Change the Gender Composition of High School Computing Courses (Case Study 2)
Attracting Female and Minority Students through Targeted Recruiting

K-12 Education

High school computer science teachers who actively recruit girls and minority students report more students overall and more female students in their courses. The following examples are from reports submitted in 2009 and 2010 by teachers who participated in a 2-day summer workshop on attracting and engaging students.

ACTIVE RECRUITING WORKS
A department head in a large high school where several CS courses are offered described the following results:

- [W]e have enough students for the first time in four years to run an AP level Computer Science [course].

- The numbers of female students who are enrolling in our [computing] courses [for next year] have increased by 50% from this current year.

GO WHERE THE GIRLS ARE
Seth Reichelson is a highly effective teacher at Ocoee High School, which enrolls 65% free- and reduced-lunch students. By actively recruiting girls, he raised Advanced Placement Computer Science enrollment to its highest level ever — 65 students total over two classes. The class grew so large that he was forced to turn away several students due to classroom limitations. At the same time that overall enrollment increased, the gender composition of the classes improved from their typical 12% girls to 33% girls. Next year, Ocoee High School expects 96 students in AP Computer Science and hopes to increase the percentage of females even further.
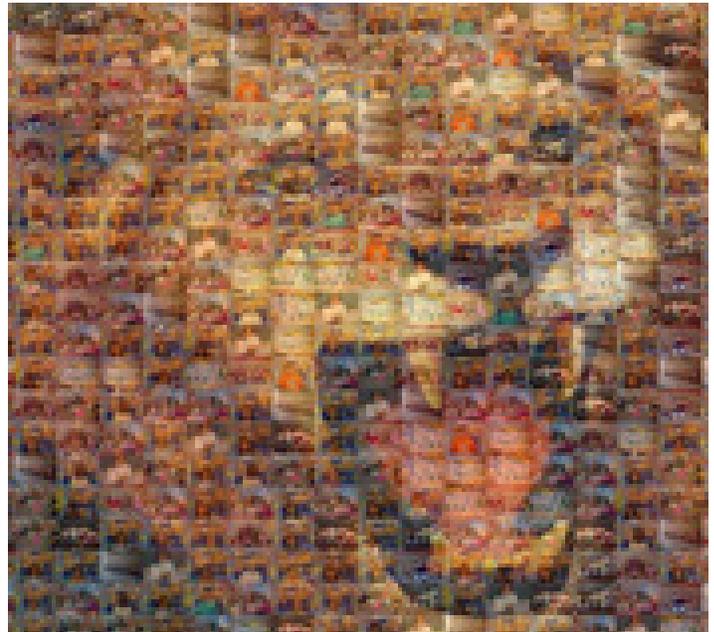
Reichelson targeted girls in predominantly female-run school clubs such as student government, yearbook, and the National Honor Society. These extracurricular activities are populated with many high-achieving young women. Reichelson drew these girls to the class by connecting their existing interests with computer programming through two student-run projects described here.

CONNECT COMPUTING WITH GIRLS' EXISTING INTERESTS
Reichelson and his AP Computer Science students applied skills learned in his course to the yearbook. Using Picture Objects in the Java programming language, they blended and color-matched pictures. The project was directed by the yearbook staff, with pictures provided by the yearbook class. The pictures they created with Java were later used as title pages for the yearbook.

Pictured above: Yearbook and computer science students worked together to create this photo for a yearbook title page.

In a project done with the National Honor Society (NHS), Reichelson's AP Computer Science students created a program to scan student identification numbers using a card scanner and then match student numbers with their names. This program decreased by 90% the time it took to record attendance at NHS meetings of more than 200 students.

COMMUNICATE THE VALUE AND ASSURE PROSPECTIVE STUDENTS THEY CAN SUCCEED
Reichelson told the girls he was recruiting that taking his CS AP course would make them stand out among college applicants. They would stand out, he said, because although large numbers of girls take other AP exams, few take the CS exam. He then overcame their objections that they don't know anything about computers by explaining that he prefers "a blank slate" and guarantees students in his classes an A if they work hard. Finally, Reichelson predicted that if they took his course, they would pass the AP test, because history shows that hard work in his class pays off — 70% of his students typically pass the CS AP test, in contrast to the school's average AP pass rate of 15%.

RESOURCES
Case Study Contributor: Seth Reichelson

NCWIT offers practices for increasing and benefiting from gender diversity in IT at the K-12, undergraduate, graduate, and career levels.
This case study describes a research-inspired practice that may need further evaluation. Try it, and let us know your results.

National Center for Women & Information Technology
P R O M I S I N G   P R A C T I C E S

What are the Important Components of Targeted Recruiting?
with Case Study 2

K-12 Education

Professional recruiters know that being strategic about recruiting requires consideration of several elements, including making decisions that are aligned with your staffing or enrollment goals. A clearly defined recruitment strategy sets up a framework for focusing your efforts and planning beyond individual events or campaigns. The strategy defines what activities to concentrate on and what activities are unimportant.

Developing a strategic recruiting plan means going beyond specific tactics—like website development or a visit to a local university—to setting goals, finding partners, developing an evaluation plan, and developing and delivering materials.

Create a specific and quantifiable goal. Who do you want to reach? Is there a particular quality of student or employee? How many? Is there more than one target group? Once you have a goal in mind, it will be easier to implement a plan and develop a plan for tracking your progress.

Leverage existing efforts and relationships. Establish partnerships with people who already interact with your target audience and who are more likely to understand the audience's needs. For example, research shows that family and teachers have significant influence on children's academic and career choices. Training or informing teachers might get more "bang for their buck" than trying to interact with every child. Leveraging existing relationships, like friendships or trusted authorities, can bring an important personal touch.

Message content should be based on research about your audience. What do they believe about IT careers or academic programs now? What are their current goals? Messages can pre-emptively overcome misconceptions while appealing to existing desires. For example, the Information and Computing Sciences School at UC-Irvine is planning an introductory programming course on biological applications of computing to take advantage of female students' interest in biology. The course content will include information on computing careers within health and other biology-intensive settings. Craft a message that emphasizes content aimed specifically at the goals and interests of your target group, but remember to be truthful from the onset.

Use more than one way of getting the message across. The more times someone hears a message, and the more believable it is, the more likely they are to act on it. Take advantage of the media your audience pays attention to, but target the media of those who might influence them, too. And consider incentives and recognition for the influencers, like "teacher of the year."

RECRUITING QUICK LIST

- **Audience**
  Target audience
  Opinion leaders
  Influencers

- **Message**
  Needs, goals, interests of target sector
  Challenging wisdom of typical choices
  Truth in advertising

- **Method of Delivery**
  Medium, multiple media
  Contact situation
  Deliverer

- **Leveraging & Building Relationships**
  Existing efforts, contacts

- **Problems & Opposition**
  Costs, resources
  Opposing viewpoints
  Misconceptions
  Competing pressures
  Beliefs about whether they can belong

- **Time Frame, Timing, & Repetition**
  Typical planning, decision making
  Multiple times
  Imminent entry v. long-term influence

Keep in mind that a **contact situation**, the environment in which you meet with your target audience, will influence how your audience members interact with you. People have multiple identities and the priority each is given changes by age group. For example, middle school kids might feel strong pressure to conform in a group, but might be more persuadable in another context. Contact should be made by a credible person and information source.

RESOURCES

Barker, L. J., Snow, E. S., Garvin-Doxas, K. & Weston, T. (2006). Recruiting middle school girls into IT: Data on girls' perceptions and experiences from a mixed demographic group. In Cohoon, J. M. and W. Aspray (Eds.) *Women and Information Technology: Research on Under-representation*. Cambridge, MA: MIT Press, 115-136.
National Institute for Women in Trades, Technology, and Sciences Recruitment Strategies: http://www.iwitts.com/html/recruiting_strategies.html

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Visit www.ncwit.org/practices to find out more.