

Leading Girls in Technology

...a transformative solution for libraries



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Macalester College
DeWitt Wallace
Library

The forces at play

- Desire to be an active participant in changing the demographics of our profession
- Drive to more deeply connect the work of the library to the college's broader mission in new and expanded ways

The catalyst

Kimberly Bryant

Libtech 2013

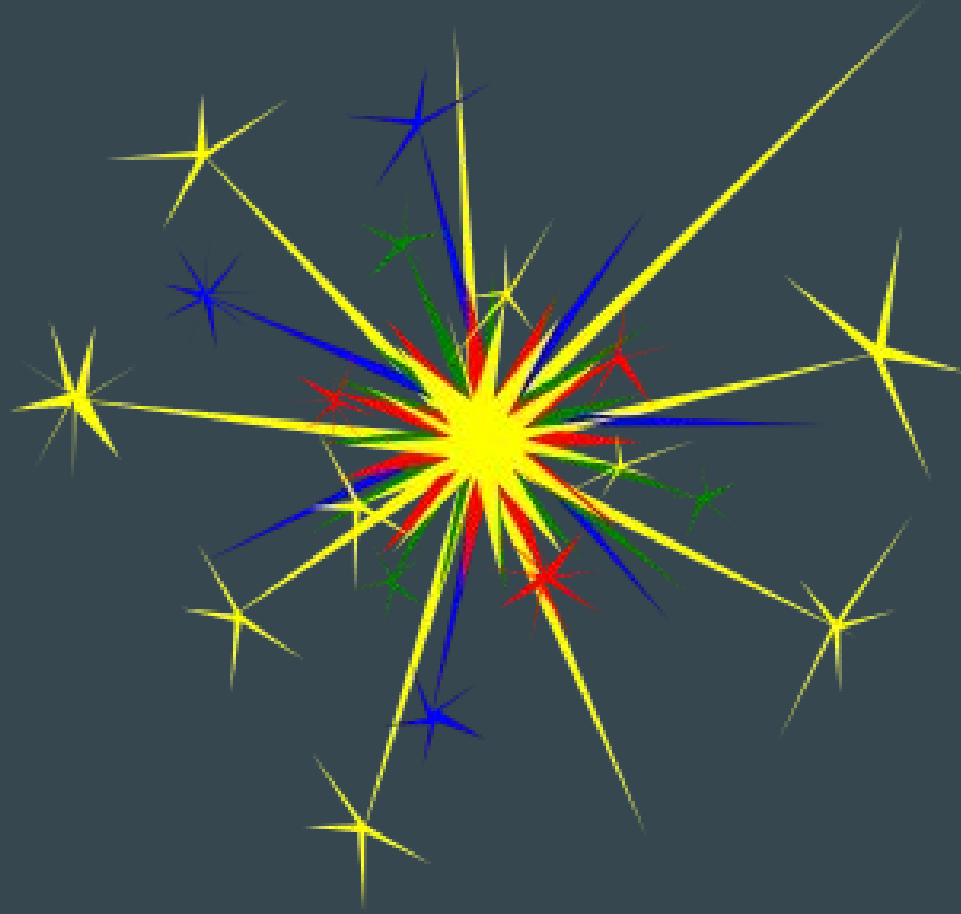


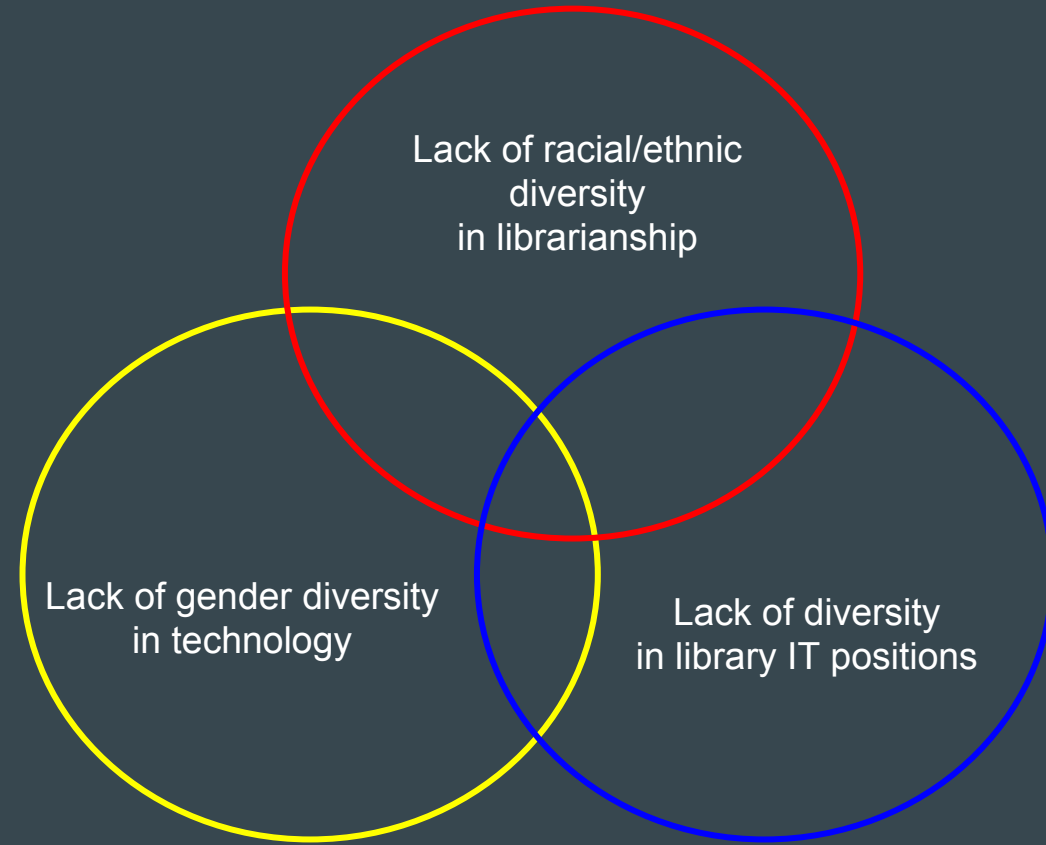
The catalyst

Kimberly Bryant, Founder Black Girls Code



Our Vision: To increase the number of women of color in the digital space by empowering girls of color ages 7 to 17 to become innovators in STEM fields, leaders in their communities, and builders of their own futures through exposure to computer science and technology.





Goal:

Create technology skill-building opportunities for K-12 students from historically underrepresented populations. Provide an emphasis on librarianship as a viable professional option as a small contribution to changing the demographics of our profession.

What we know: women in computing



Women and Information Technology

By the Numbers

57 Percent of professional occupations in the 2015 U.S. workforce held by women

25 Percent of professional computing occupations in the 2015 U.S. workforce held by women

17 Percent of Fortune 500 Chief Information Officer (CIO) positions held by women in 2015

1.1 million
Number of U.S. computing-related job openings expected by 2024

41 Percent of these jobs that could be filled by U.S. computing bachelor's degree recipients by 2024

56 Percent of Advanced Placement (AP) test-takers in 2015 who were female

47 Percent of AP Calculus test-takers in 2015 who were female

22 Percent of AP Computer Science test-takers in 2015 who were female

59 Percent of 2015 Intel Science and Engineering Fair (ISEF) finalists in Biology categories who were female

25 Percent of 2015 ISEF finalists in Mathematics who were female

23 Percent of 2015 ISEF finalists in Computing categories who were female

57 Percent of 2014 bachelor's degree recipients who were women

17 Percent of 2014 Computer and Information Sciences bachelor's degree recipients who were women

15 Percent of 2014 Computer Science bachelor's degree recipients at major research universities who were women

37 Percent of 1985 Computer Science bachelor's degree recipients who were women

21 Percent increase in the number of first-year undergraduate women interested in majoring in Computer Science between 2000 and 2015

25 Percent of computing workforce who were women in 2015

3 Percent of computing workforce who were African-American women in 2015

5 Percent of computing workforce who were Asian women in 2015

1 Percent of computing workforce who were Hispanic women in 2015

What we know: diversity in librarianship

ALA Demographics Studies

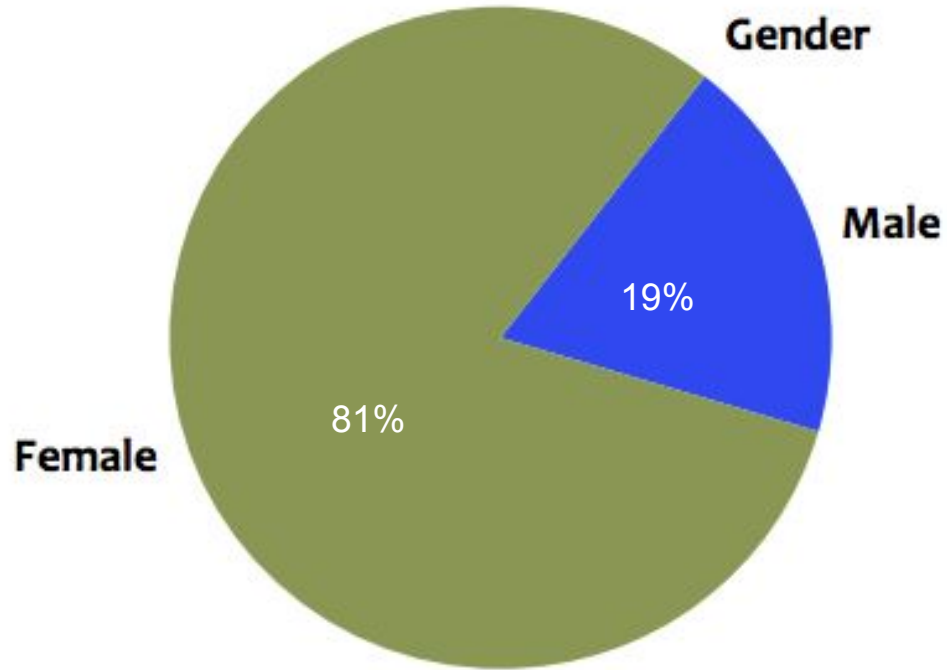
September 2014

Membership remains largely unchanged since ALA began collecting these characteristics. Not dissimilar from the library profession overall, ALA members are:

- Predominantly white (87.1%). 3.9% of the membership listed their ethnicity as Hispanic or Latino. In describing their race/family origin, members selected the following responses:
 - 87.1% White
 - 4.3% Black or African American
 - 3.7% Other
 - 3.5% Asian
 - 1.1% American Indian or Alaska Native
 - 0.3% Native Hawaiian or Other Pacific Islander

What we know: diversity in librarianship

ALA Gender Distribution



What we know: diversity in library IT

“At present, the library has a dichotomized workforce of female librarians and male IT workers.” - Lamont

Table 1. Library computer systems department heads

Year	Gender	Department Heads	Salary	Years in Field
2004-5	Women	32	76,764	18.9
	Men	60	76,060	16.9
2005-6	Women	32	78,767	19.4
	Men	52	79,680	18.4
2006-7	Women	26	81,435	18.2
	Men	52	82,409	17.6
2007-8	Women	27	87,107	18.8
	Men	51	87,136	18.8

READ THIS!!



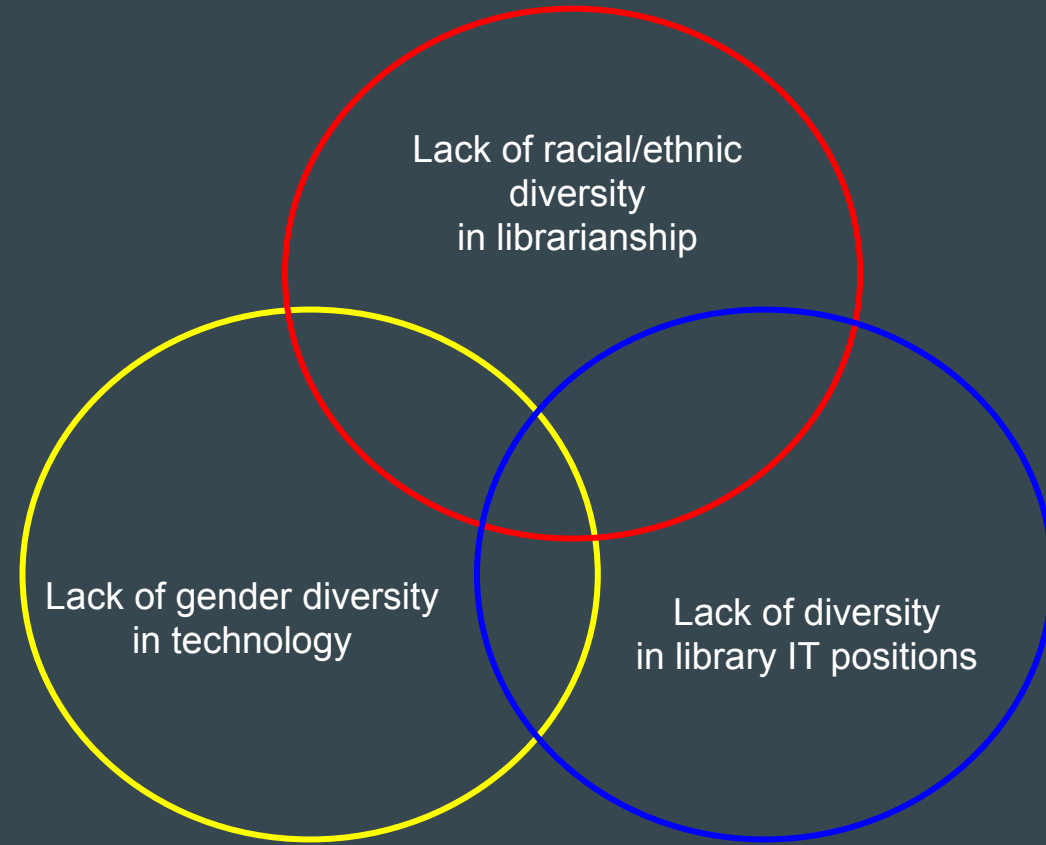
...The library profession is not immune to the gendered nature of technology just because it is a female-intensive profession.

..There is no doubt the popular image of librarians rarely includes images of librarians as technologically adept.

...More men work with technology or in tech-related areas (*in libraries*), they earn more while in these positions, and they publish in more technology-focused journals.

Chapter 7. Hicks, Deborah. *Technology and Professional Identity of Librarians : The Making of the Cybrarian*. Hershey, PA: Information Science Reference, 2014.

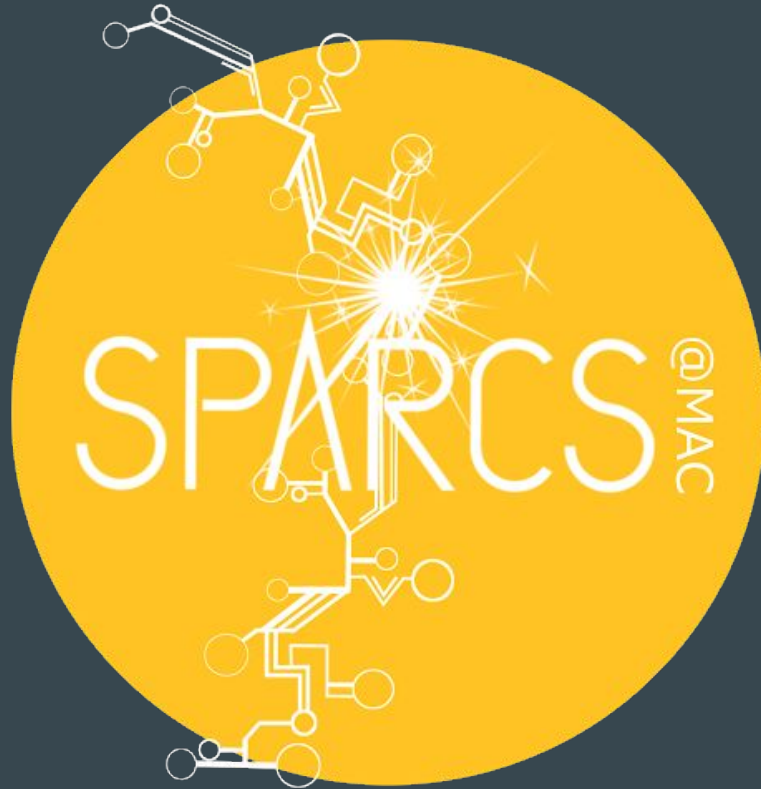
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Goal:

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Our vision



Getting our ducks in a row



Laying the groundwork

27 months from “the spark of the idea” to fruition.

- Wrote a concept piece. Revised as I learned.
- Partnership with BGC.
- Talked to everyone and anyone who I thought would be interested or concerned.
- Got involved in the STEM movement in K-12 in my community.
- Volunteered at events like Microsoft Digigirlz, Grace Hopper, Black Girls Code.
- Sat in on AdvanceIT MN meetings.

Partnership

MACALESTER



&



Making it happen - guiding principles

- Invite all who identify as girls and/or young women to participate.
- Have women leading as much of the program as possible.
- Historically underrepresented populations, students of color, and would-be first generation college students especially encouraged.
- Keep costs low, waive costs as needed.
- Remove unnecessary barriers.
- Make it a week-long experience.
- Build community.

What **DETERS** girls from computing?

- * Irrelevant curriculum and reliance on lecturing instead of hands-on projects
- * Teaching styles that discourage collaboration
- * Lack of opportunities to take risks and make mistakes
- * Limited knowledge or inaccurate perceptions about computing careers
- * Lower confidence than boys, even when actual achievement levels are similar

Making it happen - curricular components

- Take a liberal arts approach to exploring technology & related career opportunities
- Provide self-esteem and confidence building exercises
- Offer training in skills, such as coding, game development, app development, person-centered design, etc
- Build community among young women interested in technology
- Emphasize the importance of women and diversity in the technology workforce
- Reinforce that passion + technology is the key

79 volunteers including

- High school teachers
- College faculty
- Macalester students and alumni
- Library staff
- IT staff
- Community and industry partners



26 participants from area schools

- Great River High School
- Apple Valley High School
- Duluth East High School
- Eagan High School
- Wayzata High School
- Nova Classical Academy
- Minnetonka High School
- Central High School
- Creative Arts Secondary High School
- Washington Tech Magnet School
- Fine Arts Interdisciplinary Resource (FAIR)
- MTS Minnesota Connections Academy











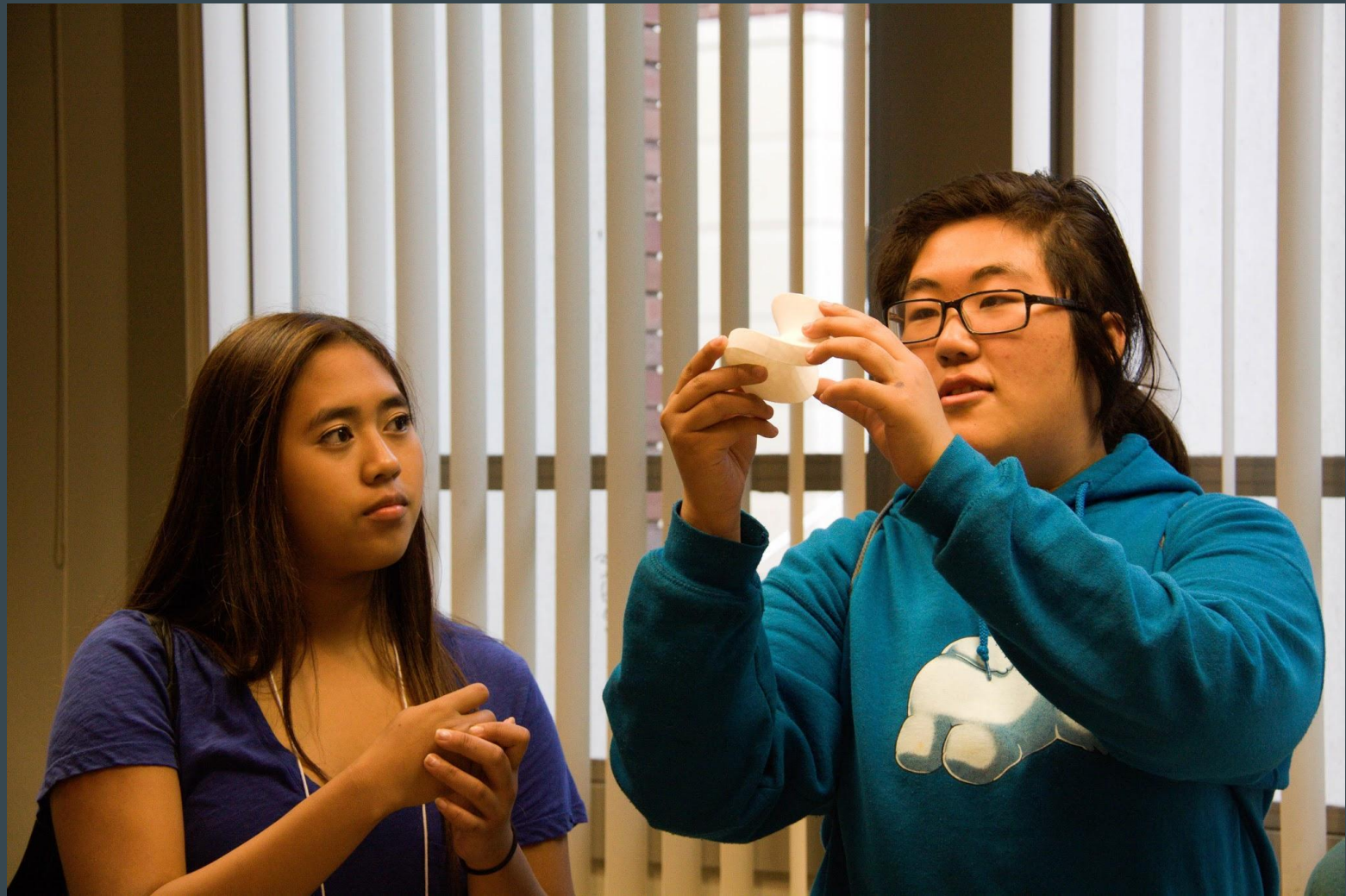






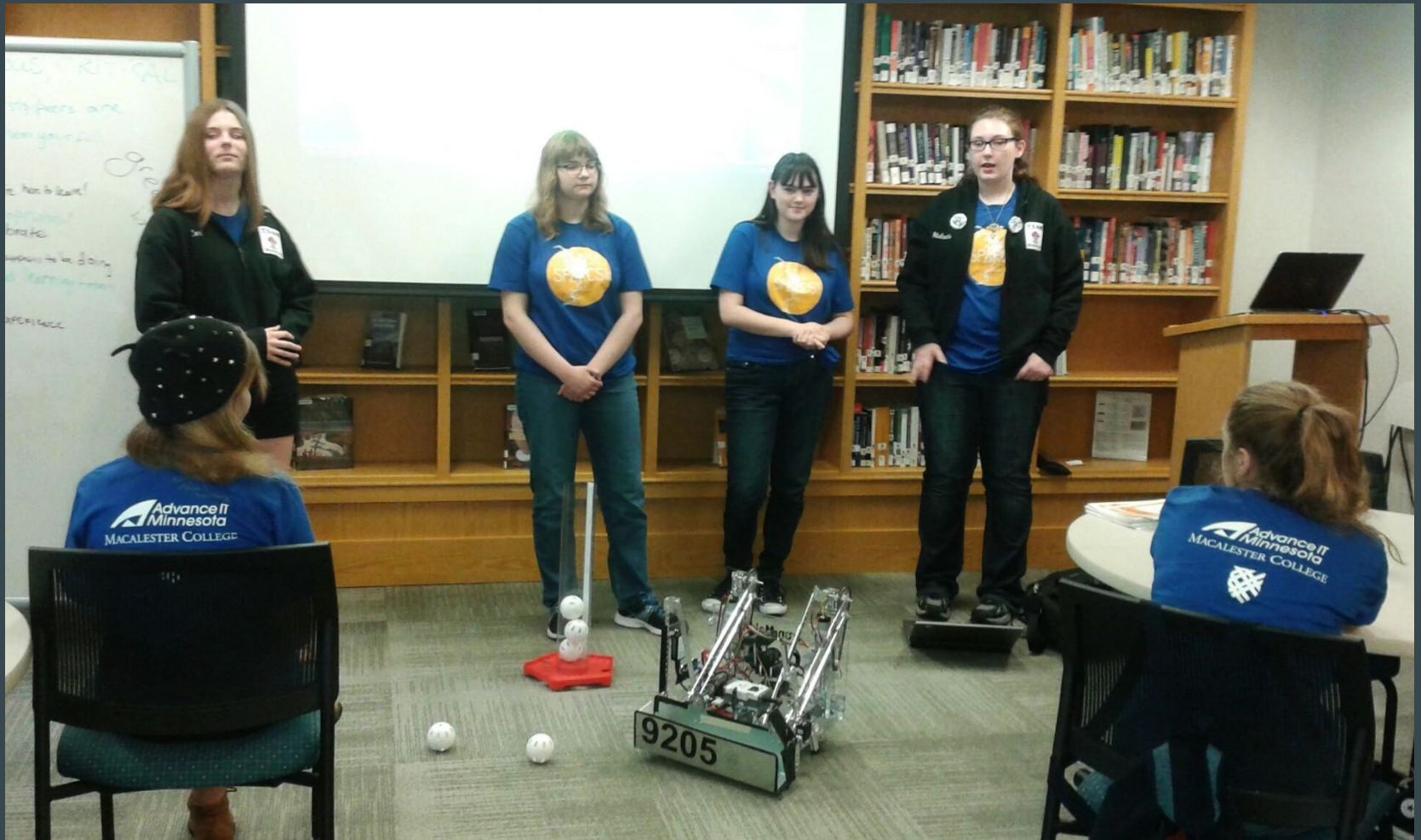


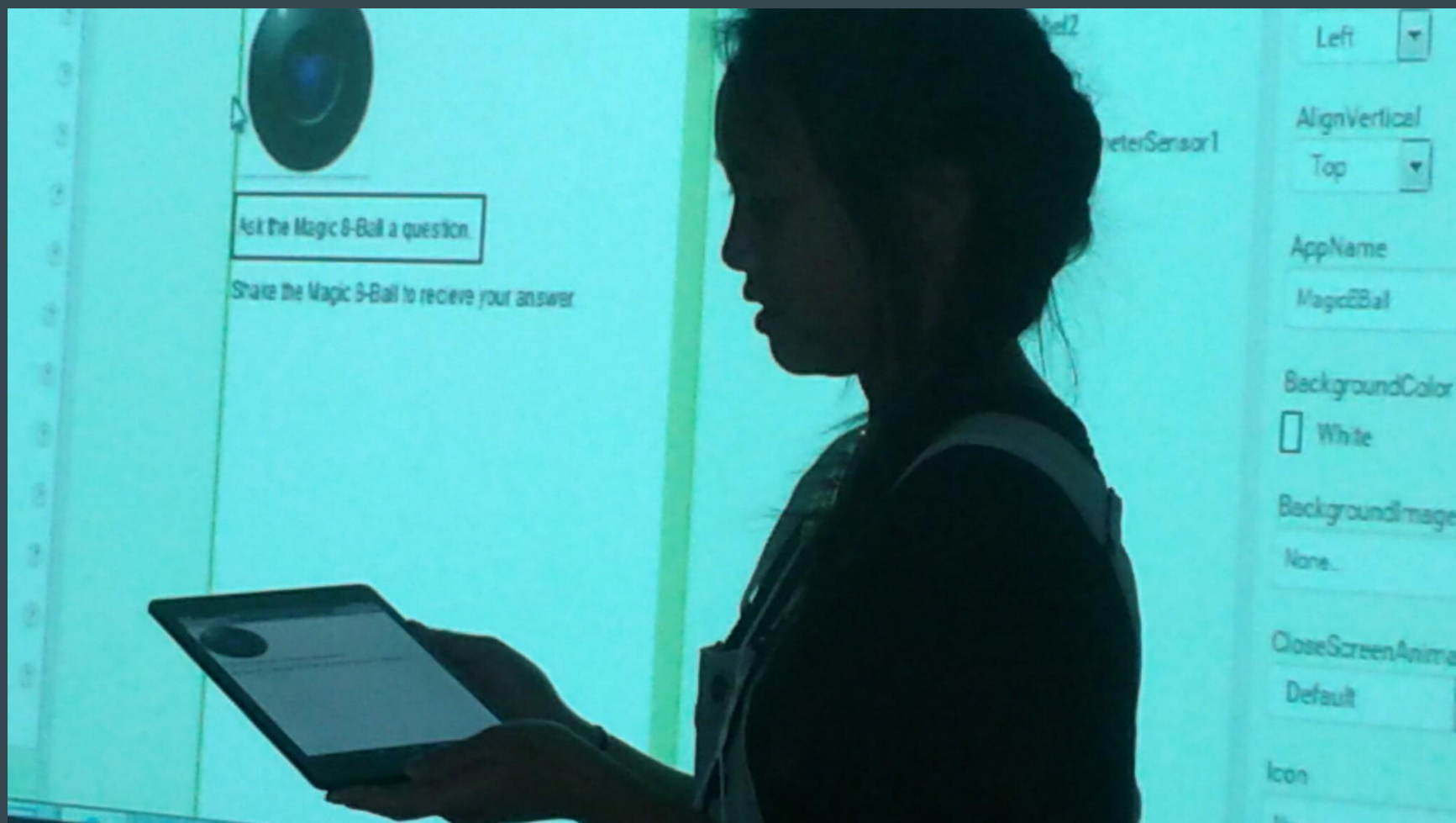














Assessment

- 96% would recommend SPARCS@Mac to a friend.
- 92% liked that SPARCS@Mac was for young women only.
- 100% of the people who supported SPARCS@Mac 2015 want to be involved in 2016.

Assessment

- *“I learned that there are fields you can go into that combine technology with any of your other passions.”*
- *“I think that everything was important. Learning to code, program, make games, use excel, and learn how to use technology in new ways.”*
- *“The most important things I learned at SPARCS@Mac was opening up to people. I met LOTS of such great, kind, smart, funny, helpful people here, and I didn’t think I’d be as comfortable as I am. I’ve learned more how to open myself up within a week.”*



PLAY

Reflections

Cody Molho

Gojong Lor

What we learned

- Supporting girls in tech is an idea that a lot of people are enthusiastic about.
- A LOT of people want to help, but need help in figuring out how.
- Connect with the folks in your community engaged in this work.
- Finding a partner might be a critical component.
- Libraries are well suited for leading this work.
- This can be a bit daunting, but worthwhile work.

Parting thoughts

And share that our profession is a rewarding one in which to apply their gifts and skills...

What can **YOU** do?

- * Talk with girls about why they should consider a computing career.
- * Talk with girls and others about unconscious biases and how to handle them.
- * Talk with school personnel about the need for computing education.
- * Provide girls with early technology and computing experiences.
- * Provide ongoing encouragement. Never underestimate the power of this simple effort.
- * Don't mistake prior experience for ability.
- * Advocate for CS certification and the adoption of CS curriculum standards.
- * Ensure that your own organization employs inclusive practices that will retain young women who choose computing.

SPARCS@Mac 2016

MACALESTER COLLEGE

CURRENT STUDENTS FACULTY/STAFF PARENTS & FAMILIES ALUMNI

ABOUT MACALESTER ACADEMICS LIFE AT MAC ADMISSIONS & FINANCIAL AID SUPPORT MAC

HOME - DEWITT WALLACE LIBRARY - SPARCS @ MAC

SPARCS @ Mac

Search HOME DATABASES JOURNALS GUIDES ASK US

DeWitt Wallace Library

ABOUT

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FOR FACULTY

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RESERVES

SERVICES

STAFF DIRECTORY



SPARCS @ Mac

Tech camp for Minnesota girls

June 20-24, 2016 9am-4pm

Macalester College, DeWitt Wallace Library, St. Paul MN

ABOUT SCHEDULE REGISTRATION DIRECTIONS QUESTIONS

We invite you to come learn about a wide variety of technologies while engaging with college faculty, students, and staff, IT employers and fascinating professionals. Enjoy beautiful Macalester College in St. Paul where your summer learning and fun intersect! Beginners and experienced techies are welcome.

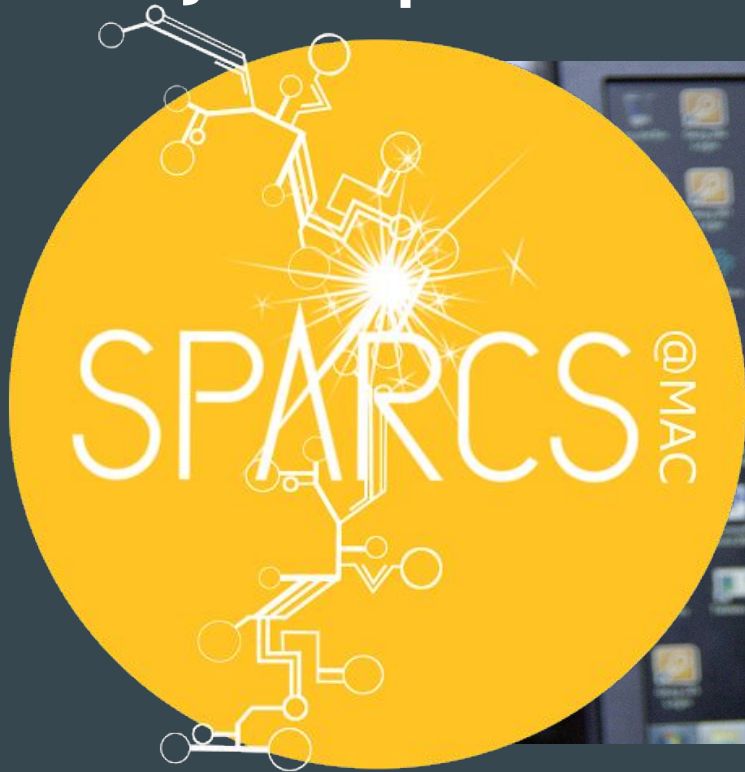


Participants will:

- Learn a variety of technologies and their applications.
- Build skills and confidence through experimentation, creativity, and problem solving.
- Increase awareness and understanding of technology career opportunities.

Workshop sessions are taught by our fascinating college faculty, staff and students.

Thank you & questions



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