

Weaving Experiential Learning throughout a Liberal Arts Curriculum

Anne Dueweke
Assistant Provost
Institutional Support and Research

Paul Sotherland
Associate Professor and Chair
Department of Biology

Kalamazoo College

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

	Total Graduates	Study Abroad	Study Abroad %
BIOLOGY	190	160	84%
CHEMISTRY	66	53	80%
COMPUTER SCIENCE	39	26	67%
HEALTH SCIENCE (pre-med)	92	75	82%
MATHEMATICS	34	30	88%
3-2 ENGINEERING (Physics)	17	11	65%
PHYSICS	30	20	67%
TOTAL STEM & Study Abroad	470	376	80%

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.

Positions of Intellectual Development

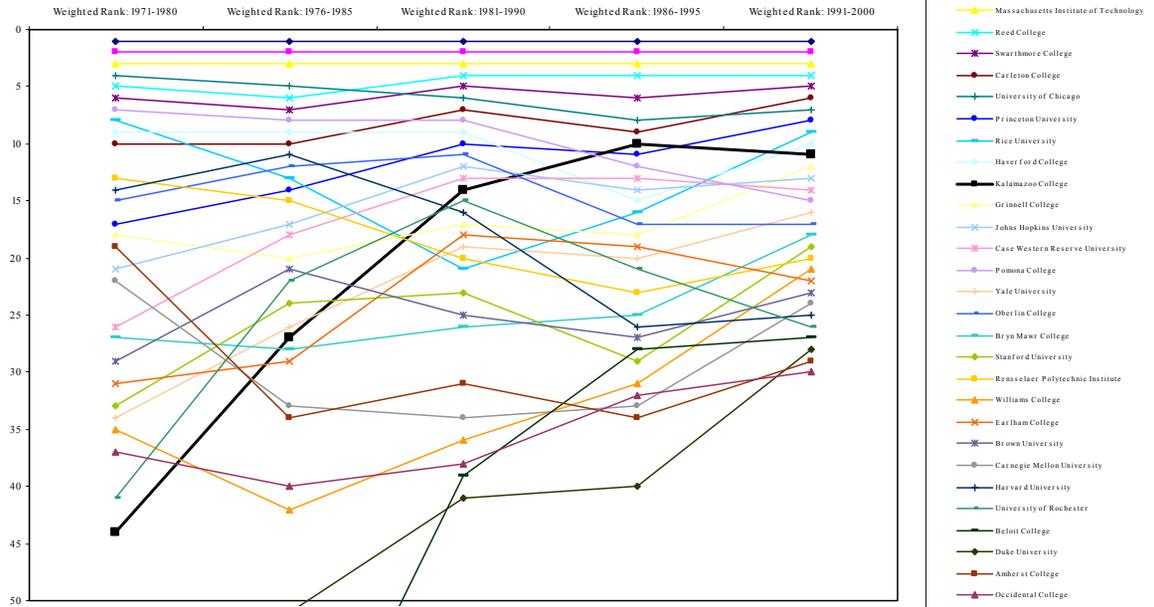
GENERIC POSITION	"FORMS" ERRY	"WAYS" ELENKY ET AL.	"MODES" NELSON
Red	Dualism	Received Knowing "No Voice" ... "Radio Voice" ... "Oppositional Voice"	Sergeant Friday "Just the FACTS"
Yellow	B Multiplicity	Subjective Knowing "Own Voice"	Baskin Robbins "One opinion is as good as any other"
Blue	Contextual Relativism	Procedural Knowing Separate ... Connected "Speak in measured tones"	Playing Disciplinary "Games" "So that's why you think (act) the way you do"
Green	Commitment	Constructed Knowing "Passion restored to voice"	Taking a Stand "Some 'games' work for me better in different situations"

Our task as faculty is to make students as comfortable as possible while making them as uncomfortable as possible. Sage Grayhead

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.

Q1

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.

Q2

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.

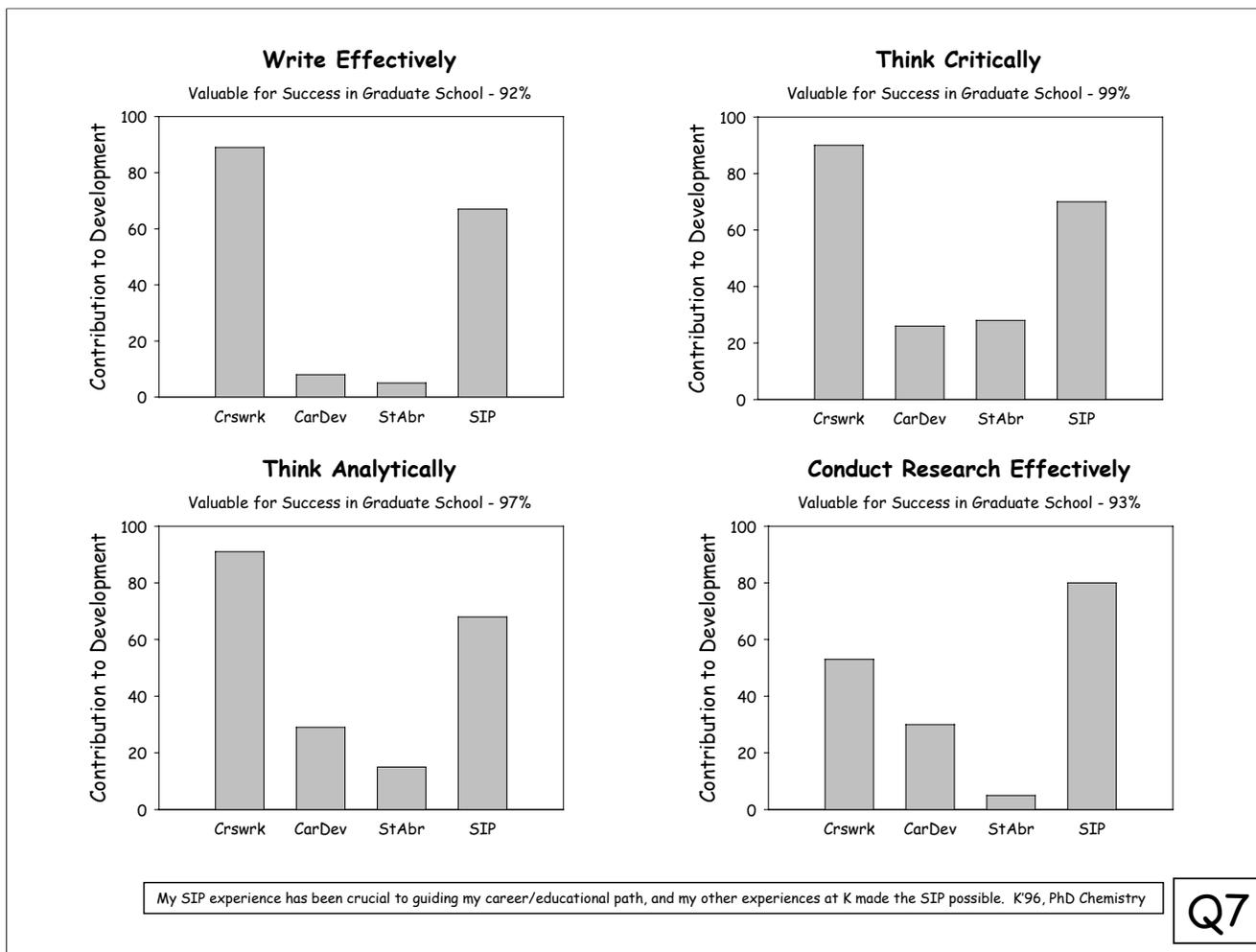
Q4 & 5

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.

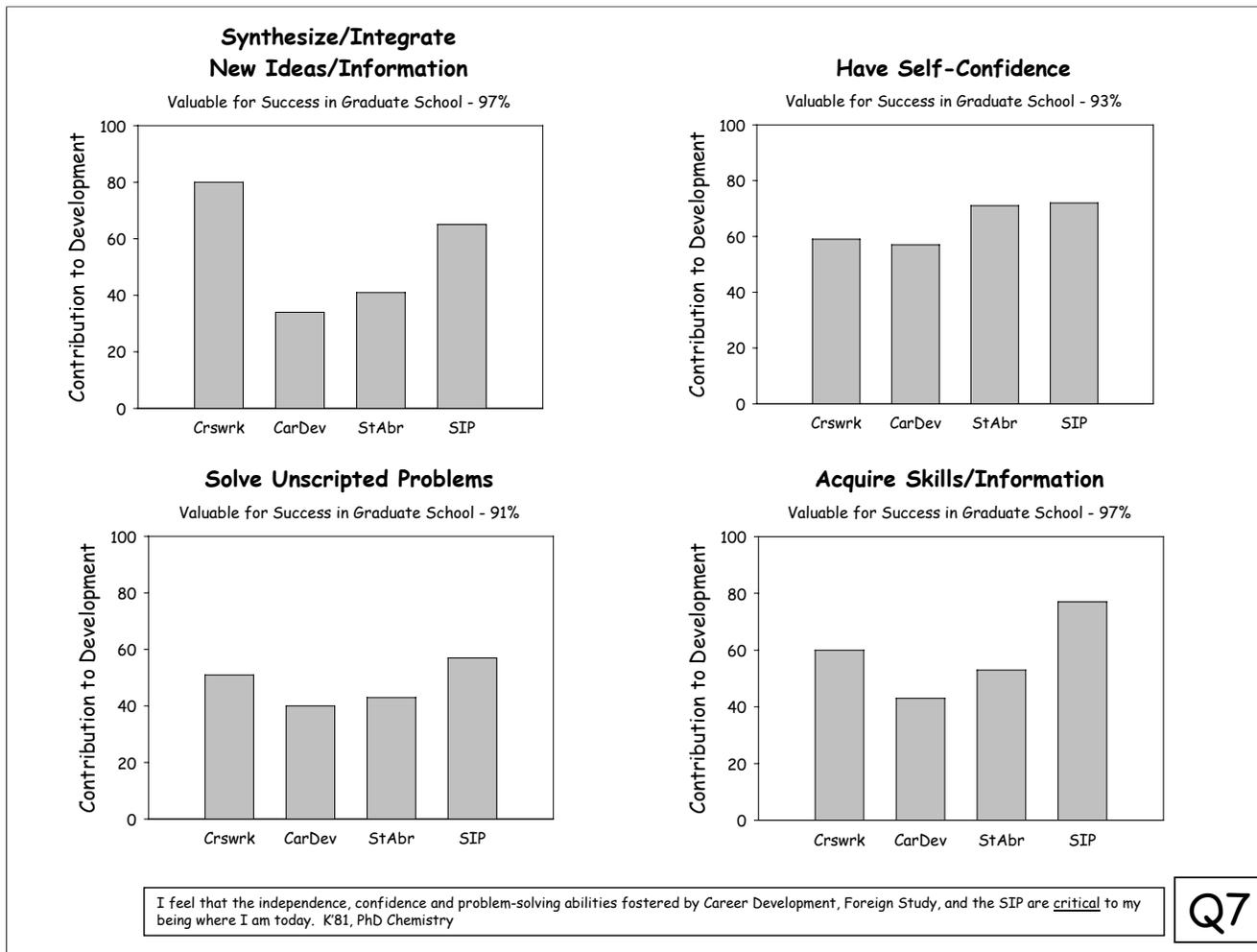
Valuable to Very Valuable Contributors to Success in Graduate School

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

Q6



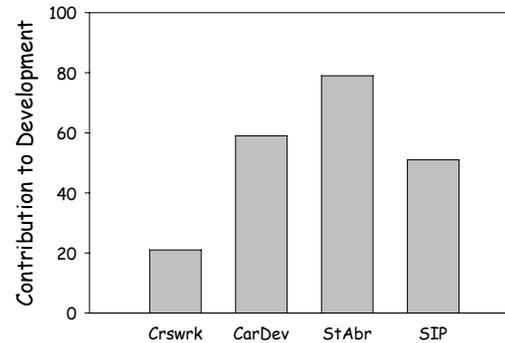
Graphs on this page and the three pages following show how alumni responded to Question 7. At the top of each graph is an indication of how valuable the attribute was to success in graduate school. Bars in the graphs show the extent to which the various elements of the *K-Plan* contributed to the development 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.

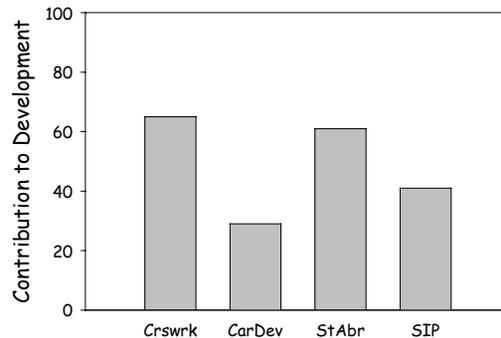
Adapt to New Situations

Valuable for Success in Graduate School - 90%



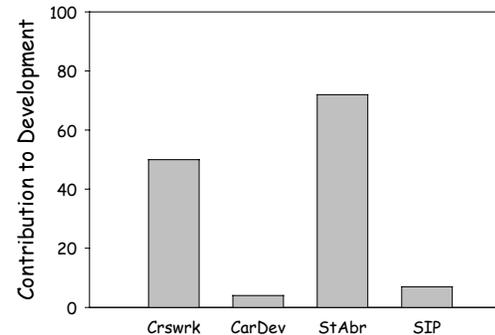
Consider Issues/Problems from Various Points of View

Valuable for Success in Graduate School - 85%



Speak Second Language

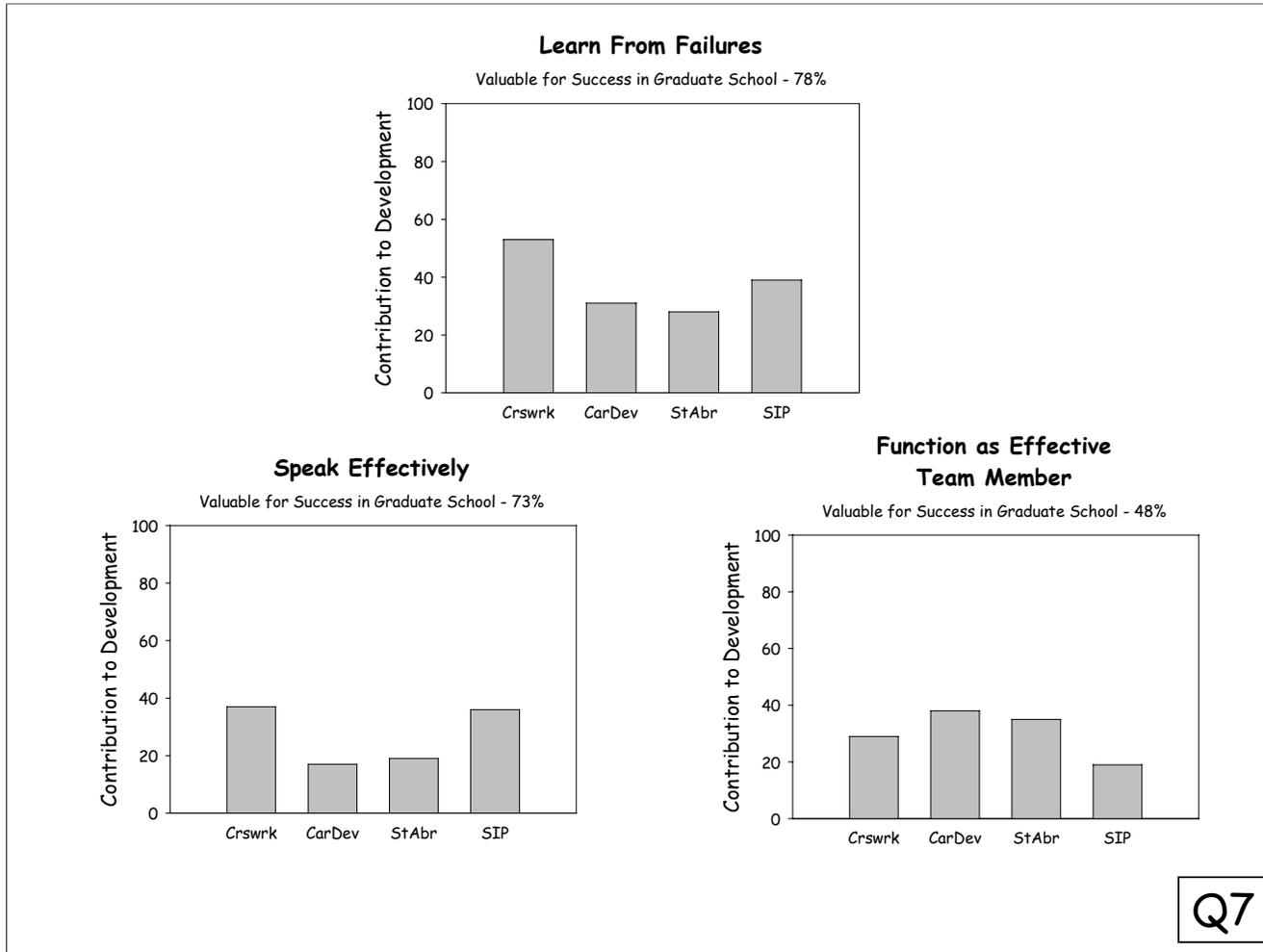
Valuable for Success in Graduate School - 36%



The total *K-Plan*, in my opinion, fosters an independence and confidence [that] makes graduate school a logical next step. Continue to "throw them out there;" continue to put your students in new, and perhaps, uncomfortable situations both at K and away. K'71, PhD Microbiology and Immunology

Q7

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. K91, PhD Physics

Q8

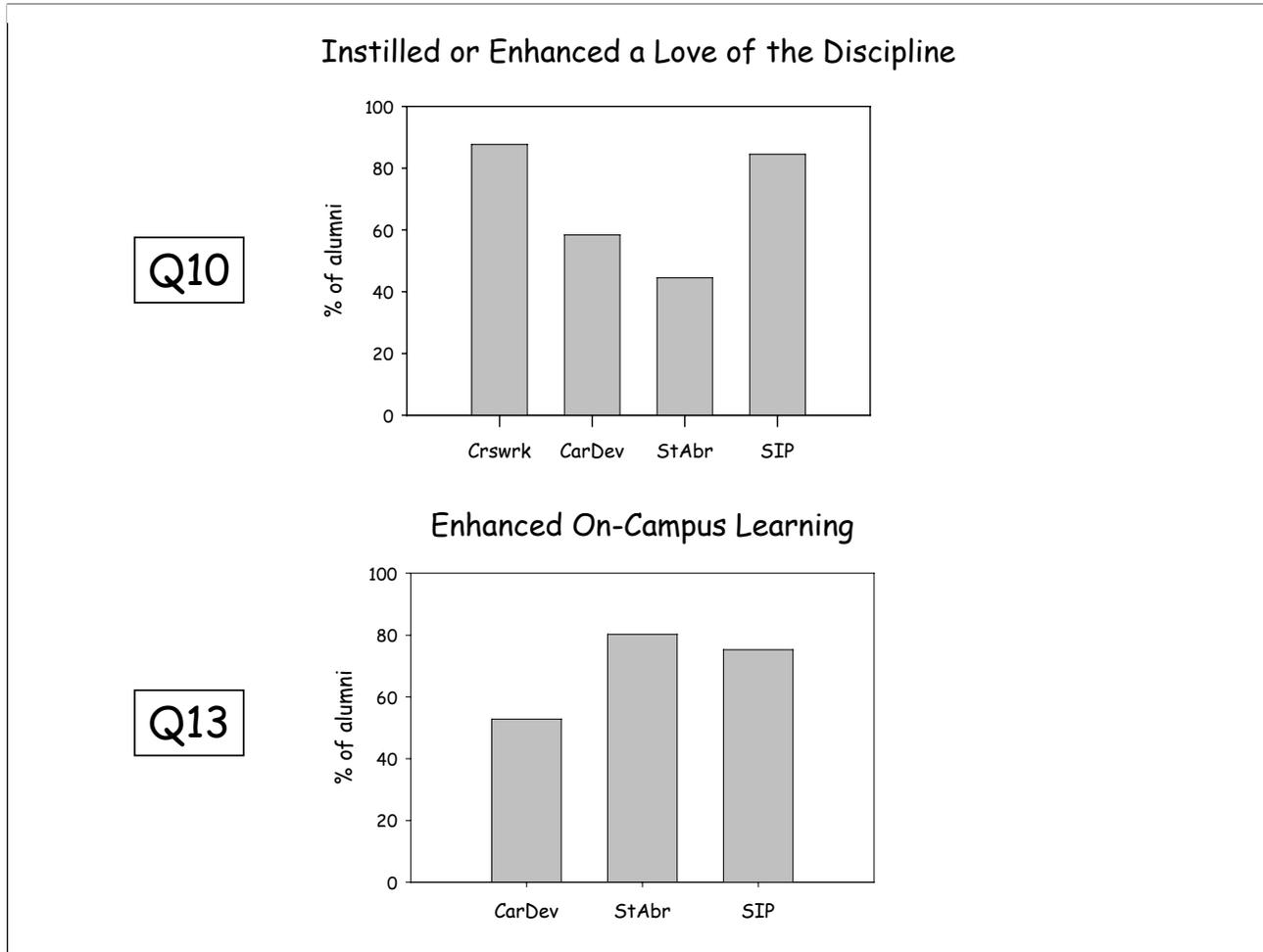
Alumni responses to extent of preparation in the content area of their discipline were quite varied. Study Abroad is probably a factor here. Most students are away for a significant part of their junior year when they would otherwise be taking courses in the major. However, alumni felt that their preparation 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. K'68, PhD Cultural Anthropology

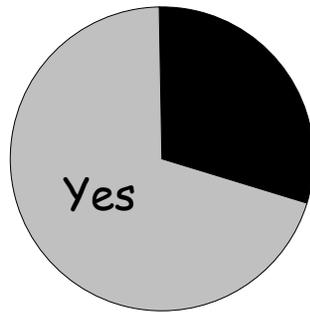
Q9



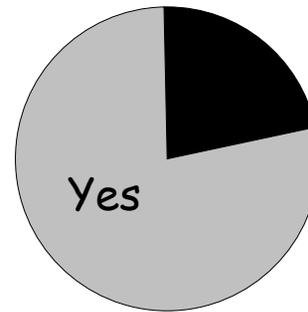
Question 10: It's not surprising that coursework and the SIP were important in instilling or enhancing a love of the discipline. What's interesting is that Career Development and Study Abroad were also important in this regard for many respondents.

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?



CarDev



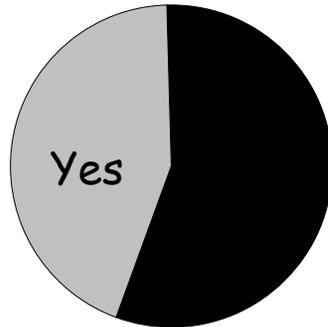
StudyAbroad

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. κ '77, PhD Epidemiology

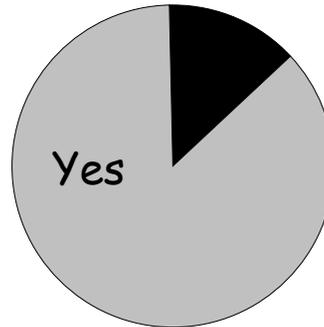
Q11

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.

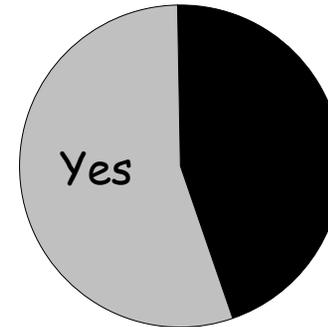
Did participation by other students on campus enhance your experience?



CarDev



StudyAbroad



SIP

Q12

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

Q15 & 16

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: _____ Gender: M / F Year of Graduation: _____
(First) (Last) (Maiden) (circle one)
- 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 great deal	Quite a bit	A moderate amount	A little bit	Not at all	N/A
a. Reputation in the sciences	<input type="checkbox"/>					
b. Study abroad program	<input type="checkbox"/>					
c. <i>K-Plan</i> overall	<input type="checkbox"/>					
d. Nearness to home	<input type="checkbox"/>					
e. Reputation of pre-med program	<input type="checkbox"/>					
f. Reputation as good preparation for graduate school	<input type="checkbox"/>					
g. Liberal arts education	<input type="checkbox"/>					
h. Small class sizes	<input type="checkbox"/>					
i. Reputation for excellent teaching	<input type="checkbox"/>					
j. Small size of student body	<input type="checkbox"/>					
k. Reputation of the faculty	<input type="checkbox"/>					
l. Athletics	<input type="checkbox"/>					
m. Heyl scholarship	<input type="checkbox"/>					
o. Overall academic reputation	<input type="checkbox"/>					
p. Good financial aid package	<input type="checkbox"/>					
q. Year-round calendar	<input type="checkbox"/>					
r. Other _____	<input type="checkbox"/>					

- 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

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)

Region(s) visited

- Africa
 Asia
 Australia
 Caribbean
 Eastern Europe
 Latin America
 Middle East
 New Zealand
 North America
 Russia
 Southeast Asia
 Western Europe

Total duration of visit(s)

- less than two weeks
 2-4 weeks
 1-3 months
 4-6 months
 7-12 months
 1-2 years
 3-4 years
 5 years or more

Reason(s) for visit(s)

- Professional meetings
 Seminar or course
 Work for pay
 Volunteer work
 Sabbatical
 Other _____
 Other _____
 Other _____

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: