The *K-Plan* and Kalamazoo College’s High Ranking in Baccalaureate Origins of Doctorates

Anne Dueweke  
Assistant Provost  
Institutional Support and Research

Paul Sotherland  
Associate Professor and Chair  
Department of Biology
"When you get to the future - when you become the doctor or write the novel - you'll find that your future nows are just as contingent, just as uneasy, just as "present-like," as is your present today. So it turns out that cultivating education - a sense of self that perpetually, restlessly looks for meanings in situations and facts and ideas - is a crucial resource for the future, because the future is a series of contingent moments just like the present."

Andrew Abbott, 2002
Take-home Messages

More than anything else, our version of a liberal arts education

- Seems to help students develop into independent, lifelong learners
- Provides experiential components that contribute to the intellectual and personal development of students
- Expands the foundation created by coursework
- Fosters participation in experiential education
2004 Baccalaureate Origins of PhDs Data
From the Higher Education Data Sharing (HEDS) Consortium

Ranking for all disciplines: 18th among all institutions

Kalamazoo College is among the top 30 in ten fields

- Life Sciences: 4th
- Foreign Languages: 4th
- Chemistry: 8th
- Linguistics: 16th
- Physical Sciences: 13th
- Sciences and Engineering: 12th
- Psychology: 14th
- Computer Science: 25th
- Economics: 17th
- Mathematics: 30th
Top 15 Institutions
Leading in Production of Scientists
(From: *Origin of American Scientists*, 1952)

- Reed
- California Institute of Technology
- **Kalamazoo College**
- Earlham
- Oberlin
- University of Massachusetts
- Hope
- DePauw
- Nebraska Wesleyan
- Iowa Wesleyan
- Antioch
- Marietta
- Colorado
- Cornell
- Central
Top 15 Institutions Leading in Production of Doctorates in Life Sciences (From: HEDS, 2004)

Reed College
California Institute of Technology
Swarthmore College
Kalamazoo College
University of Chicago
Univ. of the Sci. in Philadelphia
Earlham College
Massachusetts Institute of Technology
Univ. of California-San Francisco
Johns Hopkins University
Grinnell College
SUNY College of Env. Sci. and Forestry
Carleton College
Haverford College
Harvey Mudd College

Top 15 Institutions Leading in Production of Doctorates in Foreign Languages (From: HEDS, 2004)

Bryn Mawr College
Grinnell College
Reed College
Kalamazoo College
Amherst College
St. John's College
Bennington College
University of the South
Yale University
Lawrence University
Middlebury College
Mount Holyoke College
Barnard College
Haverford College
Oberlin College
Why the noteworthy increase in rank?

Baccalaureate Origins of PhDs:
Sciences and Engineering Top 30
The *K-Plan*

Our experiential approach to a Liberal Arts Education

- On-campus liberal arts curriculum
- Career Development Internships
- Study Abroad
- Senior Individualized Project
80% of all students participate in Study Abroad, typically for six months at one of 50 sites around the world.

Kalamazoo College

STEM Participation in Study Abroad

1998-2002 Graduates

<table>
<thead>
<tr>
<th>Field</th>
<th>Total Graduates</th>
<th>Study Abroad</th>
<th>Study Abroad %</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOLOGY</td>
<td>190</td>
<td>160</td>
<td>84%</td>
</tr>
<tr>
<td>CHEMISTRY</td>
<td>66</td>
<td>53</td>
<td>80%</td>
</tr>
<tr>
<td>COMPUTER SCIENCE</td>
<td>39</td>
<td>26</td>
<td>67%</td>
</tr>
<tr>
<td>HEALTH SCIENCE (pre-med)</td>
<td>92</td>
<td>75</td>
<td>82%</td>
</tr>
<tr>
<td>MATHEMATICS</td>
<td>34</td>
<td>30</td>
<td>88%</td>
</tr>
<tr>
<td>3-2 ENGINEERING (Physics)</td>
<td>17</td>
<td>11</td>
<td>65%</td>
</tr>
<tr>
<td>PHYSICS</td>
<td>30</td>
<td>20</td>
<td>67%</td>
</tr>
<tr>
<td><strong>TOTAL STEM &amp; Study Abroad</strong></td>
<td><strong>470</strong></td>
<td><strong>376</strong></td>
<td><strong>80%</strong></td>
</tr>
</tbody>
</table>
## Positions of Intellectual Development

<table>
<thead>
<tr>
<th>Generic Position</th>
<th>&quot;Forms&quot; Perry</th>
<th>&quot;Ways&quot; Belenky et al.</th>
<th>&quot;Modes&quot; Nelson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Dualism</td>
<td>Received Knowing</td>
<td>Sergeant Friday</td>
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<tr>
<td></td>
<td></td>
<td>&quot;No Voice&quot; ... &quot;Radio Voice&quot; ...</td>
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<tr>
<td></td>
<td></td>
<td>&quot;Oppositional Voice&quot;</td>
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<td></td>
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<td>&quot;Just the FACTS&quot;</td>
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<tr>
<td>Yellow</td>
<td>Multiplicity</td>
<td>Subjective Knowing</td>
<td>Baskin Robbins</td>
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<tr>
<td></td>
<td></td>
<td>&quot;Own Voice&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;One opinion is as good as any other&quot;</td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td>Contextual Relativism</td>
<td>Procedural Knowing</td>
<td>Playing Disciplinary &quot;Games&quot;</td>
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<tr>
<td></td>
<td></td>
<td>Separate ... Connected</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Speak in measured tones&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;So that's why you think (act) the way you do&quot;</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>Commitment</td>
<td>Constructed Knowing</td>
<td>Taking a Stand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Passion restored to voice&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Some 'games' work for me better in different situations&quot;</td>
<td></td>
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</table>
Alumni Survey

• Sent to 826 alumni who earned a doctorate
• Return rate of 53%
• About 75% of respondents experienced *K-Plan*
• Data presented today are from this group only

So…what did we find?
What attracted students to Kalamazoo College?

- *K-Plan* and Study Abroad
- Strong liberal arts education
- Overall academic reputation
- About 50% were attracted by reputation in the sciences.
- About one-third were attracted by strength of preparation for graduate school
• Students were moderately to very certain about their intended major at matriculation.

• Intended majors were predominantly in the sciences – Biology, Chemistry, English, Health Sciences, Mathematics, and Physics.

• Interestingly, predominant majors at graduation were the same with the addition of Psychology.
Approximately one-quarter of the students had earning a doctorate as a long-term goal when they entered college.

Of those remaining, 52% decided while in college to earn a doctorate after graduation.
Valuable to Very Valuable Contributors to Success in Graduate School

- Coursework in the major
  - Rigor (90%)
  - Content (84%)
- Senior Individualized Project (87%)
- Relationships with faculty (72%)
- Rigor of coursework outside the major (74%)
Synthesize/Integrate
New Ideas/Information

Valuable for Success in Graduate School - 97%

Have Self-Confidence

Valuable for Success in Graduate School - 93%

Solve Unscripted Problems

Valuable for Success in Graduate School - 91%

Acquire Skills/Information

Valuable for Success in Graduate School - 97%
Consider Issues/Problems from Various Points of View

Valuable for Success in Graduate School - 85%

Speak Second Language

Valuable for Success in Graduate School - 36%

Adapt to New Situations

Valuable for Success in Graduate School - 90%
Compared with peers in graduate school, our graduates felt adequately prepared in their content area.

Our graduates also felt they had better than average preparation in academic skills.
Developing a commitment to further study was enhanced primarily by the following:

- Coursework (primarily in the major)
- Faculty encouragement and relationships with faculty
- Meeting with academic success
- Experiences encountered while carrying out the Senior Individualized Project
Enhanced On-Campus Learning

Instilled or Enhanced a Love of the Discipline
Did participation by other students on campus encourage you to participate?

Career Development: Yes

Study Abroad: Yes
Did participation by other students on campus enhance your experience?

- Career Development
  - Yes

- Study Abroad
  - Yes

- SIP
  - Yes
Study Abroad did not detract from success in graduate school for 65% of the respondents.

Of those who said it did detract somewhat from graduate school success, 83% indicated the trade-off was definitely worth it.
Inferences

Through the *K-Plan* we

- Create an environment that encourages students to learn experientially
- Provide experiential components that enhance traditional classroom learning
- Foster development of students who embody critical thinking and connected knowing and who are self-directed, life-long learners
Through the *K-Plan* we also strive to nurture President Hoben’s “Fellowship in Learning”

…and…”to this fellowship, this self-discovery, with its attendant joy of purposeful living, Kalamazoo College welcomes succeeding generations of students and sends them out into the wide, wide world possessing something of the likeness and life of their Alma Mater – the scholar’s spirit to human welfare.”