Weaving Experiential Learning throughout a Liberal Arts Curriculum

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This presentation, given at the AAC&U General Education and Assessment Conference 4-6 March 2004, shared results of an alumni survey on outcomes of a Kalamazoo College Education. A copy of the survey is appended to the end of this presentation. Survey question numbers are shown in boxes on slides showing data from the survey.
Roadmap

1. Take-home Messages
2. Introduction to Kalamazoo College
3. Alumni Survey
4. Inferences
Take-home Messages

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

• Seems to help students develop into independent, life-long 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
Kalamazoo College

Mission Statement

“The mission of Kalamazoo College is to prepare its graduates to better understand, live successfully within, and provide enlightened leadership to a richly diverse and increasingly complex world.”
The K-Plan

Our experiential approach to a Liberal Arts Education

- On-campus liberal arts curriculum
- Career Development Internships
- Study Abroad
- Senior Individualized Project

Established in 1962, the K-Plan combines rigorous on-campus coursework in the liberal arts with significant off-campus experiences. About 75% of all K students complete at least one Career Development internship, 80% of K students study abroad for at least one term, and all students complete a Senior Individualized Project (SIP) as a requirement for graduation. The SIP is typically a research project or other creative endeavor done in the major.
80% of all students participate in Study Abroad, typically for six months at one of 30 sites around the world.

**Kalamazoo College**  
STEM Participation in Study Abroad  
1998-2002 Graduates

<table>
<thead>
<tr>
<th></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>TOTAL STEM &amp; Study Abroad</td>
<td>470</td>
<td>376</td>
<td>80%</td>
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</tbody>
</table>

Science and math majors study abroad at the same rates as the College average, and curricula in the sciences are built around the assumption that 8 out of 10 majors will be gone for most of their junior year. Kalamazoo students may choose to study abroad at one of 50 sites in 30 different countries.
Outcomes of The *K-Plan*

The Five Dimensions

- Life-long learning
- Career readiness
- Intercultural understanding
- Social responsibility
- Leadership

Through the *K-Plan*, the College strives to cultivate among students these five key dimensions of intellectual and personal growth.
This table juxtaposes three well-known constructs for describing intellectual development of college-age adults. Research shows that students make their greatest developmental leap (from dualism to multiplicity) during their first year of college. We believe that study abroad engenders a second leap in intellectual development during the undergraduate years.
Why the noteworthy increase in rank?

Baccalaureate Origins of PhDs:
Sciences and Engineering Top 30

The data illustrated here are from the Higher Education Data Sharing (HEDS) Consortium study on baccalaureate origins of doctorates. The black line shows K’s trajectory in the national rankings from the early 1970s to present. We wondered why the noteworthy increase in rank, and decided to survey all alumni with doctorate degrees to find out how their K College education contributed to their decision to attend graduate school and to their success there.
Alumni Survey

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

The Alumni Survey, designed by the Director of Institutional Research with input from the faculty Assessment Committee, is attached at the end of this presentation. The following slides showing survey data will have survey question numbers in the lower right hand corner.
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.

We wondered if these alumni were attracted by the College’s reputation in the sciences or as being good preparation for graduate school. As it turns out, most were attracted by the overall academic reputation and the *K-Plan*, particularly study abroad, and not because they thought attending K would be good 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 Ph.D. as a long-term goal when they entered college.

Of those remaining, 52% decided while in college to earn a Ph.D. after graduation.

Some of the alumni had already decided to earn a PhD when they arrived at the College, but many were inspired by their experiences at K, in particular by encouragement from faculty, to earn a PhD 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%)

Q6
Graphs on this page and the three pages following show how alumni responded to Question 7. At the top of each graph is an indication of how valuable the attribute was to success in graduate school. Bars in the graphs show the extent to which the various elements of the K-Plan contributed to the development of a given attribute. We grouped these four graphs together because they illustrate how coursework and the Senior Individualized Project (SIP) contributed most to the development of traditional academic skills.
In the skills grouped together here, coursework and the SIP continue to be important contributors to students' personal and intellectual development, but the experiential components of Career Development and Study Abroad also begin to play significant roles.
For learning how to adapt to new situations, Study Abroad is by far the most significant experience, followed by Career Development and the SIP. Coursework plays a fairly minor role in this area. The graphs for "Consider Issues/Problems from Various Points of View" and "Speak a Second Language" are shown together because coursework and Study Abroad together are the most significant contributors to development.
These graphs show that the *K-Plan* is not particularly effective in helping students to learn from failure, speak effectively before groups, or function effectively as members of a team. We suspect that in future alumni surveys, coursework will be shown to be a contributing factor in the development of the latter two skills as a result of changes in curricular focus.
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.

Success in graduate school did not appear to be overly dependent on initial preparation in terms of core material; rather, other factors like persistence, creativity, range of experiences seemed to have equal footing. K'91, PhD Physics

Alumni responses to extent of preparation in the content area of their discipline were quite varied. Study Abroad is probably a factor here. Most students are away for a significant part of their junior year when they would otherwise be taking courses in the major. However, alumni felt that their preparation was better than average in skill areas, such as reading, writing, and research.
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.

My thanks to the K faculty for seeing my potential and giving me encouragement. I would not have even considered graduate school without those personal relationships. K68, PhD Cultural Anthropology
**Question 10:** It's not surprising that coursework and the SIP were important in instilling or enhancing a love of the discipline. What's interesting is that Career Development and Study Abroad were also important in this regard for many respondents.

Responses to **Question 13** indicate that most respondents not only saw connections between their on-campus learning and off-campus experiences, but felt that their on-campus learning was *enhanced* by Career Development, Study Abroad, and the SIP.
Did participation by other students on campus encourage you to participate?

Because of Study Abroad, I became more confident, more of a risk-taker, and more interested in learning in general. I would not have gone to Europe if others had not gone too. k '77, PhD Epidemiology

Responses to Question 11 show that high participation rates encourage participation. For the majority of respondents, the decision to do a Career Development internship or go on Study Abroad was easier because many of their classmates were also participating. The fact that “everybody is doing it” makes the idea less daunting.
Did participation by other students on campus enhance your experience?

- CarDev: Yes
- StudyAbroad: Yes
- SIP: Yes

The fact that many of their classmates were also participating enhanced the Study Abroad experiences of most respondents. This makes sense because students go abroad in small groups and sometimes room together. Career Development and the SIP are more individual experiences.
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.

Upon entering grad school, I realized I had taken fewer psychology courses and had had fewer research opportunities compared to my peers. However, I also had some once-in-a-lifetime experiences on my Career Development and Study Abroad that really helped me define who I was. That was definitely worth a few courses. K '91, PhD Psychology

Finally, because Study Abroad means that K graduates tend to take fewer courses in the major compared graduates of other institutions, we asked whether the Study Abroad experience detracted from their preparation for graduate school. The majority said it did not detract in any way, and of those who said that it did, the vast majority felt it was worth it.
Inferences
Weaving experiential education, via the *K-Plan*, into a liberal arts curriculum

- Creates an environment that encourages students to learn experientially
- Provides experiential components that enhance traditional classroom learning
- Fosters development of students who embody critical thinking and connected knowing and who are self-directed, life-long learners

Mix together bright, curious minds, inspiring instruction, demanding curriculum, mind-expanding experiences, and open nurturing and supportive environment, and young adults get jazzed about life's possibilities, life's big questions, and they develop a will and confidence to go out and answer them. K78, PhD Chemistry
KALAMAZOO COLLEGE
Survey of Alumni with Doctorate Degrees
Fall 2003

SECTION A. General Information

1. Name: ____________________________ ____________________________ ____________________________ ____________________________
   (First) (Last) (Middle) (circle one)
   Gender: M / F Year of Graduation: _________

2. Home address: ____________________________ ____________________________ ____________________________ ____________________________
   (Street) (City) (State) (Zip)

3. Email address: ____________________________ Home phone: ________________ ________________ ________________ ________________
   (Area Code) (Number)

4. Business address: ____________________________ ____________________________ ____________________________ ____________________________
   (Street) (City) (State) (Zip)

5. Business email: ____________________________ Business phone: ________________ ________________ ________________ ________________
   (Area Code) (Number)

6. Undergraduate Major(s): ____________________________ ____________________________ ____________________________ ____________________________

7. What is your current position?
   (Organization Name) ____________________________
   (Brief description of position/function) ____________________________
   Example: attorney, manufacturing co.

SECTION B. Graduate Degree Information

1. What post-graduate degrees have you obtained?
   ______________________________________________________________________________________________
   ______________________________________________________________________________________________
   ______________________________________________________________________________________________
   (Degree) (Field of study) (Institution) (Year granted or expected)

2. Highest Degree Earned by Mother: ____________________________

3. Highest Degree Earned by Father: ____________________________

SECTION C. Your ‘K’ Education

1. Please rate the extent to which the following factors influenced your choice to attend Kalamazoo College:

   a. Reputation in the sciences
   b. Study abroad program
   c. K-Plan overall
   d. Nearness to home
   e. Reputation of pre-med program
   f. Reputation as good preparation for graduate school
   g. Liberal arts education
   h. Small class sizes
   i. Reputation for excellent teaching
   j. Small size of student body
   k. Reputation of the faculty
   l. Athletics
   m. Heyl scholarship
   n. Overall academic reputation
   p. Good financial aid package
   q. Year-round calendar
   r. Other ________________________

   A great deal Quite a bit A moderate amount A little bit Not at all N/A

2. Upon arriving at Kalamazoo College, how certain did you feel about your intended major(s)?
   [ ] Extremely certain [ ] Very certain [ ] Moderately certain [ ] Not very certain [ ] Not at all certain
3 Which field(s) were you considering for a major when you arrived at Kalamazoo College? (Check up to three)

- Anthropology
- Art
- Art and Art History
- Biology
- Chemistry
- Classical Studies
- Computer Science
- Economics and Business
- English
- French
- German
- Health Sciences
- Human Development
- and Social Relations
- International and Area Studies
- Mathematics
- Music
- Philosophy
- Physics
- Political Science
- Psychology
- Religion
- Sociology
- Sociology and Anthropology
- Spanish
- Theatre
- Don’t remember
- Other ________________

4 Were you already planning to pursue a doctorate degree when you first came to Kalamazoo College?

- Yes (Skip to question 6)
- No (Answer question 5)
- Maybe (Skip to question 6)

5 If you were not planning on pursuing a doctorate when you first came to K, at what point did you decide to pursue a doctorate degree?

- During undergraduate study at K
- During graduate school
- While taking coursework after K
- During employment after K
- Other ____________________________

Why? __________________________________________________________________________________________________________________

____________________________________________________________________________________________________________________

6 How valuable was each of the following elements of your K education to your success in graduate school? (if an item does not apply to your undergraduate experience, mark N/A)

<table>
<thead>
<tr>
<th>Element</th>
<th>Very valuable</th>
<th>Valuable</th>
<th>Somewhat valuable</th>
<th>Not at all valuable</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Content of coursework in your major</td>
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<tr>
<td>b. Content of coursework outside your major</td>
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<td>c. Rigor of coursework in your major</td>
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<tr>
<td>d. Rigor of coursework outside your major</td>
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<td>e. Career Development/Career Service</td>
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<td>f. Study Abroad</td>
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<td>g. SIP</td>
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<td>h. Comprehensive exams</td>
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<tr>
<td>i. Relationships with Kalamazoo College faculty</td>
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<td>j. Relationships with fellow students</td>
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<td>k. Other</td>
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</table>

7 Please indicate in the first column how valuable each of the following skills or attributes were to your success in graduate school. In the second column please check the element(s) of the K-Plan (all that apply) that contributed to your development in each area. If you didn’t participate in Career Development or Study Abroad, leave blank.

<table>
<thead>
<tr>
<th>Skill or Attribute</th>
<th>Very valuable</th>
<th>Valuable</th>
<th>Somewhat valuable</th>
<th>Not at all valuable</th>
<th>Course work</th>
<th>Career Service/ Development</th>
<th>Study Abroad</th>
<th>SIP</th>
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</thead>
<tbody>
<tr>
<td>a. Write effectively</td>
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<td>b. Think critically</td>
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<td>c. Solve unscripted problems</td>
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<td>d. Speak effectively before groups</td>
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<td>e. Acquire new skills and information on your own</td>
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<td>f. Adapt to new situations</td>
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<td>g. Learn from failures</td>
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<td>h. Consider issues and problems from various points of view</td>
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<td>i. Synthesize and integrate new ideas and information</td>
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<td>j. Function effectively as a member of a team</td>
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<td>k. Conduct research effectively</td>
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<td>l. Speak a second language</td>
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<td>m. Think analytically</td>
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<td>n. Work under pressure</td>
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<td>o. Have self-confidence</td>
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</tbody>
</table>
Compared to your peers in graduate school, how prepared did you feel in the following areas during the first couple years of graduate school?

<table>
<thead>
<tr>
<th></th>
<th>Much better prepared</th>
<th>Slightly better prepared</th>
<th>About the same level of preparation</th>
<th>Slightly under-prepared</th>
<th>Very under-prepared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading skills</td>
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<td></td>
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<tr>
<td>Writing skills</td>
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<tr>
<td>Oral presentation skills</td>
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<td>Research skills</td>
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<td>Discussion skills</td>
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<tr>
<td>Knowledge of field overall</td>
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<td>Time management skills</td>
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<tr>
<td>Teaching skills (if applicable)</td>
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</tbody>
</table>

How important were each of the following factors in your development of a commitment to further study:

<table>
<thead>
<tr>
<th></th>
<th>Very important</th>
<th>Important</th>
<th>Somewhat important</th>
<th>Not very important</th>
<th>N/A</th>
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</thead>
<tbody>
<tr>
<td>Coursework (list any pivotal courses)</td>
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<tr>
<td>Faculty encouragement/mentorship (list any pivotal faculty)</td>
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<tr>
<td>Discussions with other students</td>
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<td>Academic success</td>
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<td>Faculty recognition of my aptitude</td>
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<td>Career Development/Service experience</td>
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<tr>
<td>Faculty as role models</td>
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<tr>
<td>Study Abroad experience</td>
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<td>SIP experience</td>
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<td>Other</td>
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</table>

The following components of my experience at Kalamazoo College instilled or enhanced a love of the discipline in which I earned a degree:

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Disagree strongly</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coursework</td>
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<td>Career Development/Service</td>
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<tr>
<td>Study Abroad</td>
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<tr>
<td>SIP</td>
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</tbody>
</table>

Did the fact that most or all of your classmates were participating in the same or similar programs encourage you to participate in...

- Career Development/Career Service
- Study Abroad

Did the fact that most or all of your classmates were participating in the same or similar programs enhance your experience in...

- Career Development/Career Service
- Study Abroad
- the SIP

Please indicate the extent to which the following off-campus experiences enhanced your on-campus learning.

<table>
<thead>
<tr>
<th></th>
<th>A great deal</th>
<th>Quite a bit</th>
<th>A moderate amount</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career Development/Service</td>
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<tr>
<td>Study Abroad</td>
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<tr>
<td>SIP</td>
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</tbody>
</table>
14 Consider the Career Development/Service --> Study Abroad --> SIP progression as a developmental sequence:
   a. Did you acquire skills during Career Development that helped to prepare you for Study Abroad?
      □ Yes □ No □ I did not participate
   b. Did you acquire skills during Career Development that helped to prepare you for the SIP experience?
      □ Yes □ No □ I did not participate
   c. Did you acquire skills during Study Abroad that helped to prepare you for the SIP experience?
      □ Yes □ No □ I did not participate

15 It is sometimes suggested that missing coursework in the major during Study Abroad detracts from preparation for graduate school. To what extent was this true in your own experience?
   □ A great deal □ Quite a bit □ A moderate amount □ Somewhat □ Not at all (Skip to question 17)
   □ I didn’t go on Study Abroad (Skip to question 17)

16 If missing coursework in our major(s) because of Study Abroad caused you to be less prepared for graduate school than your peers, do you believe the trade-off was worth it?
   □ Yes, definitely □ Yes, somewhat □ Not sure □ Definitely not □ N/A

17 Describe the off-campus components of your K-Plan:
   Career Development/Career Service: _________________________________________________________________
   Study Abroad: ________________________________________________________________________________
   SIP: _________________________________________________________________________________________
   Other significant experience(s): ________________________________________________________________

18 Since graduating from K, have you spent a significant time abroad for reasons other than vacation?
   □ Yes (please check relevant boxes below) □ No (Please proceed to question 19)
   
<table>
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<th>Region(s) visited</th>
<th>Total duration of visit(s)</th>
<th>Reason(s) for visit(s)</th>
</tr>
</thead>
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<td>□ less than two weeks</td>
<td>□ Professional meetings</td>
</tr>
<tr>
<td>□ Asia</td>
<td>□ 2-4 weeks</td>
<td>□ Seminar or course</td>
</tr>
<tr>
<td>□ Australia</td>
<td>□ 1-3 months</td>
<td>□ Work for pay</td>
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<tr>
<td>□ Caribbean</td>
<td>□ 4-6 months</td>
<td>□ Volunteer work</td>
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<td>□ 7-12 months</td>
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<td>□ 1-2 years</td>
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<td>□ 3-4 years</td>
<td>□ Other ________________</td>
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<tr>
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<td>□ 5 years or more</td>
<td>□ Other ________________</td>
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<tr>
<td>□ Western Europe</td>
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</tbody>
</table>

19 What are your thoughts regarding possible causes for the rise in the rankings of PhD production since the early 1970s?

We welcome any other comments you may have: