IPRO 321
Increasing Computer Awareness in High Schools and Colleges

ILLINOIS INSTITUTE OF TECHNOLOGY

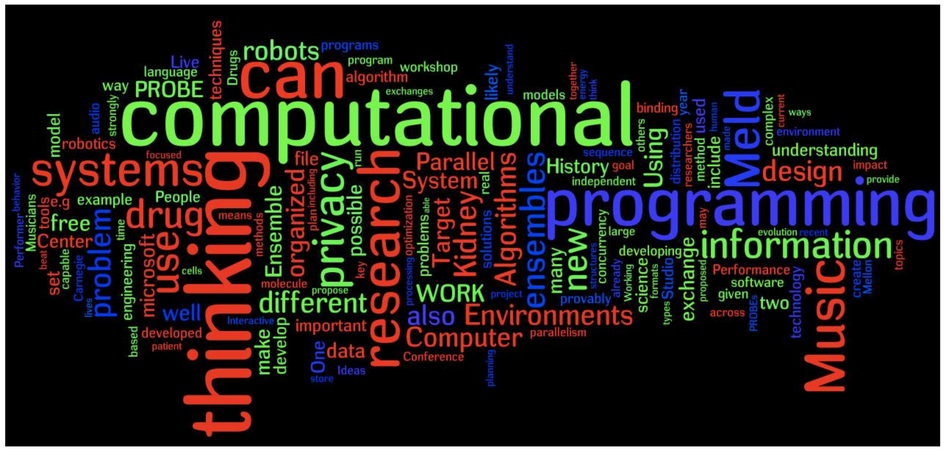
Transforming Lives.Inventing the Future.

The Problem

^ Debunking myths and misconceptions
  CS = ”Hacking”
  CS is not important
  CS is all about programming
^ Lack of interest in CS
^ Lower minority and female enrollment
^ Non-existing CS curricula in Chicago schools
^ Social implications - globalization

Objectives

^ Get high school and college students excited about Computer Science
^ Ultimately increase the number of students in the Chicago area taking Computer Science (CS) courses in high school and college
^ Debunk myths and ncrease the understanding of what CS and computational thinking entails
^ Explain and provide evidence for why CS is important
^ Emphasize the importance of attracting women and underrepresented minorities to CS



Solutions/Ideas

^ Design curriculum ideas that can be readily integrated into a variety of different subject areas
^ Develop short activities that provide educators with the flexibility to incorporate with their existing lesson plans
^ Ensure that both the lecture material and the hands on activities engage the attention of the student audience
^ Target real world tasks that students perform on a daily bases and relate how those processes are based off of computational thinking. It is essential to show the relevance and importance of the concepts on hand
^ Aim to spark an interest and appreciation for computational thinking that will allow students to independently satisfy their curiosities.
^ Assess the efficacy of the activities on a student audience
^ Market the curriculum modules to local teachers in order to allow for implementation

Future Ideas

^ Design new learning modules to interest students in CS
^ Further research the currently available activity modules
^ Expand testing with a wider audience in order to assess potential strengths and weaknesses
^ Roll out some of the activities to incorporate into actual classroom experiences
^ Remain vigilant for the latest research and updates to better nurture the technological needs of the next generation

Results

Of the created and adapted activities, four were tested with female high school students on IIT's Womens day.

Pre-tests and post-tests were administered to determine effectiveness. Each survey consisted of four questions, rated on a five-point scale: Strongly Agree=5, Agree=4, Don't Know=3, Disagree=2, Strongly Disagree=1

Mean scores of the pre and post tests:
Algorithms Activity: Pre:3.84 Post:4.88
Scheduling Activity: Pre:3.73 Post:4.67
Parallelism Activity:Pre:2.91 Post:3.78
Image Processing Activity: Pre:3.23 Post:4.25