was funded as part of NIH MORE R.E.S.U.L.T.S. (Research and Evaluation of Students Using Long-Term Studies), NIH Grant #RFA-GM-03-011 RO-1 research grant from the National Institutes of Health to examine the efficacy of various NIH-funded programs for the support of underrepresented minority students at three different institutions.

**Endnotes**

1. Throughout this paper, we refer to SI “classes” and supported “courses” in order to distinguish between the two, although various campuses use different, idiosyncratic terminologies of their own, including SFSU. At any point in this document, the word “class” refers to the SI offering while “course” refers to the supported offering.

2. For the purposes of this paper, “underrepresented minorities” include individuals from the following racial/ethnic backgrounds as identified by the University’s records: American Indian, African American/Black, Chicano/Hispanic/Latino, and
Filipino/Pacific Islander. In the cited data, an additional 5% of students were classified as “Other” with no indication of what that might signify.

3. MBRS-RISE at San Francisco; NIH NIGMS Grant 5R25 GM059298; Frank Bayliss, P.I.

4. Additionally, SI was made available in Cell Biology for 2 semesters, General Physical Chemistry I for 4 semesters, General Physical Chemistry II for 4 semesters, Quantitative Analysis for 5 semesters, General Biochemistry for 9 semesters, and Calculus II for 2 semesters. Many of these are higher-level courses with larger numbers of students who did not make it into our database (see the description of data gathering under the Description of the Study).

5. For additional details about the supplemental instruction program at SFSU, please contact Frank Bayliss: fbayl@sfsu.edu or (415) 338-1305.

6. There are two sets of General Chemistry courses. This is due to a curriculum modification undertaken with the support of a grant from the US Department of Education which changed the focus of the first course in the sequence to more conceptual material and made the second more quantitative. This change occurred in Fall 2000 for General Chemistry I and Fall 2001 for General Chemistry II. In the new curriculum, students are encouraged to take the two Organic Chemistry courses between the two general chemistry courses.

7. We would like to thank Michael Garrity at SFSU’s Student Systems Support and Development office for making this possible.

8. Data were only used starting in 1999, but going further back allowed us to include students into our database who were upperclassmen in 1999.

9. Henceforth, “passing” refers to C- or better as at SFSU, a C- is required in order to progress to the next course in the sequence.
10. Anecdotally, we have been told that many students take Pre-calculus when they should be taking higher-level math courses, given their high school background. These students nearly all do very well in the course. From our data, it appears that most students who shouldn’t be in there as they already know the material opt not to take the SI class.

11. Only courses which are taken by a substantial proportion of students from the original course are included.

12. Only those courses with more than 20 students in SI identified as being underrepresented minorities are included.

13. Psychology majors, who are nearly equal in number to all other STEM graduates combined, are not included in this number.

Reference List


Improving Retention at the Course Level

Dorothy C. Mollise, Ph.D. and Charlotte T. Matthews, M.A.

Abstract

Poor attendance is a growing problem with serious consequences for students, instructors, and institutions. If instructors can keep students coming to class, there will be more opportunity for students to achieve their academic goals, for instructors to teach and increase their success rates, and for institutions to more soundly measure their effectiveness. This article includes a discussion of the problem and strategies for encouraging class attendance.

Retention in an ordinary context means retention of students in a university, or in a particular program, over a specified time period, usually one year. We suggest that the greatest retention problem in higher education is at the course level. At the University of South Alabama, the number of students staying away from class seems to be increasing. Chronic poor attendees simply stop coming without officially withdrawing from a course or the university. Such behavior has consequences for students, instructors, and the institution.

Absent students cannot achieve their academic goals or fulfill course requirements. Instructors cannot teach students who are not in class, although educators are commonly held accountable for the performance of students they rarely or never see. Institutional effectiveness, often judged on performance data adversely affected by excessive student absences, appears to be less than it really is.

A moderate to high correlation between class attendance and academic success has been well documented (Budig, 1995; Galichon & Friedman, 1985; Gunn, 1993; Van Blerkom, 1992, 1996). Students who attend class perform better than students who do not. We confirmed this on a small scale by looking at attendance data for three developmental mathematics classes during 2000-2001. The information in Tables 1 and 2 clearly links excessive absences to failing course grades.

To encourage attendance, the Developmental Studies Program at the University of South Alabama has a mandatory attendance policy allowing a student to miss only two weeks of class per semester. After that limit, a student’s final course grade drops one letter grade for each additional week of class missed. Students with excessive absences fail the course. Failing is a serious consequence for students, but student failure also has serious implications for instructors. For example, department chairs and deans judge the success of
instructors by the success of their students. Evaluators look at instructor’s pass-fail rates, even though the fail rates include absentees who quit coming to class. We designate these student absentees as quitters if they
(a) have excessive absences (according to the program’s mandatory attendance policy) and
(b) do not take one or more of the chapter tests and
(c) do not take the final exam.
When the number of quitters is eliminated from the count of total enrollment, the success rate increases. We believe this higher rate more accurately reflects an instructor’s real success. The following example shows just how much success rates can change.

During 2000-2001, one instructor had a success rate (i.e., the percent making A, B, or C) in Prealgebra and Elementary Algebra of 60% (211/354). Thirty-three students (9% or 33/354) withdrew, and 110 students (31% or 110/354) received a failing grade (U or F); however, of the 110 students who failed, 72 (20% or 72/354) simply stopped coming to class or never attended. Those 72 quitters accounted for 65% of the failures (72/110). Of the remaining 282, 211 passed, a success rate of 75% (211/282). Our developmental mathematics program is successful. Our program completers have a pass rate of 83% in Prealgebra and Elementary Algebra, significantly higher than the pass rate of 53% for all students. The program would appear even more successful, however, if instructors were not held accountable for teaching students who do not come to class.

We have discussed this absence, or retention, issue with colleagues throughout the university. There is general agreement that instructors cannot teach students who stay away from class and success rates would improve if quitters were eliminated from the fail rates. A better plan, though, would be to find a way to keep students in class, to retain students at the course level.

Several researchers have investigated methods that encourage students to come to class and that increase class attendance. Some of these methods include making attendance compulsory, having daily or weekly quizzes (Hovell, Williams, & Semb, 1979), giving bonus points or prizes for attendance (Beaulieu, 1984), offering rewards for attendance or punishment for absences (Beaulieu & Sheffler, 1985), and the very successful approach of sending postcards to students and parents informing them of nonattendance (Budig, 1995). Wolfolk (1995) indicated that students need to be motivated, and they only become motivated when they believe they can successfully complete a task and the task has value for them. Therefore, helping students to become competent and to see the importance of classroom tasks could increase their motivation to attend.

In 1998, The Center for Excellence in Learning and Teaching at Pennsylvania State University held a forum on class attendance that addressed the question, “How can I encourage greater attendance in my class?” The following are a few of the many successful strategies advocated by faculty to encourage class attendance (Pennsylvania State University, 1998, pp. 1-2):

Interact with students and learn their names. Send personal e-mail notes to absent students. Take attendance by collecting homework, giving a quiz, or grading class activities. Share data from previous classes to show that success...
depends on attendance. Put outlines and notes on the Web page. Work exam-directed problems in class. Schedule more exams covering less material. Give credit for class participation, for homework, for pop or announced quizzes, for group quizzes, or for small-group activities completed in class. Finally, “keep in mind the most fundamental principle of attendance: Make it worth their while to be there!”

Absenteeism is a growing problem in higher education. Students need to be in class to achieve their academic goals. By using successful strategies for encouraging class attendance, we can motivate students to come to class and stay in class.

**References**


Appendix

Table 1. Absences in Two Developmental Mathematics Classes
Meeting Twice a Week (Four Absences Allowed)

<table>
<thead>
<tr>
<th>DS Mathematics Grade</th>
<th>A (n = 6)</th>
<th>B (n = 9)</th>
<th>C (n = 9)</th>
<th>(Total Pass) (n = 24)</th>
<th>U or F (n = 8)</th>
<th>WD (n = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Number of Absences</td>
<td>1.17</td>
<td>1.00</td>
<td>2.33 (1.54)</td>
<td>11.63</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Median Number of Absences</td>
<td>1.00</td>
<td>0.00</td>
<td>2.00 (2.00)</td>
<td>7.50</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Range of Absences</td>
<td>0 - 2</td>
<td>0 - 3</td>
<td>0 – 4 (0 – 4)</td>
<td>4 – 27</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Absences in One Developmental Mathematics Class
Meeting Three Times a Week (Six Absences Allowed)

<table>
<thead>
<tr>
<th>DS Mathematics Grade</th>
<th>A (n = 1)</th>
<th>B (n = 4)</th>
<th>C (n = 7)</th>
<th>(Total Pass) (n = 12)</th>
<th>U or F (n = 6)</th>
<th>WD (n = 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Number of Absences</td>
<td>2.00</td>
<td>4.00</td>
<td>5.00 (4.47)</td>
<td>13.67</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Median Number of Absences</td>
<td>2.00</td>
<td>4.00</td>
<td>6.00 (4.00)</td>
<td>12.00</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Range of Absences</td>
<td>2 - 2</td>
<td>2 - 6</td>
<td>0 – 8 (0 – 8)</td>
<td>4 – 29</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

For further information please contact Dorothy C. Mollise, Ph.D. 
University of South Alabama 
AHE 208 Mobile, Alabama 36688-0002 
Phone (251) 460-7155 dmollise@jaguar1.usouthal.edu