Collaborative Space: Is it worth it? Measuring the Impact in Quantitative Terms

January 23, 2014

EYP/
introduction
11 Case Studies

- Swarthmore College: 2004
- Hamilton College: 2005
- Assumption College: 2003
- Cabrini College: 2005
- Wheaton College: 2011
- Middle Tennessee State University: 2006
- University of New Hampshire: 2009
- Washington & Jefferson College: 2010
- College of the Holy Cross: 2010
- University of Scranton: 2012
- Trinity University: 2014
Continuum of Science

INFORMAL LEARNING

Support
Instrumentation
Research
Teaching
Classroom
Offices
5 scales of informal learning spaces
5 Scales of Informal Learning Spaces

1. Commons
Proportion of Large Spaces / Commons

Institutions

- Swarthmore
- Hamilton
- Assumption
- Cabrini
- Wheaton
- MTSU
- UNH
- W&J
- Holy Cross
- Scranton
- Trinity

NSF

Total: 21.2%

Avg
5 Scales of Informal Learning Spaces:
2. Student Study
5 Scales of Informal Learning Spaces:

2. Student Study
Proportion of Student Study Spaces

Bar chart showing the proportion of student study spaces for various institutions, with NSF and institutions listed along the y-axis and the count of study spaces along the x-axis. The chart highlights the total and average proportions, with a note indicating a 33.9% average.
5 Scales of Informal Learning Spaces:

3. Departmental / Discipline Lounges
5 Scales of Informal Learning Spaces:

3. Departmental/Discipline Lounges
5 Scales of Informal Learning Spaces:

3. Departmental/Discipline Lounges
Proportion of Departmental Lounge Spaces

Institutions

Swarthmore  Hamilton  Assumption  Cabrini  Wheaton  MTSU  UNH  W&J  Holy Cross  Scranton  Trinity

NSF

Avg  Total

Proportion: 8.9%
Scales of Informal Learning Spaces

Faculty/Student “Breakout” space
5 Scales of Informal Learning Spaces:

4. Faculty / Student “Breakout” Spaces
5 Scales of Informal Learning Spaces:

4. Faculty / Student “Breakout” Spaces
Proportion of Faculty / Student Breakout Spaces

Institutions

Swarthmore  Hamilton  Assumption  Cabrini  Wheaton  MTSU  UNH  W&J  Holy Cross  Scranton  Trinity

NSF

Avg

Total

18.8%
Scales of Informal Learning Spaces

Write-Up
5 Scales of Informal Learning Spaces:

5. Write-Up
5 Scales of Informal Learning Spaces:

5. Write-Up
5 Scales of Informal Learning Spaces:

5. Write-Up
5 Scales of Informal Learning Spaces:

5. Write-Up
5. Write-Up

5 Scales of Informal Learning Spaces:
5 Scales of Informal Learning Spaces:

5. Write-Up
Proportion of Write-up Spaces

NSF

Institutions

Swarthmore, Hamilton, Assumption, Cabrini, Wheaton, MTSU, UNH, W&J, Holy Cross, Scranton, Trinity

Avg 17.9%

Total
The Wheaton College Story
Wheaton College
Mars Center for Science & Technology

Need for the project:

• sciences growing – 1/3 of majors
Wheaton College
Mars Center for
Science &
Technology

1960s facility
Wheaton College
Mars Center for
Science &
Technology
Wheaton College
Mars Center for Science & Technology

Inflexible spaces
Wheaton College
Mars Center for
Science &
Technology

Before
Wheaton College
Mars Center for
Science &
Technology

Before
Wheaton College
Mars Center for Science & Technology

Before & After:
Faculty Office
Wheaton College
Mars Center for Science & Technology

Before & After: Research Lab
Wheaton College
Mars Center for
Science &
Technology

Greenhouse
Wheaton College
Mars Center for
Science &
Technology

Observation Deck
Mars Center Project Goals

Connections

Community

Sustainability

Flexibility
Project Goals:

• Connections
• Community
• Sustainability
• Flexibility
Faculty Planning:

- Project Shepherd
- Faculty rep from each department – Planning Committee
- Visits to other new buildings
Wheaton College
Mars Center for Science & Technology

Project Scope: 99,000 sf
Wheaton College  Mars Center for Science & Technology

New Building: 73,000 sf
Wheaton College
Mars Center for
Science & Technology

Renovated First Floor
What difference is the new science center making?

A Venue of choice for events –

- Sciences are no longer isolated
- Everyone is drawn to the space
- Trustees hold meetings there (dedicated classroom)
Wheaton College
Mars Center for Science & Technology

• Students congregate and stay in the building, especially: write-up spaces in labs
Wheaton College Mars Center for Science & Technology

- WHALE lab (Wheaton Autonomous Learning Laboratory): a “makerspace”

Making matters
Fall 2013 by Sandy Coleman

Labs engage campus in creative hands-on learning, collaboration

Last semester, when William Cohen ’13 needed to tackle a term paper for his “Philosophy and Literature” course, he found help in an unexpected place—a box of Legos in the Wheaton Autonomous Learning Laboratory (WHALE Lab), courtesy of founder Professor Tom Armstrong.

“I spent a lot of time building things with Tom’s Legos,” says Cohen, who majored in English with a minor in studio art and computer science. “I find that focusing on some sort of immediate, often mechanical or tactile problem (such as building something with Legos), lets me work through larger, abstract problems. Some sort of organic problem solving happens when I’m otherwise occupied.”
What difference is the new science center making?

- Informal teaching is fostered
- Gathering spaces for teas, meet-and-greets
evaluating the impact...
Trinity College
Before

Holy Cross
After

Wheaton College
After
Trinity University

Before
Trinity University

Before
College of the Holy Cross:

Before
Wheaton College
Mars Center for
Science &
Technology

Before
**Wheaton College**
Mars Center for Science & Technology

After
Why Science Majors Go to STEM Buildings

- Attend Class
- Study or do Homework alone
- Study or work on group projects with others
- Hang out with other students
- Conduct independent research
- Meet with faculty outside of class
- Purchase food or drinks

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Why Non-Science Majors Go to STEM Buildings

- Attend Class
- Study or do homework alone
- Study or work on group projects with others
- Hang out with other students
- Conduct independent research
- Meet with faculty member outside of class
- Purchase food or drink at science café

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<table>
<thead>
<tr>
<th>Feature</th>
<th>Not at all Important</th>
<th>Slightly Important</th>
<th>Moderately Important</th>
<th>Very Important</th>
<th>Extremely Important</th>
<th>Mean</th>
<th>SD</th>
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<tr>
<td>Generally quiet</td>
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<td>5.6</td>
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<td>26.1</td>
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<td>22.9</td>
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<td>31.5</td>
<td>24.7</td>
<td>3.62</td>
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<td>Availability of food and drinks in café</td>
<td>12.8</td>
<td>22.8</td>
<td>28.3</td>
<td>22.8</td>
<td>13.3</td>
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<td>1.23</td>
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<td><strong>5.3</strong></td>
<td><strong>9.6</strong></td>
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<td><strong>33.8</strong></td>
<td><strong>29.6</strong></td>
<td><strong>3.31</strong></td>
<td><strong>1.03</strong></td>
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</table>
EYP Research shows students are drawn to the Mars Center for:

- Relative quiet
- Safety
- Natural Light/views
# Importance of Various Features in Mars Center (Wheaton) an Attractive Place to Meet with Other Students (%)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Not at all Important</th>
<th>Slightly Important</th>
<th>Moderately Important</th>
<th>Very Important</th>
<th>Extremely Important</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>Comfortable furniture in public spaces</td>
<td>0.6</td>
<td>4.7</td>
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<td>35.5</td>
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<tr>
<td>Openness and spaciousness of public spaces</td>
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<td>1.02</td>
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<td>8.9</td>
<td>26.8</td>
<td>32.7</td>
<td>26.2</td>
<td>3.65</td>
<td>1.21</td>
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<tr>
<td>Good artificial lighting</td>
<td>4.2</td>
<td>11.3</td>
<td>36.3</td>
<td>28.0</td>
<td>20.2</td>
<td>3.49</td>
<td>1.07</td>
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<tr>
<td>Pleasing décor</td>
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<td>12.0</td>
<td>32.9</td>
<td>32.3</td>
<td>18.6</td>
<td>3.49</td>
<td>1.06</td>
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<td>Views to the outside</td>
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<td>11.9</td>
<td>29.2</td>
<td>30.4</td>
<td>21.4</td>
<td>3.47</td>
<td>1.16</td>
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<td>Availability of food and drinks in café</td>
<td>16.6</td>
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<td>30.8</td>
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<td>17.8</td>
<td>3.15</td>
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<tr>
<td>Many friends go there</td>
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<td>15.4</td>
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<td>23.1</td>
<td>17.8</td>
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<tr>
<td><strong>Average</strong></td>
<td><strong>6.6</strong></td>
<td><strong>9.1</strong></td>
<td><strong>27.4</strong></td>
<td><strong>32.8</strong></td>
<td><strong>24.1</strong></td>
<td><strong>3.58</strong></td>
<td><strong>1.12</strong></td>
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</table>
Student Ratings of Moody (Trinity), the ISC (Holy Cross), and Mars Center (Wheaton) as a Place to Study

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Student Ratings of Moody (Trinity), the ISC (Holy Cross), and Mars Center (Wheaton) as a Place to Meet Others

- Moody
- ISC
- Mars

- One of the last places of choice
- Acceptable
- Good
- One of the favorite places
Students: Moody (Trinity), the ISC (Holy Cross), or Mars Center (Wheaton) is a **Comfortable Place to Work**
Faculty: Moody (Trinity), the ISC (Holy Cross), or Mars Center (Wheaton) is a **Comfortable Place to Work**
### Student Suggestions for Improving the Science and Engineering Facilities at Trinity University

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>N</th>
<th>% of Responses</th>
<th>% of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add study or commons areas</td>
<td>26</td>
<td>18.7</td>
<td>28.0</td>
</tr>
<tr>
<td>Improve lighting</td>
<td>18</td>
<td>12.9</td>
<td>19.4</td>
</tr>
<tr>
<td>Put in more windows</td>
<td>12</td>
<td>8.6</td>
<td>12.9</td>
</tr>
<tr>
<td>Put bathrooms in</td>
<td>10</td>
<td>7.2</td>
<td>10.8</td>
</tr>
<tr>
<td>Upgrade labs</td>
<td>8</td>
<td>5.8</td>
<td>8.6</td>
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<tr>
<td>Modernize the design</td>
<td>7</td>
<td>5.0</td>
<td>7.5</td>
</tr>
<tr>
<td>Add whiteboards or smart boards</td>
<td>7</td>
<td>5.0</td>
<td>7.5</td>
</tr>
<tr>
<td>Add computers</td>
<td>6</td>
<td>4.3</td>
<td>6.5</td>
</tr>
<tr>
<td>Make the elevators work</td>
<td>6</td>
<td>4.3</td>
<td>6.5</td>
</tr>
<tr>
<td>Make it more aesthetically pleasing</td>
<td>5</td>
<td>3.6</td>
<td>5.4</td>
</tr>
<tr>
<td>Put in vending machines</td>
<td>4</td>
<td>2.9</td>
<td>4.3</td>
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<tr>
<td>Other</td>
<td>30</td>
<td>21.6</td>
<td>32.3</td>
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</table>

**Average** 139 100.0 135.3
Student Suggestions for improving the ISC at Holy Cross

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>N</th>
<th>% of Responses</th>
<th>% of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep café open later</td>
<td>73.0</td>
<td><strong>34.8</strong></td>
<td>43.7</td>
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<tr>
<td>Add more study/work space</td>
<td>21.0</td>
<td><strong>10.0</strong></td>
<td>12.6</td>
</tr>
<tr>
<td>Keep complex open later</td>
<td>19.0</td>
<td><strong>9.0</strong></td>
<td>11.4</td>
</tr>
<tr>
<td>Expand/improve café menu</td>
<td>14.0</td>
<td>6.7</td>
<td>8.4</td>
</tr>
<tr>
<td>Expand science library</td>
<td>8.0</td>
<td>3.8</td>
<td>4.8</td>
</tr>
<tr>
<td>Reduce café prices</td>
<td>7.0</td>
<td>3.3</td>
<td>4.2</td>
</tr>
<tr>
<td>Improve navigation within complex</td>
<td>7.0</td>
<td>3.3</td>
<td>4.2</td>
</tr>
<tr>
<td>Add computers</td>
<td>6.0</td>
<td>2.9</td>
<td>3.6</td>
</tr>
<tr>
<td>Provide better temperature control</td>
<td>6.0</td>
<td>2.9</td>
<td>3.6</td>
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<tr>
<td>Keep library open at night</td>
<td>5.0</td>
<td>2.4</td>
<td>3.0</td>
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<tr>
<td>Provide better/newer furniture</td>
<td>3.0</td>
<td>1.4</td>
<td>1.8</td>
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<tr>
<td>Keep classrooms open at night</td>
<td>3.0</td>
<td>1.4</td>
<td>1.8</td>
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<tr>
<td>Other</td>
<td>38.0</td>
<td>18.1</td>
<td>22.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>49.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
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## Student Suggestions for Improving the Mars Center (Wheaton)

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>N</th>
<th>% of Responses</th>
<th>% of Cases</th>
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</thead>
<tbody>
<tr>
<td>Keep café open later</td>
<td>12</td>
<td>11.4</td>
<td>14</td>
</tr>
<tr>
<td>Keep classrooms and labs open at night</td>
<td>12</td>
<td>11.4</td>
<td>14</td>
</tr>
<tr>
<td>Add more study spaces or study rooms</td>
<td>10</td>
<td>9.5</td>
<td>11.6</td>
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<tr>
<td>Increase size of seminar rooms</td>
<td>8</td>
<td>7.6</td>
<td>9.3</td>
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<tr>
<td>Provide more comfortable chairs</td>
<td>8</td>
<td>7.6</td>
<td>9.3</td>
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<tr>
<td>Increase use of building (e.g., hold more classes there)</td>
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<td>4.8</td>
<td>5.8</td>
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<tr>
<td>More accessible printers and computers</td>
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<td>4.8</td>
<td>5.8</td>
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<tr>
<td>Improve temperature control</td>
<td>4</td>
<td>3.8</td>
<td>4.7</td>
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<tr>
<td>Provide maps or signage for easier navigation</td>
<td>3</td>
<td>2.9</td>
<td>3.5</td>
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<tr>
<td>Expand/improve café menu</td>
<td>3</td>
<td>2.9</td>
<td>3.5</td>
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<tr>
<td>Reduce café food prices</td>
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<tr>
<td>Add artwork and color</td>
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<td>Provide easier lighting control</td>
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<td>100.2</td>
<td>122.2*</td>
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discussion...