



Story of “Georgia Computes!”

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How “Georgia Computes!” Came To Be

Career, Technical, and Agricultural Education (CTAE) in Georgia Department of Education

- Recognized that their high school Business teachers who taught Office and keyboarding were going to lose their jobs to middle school.
 - Wanted a way to learn Java for Business majors.
Georgia Tech had just started teaching Media Computation.
- Valued their sole Advanced Placement test: Computer Science Level A.
- In 2004, Maureen Biggers started *Institute for Computing Education at Georgia Tech (ICE@GT)* and hired Barbara Ericson.
- “Georgia Computes!” was funded as an NSF Broadening Participation in Computing alliance in 2006.

Order of Events

- ICE@GT started teacher professional development.
 - But can't start with AP CS.
- CTAE defined a four course computer science pathway.
 - Based on CSTA K-12 Model Curriculum.
- Georgia Professional Standards Committee (PSC) created an endorsement so that there was a credential for teachers.
- University System of Georgia accepted AP CS to count as a math or science towards admissions.
 - Department of Education accepted AP CS to count as a science towards graduation.

What has “Georgia Computes!” tried

Faculty (undergraduate teachers) workshops

- Least successful intervention

Teacher workshops

- 4 weeks in summer and 1 day ones during the school year

Computing summer camps

- 8-11 weeks in the summer

Weekend workshops

Competitions

- Alice, Scratch, Advanced Placement CS

Lending library of robot kits, phones, & Kinects

Distance learning website

- Video tutorials and projects

PSAT letters to recruit

Teacher Workshops



Teacher Workshops

500+ teachers from 312 schools and 20 states

Organized around GA CS Curriculum
(1 week per course)

Computing in the Modern World (Like ECS)

- Scratch, LEGO WeDos, HTML 5, and CSS 3

Beginning Programming

- Alice and Java Media Computation

Intermediate Programming

- App Inventor and Greenfoot

AP CS A

Robots

- Pleo, LEGO WeDo, NXT, and Tetrix, Finch, IPRE
-

Summer Camps

We started with 2 weeks for 9th – 12th grade in 2004

- Camps were popular, but lost money

Added camps for 6th – 8th grade in 2006

- Camps broke even

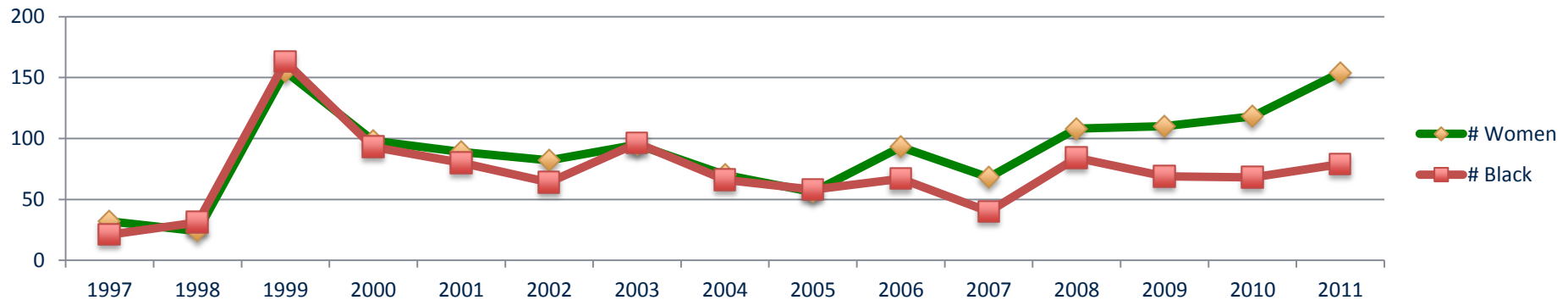
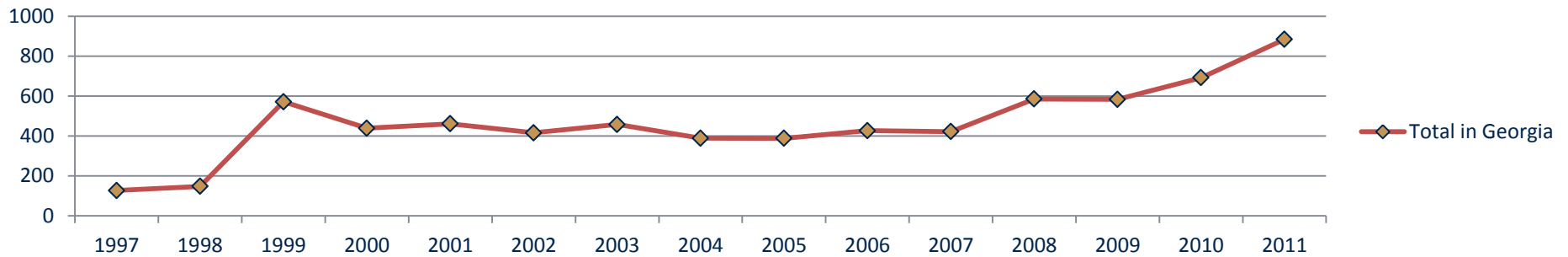
Added camps for 4th – 6th grade in 2009

- Camps make a profit and show statistically significant changes in attitudes, and learning gains

Wonderful example of crossing and mixing levels.

Impact

Total AP CS A Test Takers in Georgia



Key points

Georgia Computes succeeded because of a partnership with Georgia Department of Education

- Got all the pieces together, in order.
- Barbara was key, as a state-wide coordinator whose fulltime job was to make CS Ed work in Georgia.
- Summer camps were a dramatic success, involving collaboration across multiple levels in a sustainable, effective model.

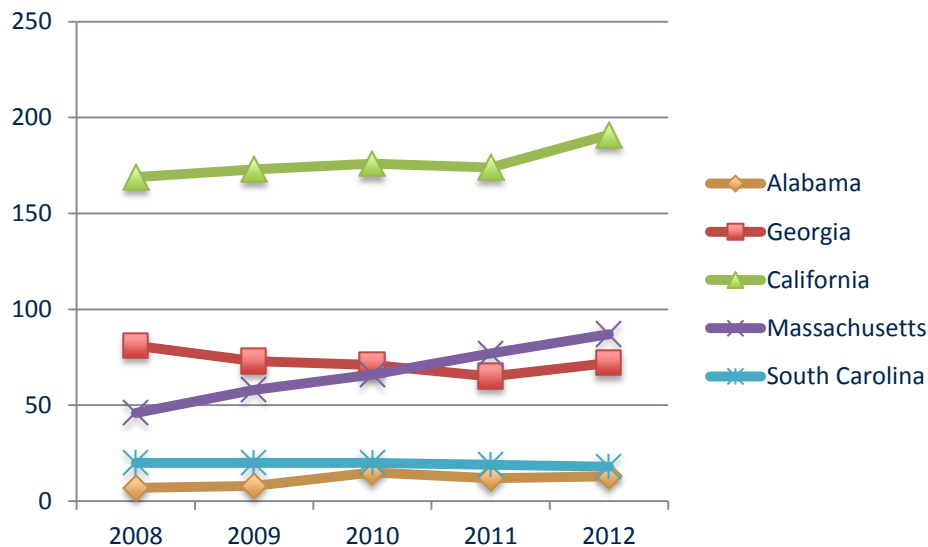
Extra Slides

ECEP

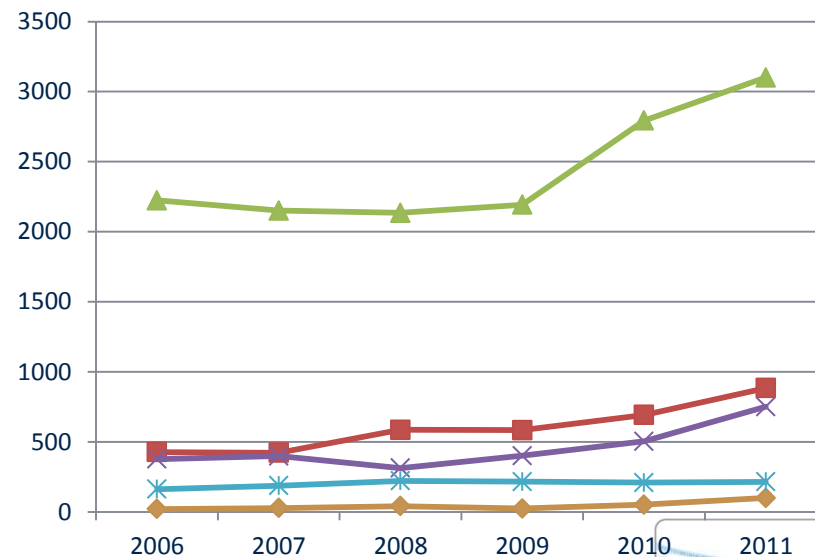
EXPANDING COMPUTING EDUCATION PATHWAYS

Professional Development – AP CS A

Number of Schools

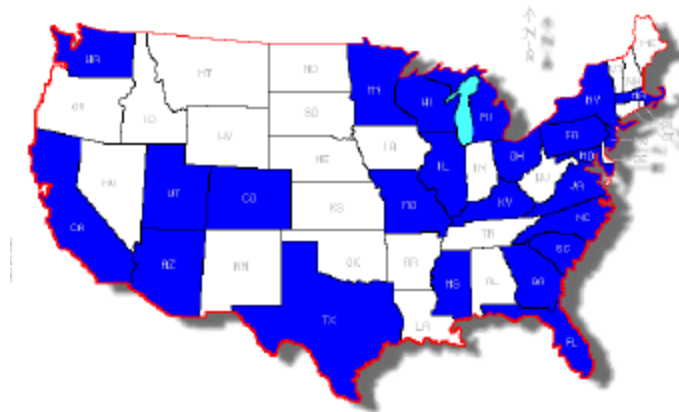


Number of Test-takers



Professional Development for Faculty

Year	# of workshops	# of participants	Workshop Agenda ¹	Learning Objectives ²
2007	6	68	4.56	3.65
2008	5	70	4.66	3.60
2009	5	61	4.69	3.59
2010	5	88	4.75	3.65
Total	21	287	4.67 (Average)	3.62 (Average)



Summer Camps 2012

High School - 3 weeks

- App Inventor
- Alice and LEGO NXT and Tetrix robots
- EarSketch

Middle School - 3 weeks

- Scratch and PicoCrickets
- Alice and LEGO NXT robots
- Cool Girls – WeDo, Scratch, Pleo

Elementary School – 5 weeks

- Art and Movement - Scratch and WeDo
 - Art and Simulations – LEGO NXT & Scratch
 - Music and Dancing – LEGO NXT & Scratch
 - 2 - Artificial Lifeforms – LEGO NXT & Alice
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Summer camp 2012

At Georgia Tech: 213 Campers

- **32% female**
- **44% Black**
- **2.3% Hispanic**

Across Georgia

- **Over 1,000**
- **(Data available)**