CSTA NATIONAL SECONDARY COMPUTER SCIENCE SURVEY (2005)

Methodology:
This survey instruments was developed by CSTA’s Research Committee and was administered in fall 2004 to 14,000 high school teachers who defined themselves as: computer science, computer programming, or AP computer science teachers. Surveys were mailed to teachers across the United States using contact information provided by a market data company. A total of 1047 teachers responded to the survey (a response rate of 7.5%). Teachers were provided the option of submitting the survey by mail, fax, and online. By far, the greatest majority was submitted by mail. The results below represent the total percentage for those who answered each question. This study was made possible by funding from CSTA and The College Board.

Results:

1. (a) Does your school offer any introductory (pre-AP) Computer Science (CS) courses?
   Yes 78%

(b) What type of credit is earned by the course?
   CS Credit 30%
   Math Credit 8%
   Elective Credit 53%
   Other Credit 10%

(c) Is this a required course?
   Yes 26%

2. (a) If you answered “Yes” to (1a) above, how many students are enrolled in introductory (pre-AP) CS?
   1-10 13%
   11-25 26%
   25-50 24%
   51-100 20%
   100+ 18%
   Overall Average 74 students per school
(b) If you answered “Yes” to (1a) above, what content is covered in the course? Check all that apply.

<table>
<thead>
<tr>
<th>Content</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
<td>60%</td>
</tr>
<tr>
<td>Programming</td>
<td>68%</td>
</tr>
<tr>
<td>Web Development</td>
<td>43%</td>
</tr>
<tr>
<td>Networks</td>
<td>21%</td>
</tr>
<tr>
<td>Graphics</td>
<td>46%</td>
</tr>
<tr>
<td>Databases</td>
<td>35%</td>
</tr>
<tr>
<td>Security</td>
<td>14%</td>
</tr>
<tr>
<td>Logic</td>
<td>11%</td>
</tr>
<tr>
<td>Ethics</td>
<td>56%</td>
</tr>
<tr>
<td>Other</td>
<td>27%</td>
</tr>
</tbody>
</table>

3. If you answered “Yes” to (1a) above, what percentage of students enrolled in introductory CS are female?

- 1-20% females 42% of schools
- 21-40% females 23% of schools
- 41-60% females 29% of schools
- 61-80% females 3% of schools
- 81-100% females 1% of schools

Overall Average 32% females

4. (a) Does your school offer AP Computer Science?
- Yes 40%

(b) If you answered to “Yes” to (4a) above, how many students take AP CS in an average academic year?

- 1-10 students 43% of schools
- 11-25 students 33% of schools
- 25-50 students 15% of schools
- 51-100 students 6% of schools
- 100+ students 3% of schools

Overall Average 24 students per school

5. If you answered “Yes” to (4a) above, what percentage of students enrolled in AP CS are female?

- 1-20% females 58% of schools
- 21-40% females 24% of schools
- 41-60% females 15% of schools
- 61-80% females 1% of schools
- 81-100% females 0% of schools

Overall Average 23% females
6. Have CS enrollments increased or decreased in your school over the past five (5) years?
   - Increased: 56% of schools
   - Decreased: 44% of schools

   *The researchers believe that these numbers may be somewhat misleading because the 5 year timeframe is too long to account for recent changes. A time frame of two years has been suggested for future surveys.*

7. Under what department is CS offered in your school:
   - Computing: 28%
   - Technology: 32%
   - Business: 31%
   - Math: 20%
   - Science: 3%
   - Other: 10%

8. (a) Does your district require you to teach a specific computer science course curriculum that includes specific content and outcomes?
   - Yes: 41%

   (b) If YES, are these requirements enforced?
   - Yes: 53%

   *Review of the results by state show marked inconsistencies in answers to this question. The researchers believe that this is a possible indication either that teachers are not well informed of the curriculum requirements for their state, or that policy awareness and enforcement varies so much from district to district that no conclusive answer is possible.*

9. (a) Does your state consider CS a certified teachable?
   - Yes: 60%

   (b) If you answered to yes to question (9a) above, are you required to hold this CS certification to teach CS in your state?
   - Yes: 58%

   (c) Is there a web site that contains information about CS teaching certification in your state?
   - Yes: 42%

   *Review of the results by state show marked inconsistencies in answers to this question. The researchers believe that this is a possible indication either that teachers are not well informed of the teacher certification requirements for their state, or that policy awareness and enforcement varies so much from district to district that no conclusive answer is possible.*

For more information, contact Chris Stephenson at cstephenson@csta.acm.org
10. How does CS qualify as a major/minor subject field in your state, or is it treated as an endorsement to a license in another subject?
   - Minor/Major: 27%
   - Endorsed: 20%
   - Not sure: 53%

11. What do you perceive as the greatest challenges in teaching CS? (Values Range from 1 Biggest Challenge to 9 Least Challenge.)
   - Rapid Change: 3.42
   - Lack of Curriculum: 4.29
   - Lack of Hardware: 4.39
   - Difficult: 4.46
   - Lack Student Interest: 4.64
   - Lack School Interest: 4.78
   - Lack Student Knowledge: 5.24
   - Lack Teacher Knowledge: 5.31
   - Other: 7.21

12. What do you perceive as the greatest professional development need? (Values Range from 1 Biggest Need to 4 Least Need.)
   - Time for Training: 1.61
   - Training Opportunities: 2.02
   - Training Facilities: 2.59
   - Other: 3.67

13. If students are not taking CS courses in your school, why do you believe they’re not? (Values Range from 1 Biggest Reason to 6 Least Reason.)
   - No Room in Schedule: 2.24
   - Greater Interest Elsewhere: 3.02
   - Subject Too Difficult: 3.09
   - Elective “Less Important”: 3.26
   - Perceived as Geeky: 4.07
   - Other: 5.04

14. What do you believe is the most effective method for delivering professional development to CS teachers? (Values Range from 1 Most Effective to 7 Least Effective.)
   - Workshops: 2.41
   - Computer Courses: 3.06*
   - Online Resources: 3.70
   - Professional Conferences: 3.79
   - Networking: 4.01
   - College Courses: 4.14
   - Other: 6.43

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*The researchers believe that the designation “computer courses” may have been interpreted by some respondents as courses focusing on computing content and by others as courses where the computer was the primary delivery mechanism for the course.*

15. How many years have you been teaching?

- 1-3 years: 9% of respondents
- 4-7 years: 16% of respondents
- 8-14 years: 25% of respondents
- 15+ years: 50% of respondents

**Overall Average: 16 years**

16. How many years have you been teaching CS?

- 1-3 years: 17% of respondents
- 4-7 years: 27% of respondents
- 8-14 years: 27% of respondents
- 15+ years: 29% of respondents

**Overall Average: 10 years**

17. How many students attend your school?

- 1-100 students: 4% of schools
- 101-250 students: 12% of schools
- 251-500 students: 22% of schools
- 501-1000 students: 24% of schools
- 1001-2000 students: 26% of schools
- 2000+ students: 12% of schools

**Overall Average: 1007 students per school**

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