

ANATOMY OF PROGRAM DEVELOPMENT A CASE STUDY: HORIZONS

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CLARKSON UNIVERSITY

Clarkson University is an independent, coeducational university located on a 640-acre campus in Potsdam, New York, midway between the St. Lawrence River and the Adirondack Mountains. The major organizational units of the University are the School of Engineering, the School of Management, the School of Science, the Faculty of Liberal Studies, the Industrial Distribution program, the Graduate School, and the Division of Research.

Approximately 3,600 students attend classes at the University, which has grown significantly since 1950. While multiplying in size, Clarkson has continued to reflect the beliefs of Thomas S. Clarkson, in whose honor the institution was founded: a commitment to professional skill and competence coupled with personal integrity and human understanding.

THE START OF HORIZONS

The University, since its founding in 1896, has predominantly enrolled males with academic interests and abilities in science and engineering. Although the University has been coeducational for much of its existence, it began recognizing during the 1980s the need for more attention on encouraging females to pursue careers in these male-dominated disciplines. The idea of a program for junior-high girls started in 1986 as a suggestion to the University from the Center for Continuing Education. The Director of the office, who was responsible for developing and administering programs for external audiences, was aware that young women may have special needs in order to succeed in predominantly male fields. It was believed that a program of early intervention would encourage young women to pursue careers in science and engineering.

In an effort to get the idea off the ground, the Director of the Center for Continuing Education called a group of campus representatives together to discuss the feasibility of such a program and review a proposed mission statement. The mission of the program, based on increasing in science and engineering the number from an underrepresented group (women), focused on developmental gaps identified in contemporary literature as influencing success rates in technological fields. Areas of concern cited in the literature and identified as components for inclusion in the HORIZONS program were to:

1. Keep girls in the mathematics and science courses in secondary school which will later allow science and engineering career options.

2. Provide interpersonal networking skills and a social network with others girls who have outstanding achievement in mathematics and/or science and a strong interest in these subjects.
3. Overcome socialization processes that failed to reinforce and may have discouraged girls from continuing to pursue interest in engineering and science.
4. Increase self-esteem level which will help young women in the pursuit of education and professional activity in science or engineering.
5. Develop team-work skills to help girls compensate for the lack of earlier team work development.

CAMPUS ADVISORY GROUP

Following development of the program concept and rationale, a working advisory group was established on campus including representatives from the School of Engineering, School of Science, Center for Career Development, Counseling Center, the Development Office, and Continuing Education. In addition, a public school science teacher was invited to participate with this group. The tasks of the advisory group included determining program objectives and program characteristics (exposure, content, and participant selection).

The following outlines represent the outcomes of the advisory group process:

HORIZONS OBJECTIVES

1. Help girls understand that a knowledge of mathematics and science will be important to their future.
2. Give girls the opportunity to gain greater competency in math and science.
3. Explore the career opportunities for women in these fields.
4. Enhance self-esteem so that the girls believe it is possible for women to succeed and have fulfilling careers in these fields.
5. Promote leadership and team-building skills.

PROGRAM CHARACTERISTICS

PROGRAM EXPOSURE - TWO YEARS

Summer I	24 Girls (Freshman)	One Week
Mid-year Reunion	24 Girls (Freshmen)	Overnight
Summer II	24 Girls Return (Sophomores) 24 New Girls (Freshmen)	One Concurrent Week
Mid-Year Reunion	24 Girls (Freshmen) 24 Girls (Sophomores)	Overnight Day

PROGRAM CONTENT

Academic Program

- Math
- Science
- Computer Skills



Measurement: The curriculum for the first year HORIZONS participants included multiple experiences in measurement. Surveying seen here was one example of activities selected to avoid repetition in the public school curriculum.



***Integrated Computer Experience:** The utilization of the computer as an instructional tool is seen here as participants enter survey data in a spreadsheet.*

Personal Development

- Enhancing self-esteem
- Value clarification
- Finding role models and mentors

Career Development

- Assessment of interest/aptitude
- Exploring career options
- Field trip to industry - professional young women
- Interviews with young professional women in engineering and science

Team Work

- Building team skills through athletics
- Skills in conflict resolution
- Developing planning skills



***Athletics As A Team And Self-Esteem Builder:** HORIZONS participants were involved in group, dyad, and individual sports skill development.*

PARTICIPANT SELECTION

Schools recommend students (two from each school).

Qualifications:

- 7th or 8th grade girls
- Achieved score at or above the 95th percentile on a standardized test in mathematics or science
- Demonstrated interest in mathematics and/or science

Potential participants receive applications and two teacher recommendation packets.

HORIZONS staff selects participants and alternates by May 31.

INSTITUTIONAL COMMITMENT

The second phase of activity which occurred concurrently with the first involved securing the commitment of the institution to support the project. The commitment included the participation of Clarkson staff and faculty in delivery of various program components, the use of facilities and equipment, and the development of a funding source to support the program. (Eventually the Development Office assumed responsibility for raising 50% of the required funding.)

MARKETING AND PUBLIC RELATIONS

The third phase of program start-up focused on marketing the program and other public relations issues. A presentation on the program concept, recruitment process, and importance of commitment from the public schools was made at the monthly superintendents' meeting. The superintendents were shown a prototype of the recruitment package including letters to the principal, guidance counselor, science teacher, mathematics teacher, parents and potential participant. Consensus was reached by the superintendents' group on the marketing approach to be utilized for this program. The need for public schools to financially support participants was discussed. It should be noted that some participants have been funded by the local school district, local service organizations such as Rotary, or the local teachers union, and occasionally by a family.

STRATEGIES FOR PROGRAM BENEFIT RETENTION

Several strategies were developed to assist the retention of gains made by the participants.

1. A "HORIZONS" Newsletter was used to continue interpersonal networking throughout the academic year. The newsletter shared information about participants and the University.
2. A reunion in mid-winter was held on campus to continue the close personal contact among participants and members of the University community. Among the reunion activities was an overnight stay with members of the Society of Women Engineers (SWE), followed by shadowing a SWE member to academic classes. In addition, there were other planned activities with HORIZONS staff members. At the close of the reunion program, participants were joined by their parents for dinner with HORIZONS and other University staff.
3. A tracking system was developed to assure that the participants were encouraged to participate in other University programs for secondary students.