Integrating Service Learning with Undergraduate Robotics Research

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March 27, 2007
• ABET and others:
  • need for
    • greater interpersonal skills
    • communication skills
    • interdisciplinary teamwork
    • social and ethical responsibility
    • life–long learning
    • educational experiences
  • significant increase in emphasis on experiential education and on the “soft skills”
Introduction

- EC2000 and proposed 2006–2007 ABET criteria:
  1. teamwork and communication
  2. an understanding of professional, ethical, and social responsibilities
  3. ability to analyze the impact of computing on individuals, organizations, and society
Service Learning

• Promotes learning through active participation in service experiences
• Provides structured time for students to reflect by thinking, discussing and/or writing about their service experience
• Provides an opportunity for students to use skills and knowledge in real-life situations
• Extends learning beyond the classroom and into the community
• Fosters a sense of caring for others
Service Learning

• 91 percent of college campuses have included civic engagement and community service in their mission statements

• service learning has become a major national movement, especially in undergraduate education
IRIS — The Institute for Research in Intelligent Systems

iris.ecst.csuchico.edu

- collaborative research
- outreach to the community
- oversight of camps, seminars, workshops
ISL — The Intelligent Systems Lab

www.gotbots.org

- has supported 4–6 students/semester, over the past three years
- participate in campus and community outreach activities

By tying outreach activities to lab assistant responsibilities, the authors have been able to provide significant service learning experiences for ISL Team members.
(Sample) Research Projects

- **Ant Algorithms for Swarm Intelligence**
- **The OCNL Hallway Gumstix/Hummer**
- **Soccer Bots: The Chico State Robocup 4-Legged League Team**
Curriculum

- CSCI 585 *Color Sensor Workshop*, Sep 2004
Workshops

- **SWE Girl Scouts’ Day, Apr 2005**
Demonstrations & Exhibitions

• Chico State’s *Getting Connected* event, Aug 2005
Demonstrations & Exhibitions

- Kindergardeners at Chico Country Day School, Feb 2005
Demonstrations & Exhibitions

- *Minds in Motion*, April 2005
Summer Robotics Camp

• open to junior high girls
Summer Robotics Camp
Summer Robotics Camp

• managed by the ISL Research Team
Assessment

- Participant satisfaction
  - anonymous surveys
  - informal letters and thank you notes
- ISL Team Member experience
  - regular meetings
  - progress reports and logs
- On-going demand for outreach activities
Summary, Conclusions, Recommendations

ISL student RAs gain valuable service learning experience through community outreach and campus inreach activities.
Experiences in lesson planning, preparation, presentation and demonstration afford opportunities to develop technical skills, as well as public speaking and interpersonal skills.
ISL outreach activities serve to refine communication and team building skills, foster patience, tolerance, and leadership, while learning social responsibility and contributing something of value to the community.
Summary, Conclusions, Recommendations

Self-reflection and program evaluation surveys for assessment and analysis are needed to gather ISL Team Member perceptions from service learning experiences.
Questions?