Developing Curiosity.
Creativity. Persistence.
In 2014, Iridescent made its biggest impact yet, reinforcing a solid foundation for sustainable growth across the country and around the world.

We came out of a long period of experimentation and discovery, supported generously by the National Science Foundation and the Office of Naval Research and have established a strong foundation for sustainability and greater impact in the years ahead.

This year we reached more than 5600 children and their families (30,000 in total since 2007). We worked with more than 630 STEM professionals (2500 in total since 2007) from companies like Boeing, Intel and Google who partnered with us to teach and mentor students, inspiring and equipping them to pursue technical careers. Our base of community collaborators – schools, libraries and after-school organizations – continued to grow with 100 such partners in Los Angeles alone.

Technovation, our global technology and entrepreneurship program for girls, finished its fifth season, reaching 1500 girls in 28 countries more than all years combined (2750 across all years). We performed a 5-year survey of prior participants in the program and learned that 70% of girls actually take more CS courses when given the opportunity and that 46% college age alumnae intend to major in CS.

Over the past year, we have built our capacity to further scale our programs – in line with our mission. We have established our rigorous online curriculum and mentor platform – www.CuriosityMachine.org – that can be accessed by youth and families, STEM mentors and educators around the world. We have refined our “train the trainer” model to help others bring our curriculum to children. We equip parent leaders and educators to use this platform to engage more families in curiosity clubs and family science courses, dramatically expanding our reach beyond our initial face-to-face programs.

Most important, these capabilities and capacity reinforce what we have identified as Iridescent’s unique aspects and greatest strengths – having parents work alongside their children, and training and engaging STEM professionals to mentor youth. We plan to continue to cultivate and leverage these strengths as we go forward. As we look ahead to 2015 and beyond, we’ll keep our focus tightly aligned with our mission, to deliver high quality science and technology education to children and youth, and surround them with cutting edge curriculum and an eco-system of well-trained supporters to help foster their success.

from Tara Chklovski, Chief Executive Officer

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We inspire and equip children to reach their full potential

The most successful students are those who are able to drive their own learning -- this requires employing a level of strategic thinking and practicing self-regulation in deeper and further-reaching way than just knowing learning strategies and how to practice them [1-4]. At this level, strategic thinking involves considerable attention, effort and perseverance to the learning process and is often fueled by a student’s curiosity, enthusiasm, persistence, and willingness to take risks [5].

In the short term, these traits and abilities are beneficial to academic performance, but the benefits carry over much further, into adulthood and the workplace. And given the effects of globalization and technological development on the work world, traits like curiosity, creativity, and persistence, are becoming key predictors of job performance -- more so than academic performance alone.

Employees with high levels of curiosity and persistence learn more new skills, master new challenges, better handle unfamiliar situations, and can adapt more efficiently to changes to core tasks, teams, and the organization itself [6-8].

Did you know?
The only factor that predicts a student’s higher academic achievement, social competence, low rate of adolescent high-risk behavior, higher aspirations for postsecondary education and strong career development is Parental Involvement [12-18].
We focus on two programs:

Both are experiential mentoring programs that leverage online curriculum platforms for scale, high quality, and depth.

90% of families discussed science more often at home, and used more science learning materials after participating in Iridescent programs.

Curiosity Machine leverages scientists, engineers, and parents to provide problem-based learning and mentorship opportunities to underserved children.

2,750 girls have developed mobile apps to solve problems in their communities.

Technovation connects teams of girls to powerful women mentors to learn technology entrepreneurship by creating mobile apps and business plans.
Curiosity Machine: connecting STEM experts to underserved families over many years.

89% of students became more persistent in solving problems and kept trying if they didn’t figure something out immediately.

The model combines our key strengths:
• Parental involvement
• Deeply engaging STEM professionals as instructors and long-term mentors
• Blending technology and in-person programs for scale and depth

Effectiveness has been demonstrated through an external evaluation of our 5-year longitudinal NSF-funded project. Engineers gained leadership skills, self-efficacy, communication skills, and productivity. Parents and students also reported improvements as a result of their participation.

Of parents:
• 80% planned to encourage their children to pursue a STEM education or career.
• 91% said that it improved their STEM child-rearing practices.

Of students:
• 89% became more persistent in solving design challenges.
• 92% were more interested in science at school
• 85% had a better understanding of science and engineering.

Curiosity Machine: 4-stage model

Train Scientists & Engineers to develop and teach design challenges to underserved families.

Produce & Share Videos Online to inspire and make science accessible to everyone.

Mentor Online so families anywhere can learn directly from scientists & engineers.

Train Parents & Educators to use online design challenges and reach more families.

89%
Jessica began volunteering with Iridescent in January of 2014 through our Engineers as Teachers course (part of our Curiosity Machine program). At the time she was an undergraduate student in Biomedical Engineering at USC and an active tutor within the local community. As a part of the Engineers as Teachers course, she developed engineering design challenges and taught them to local, underserved children and families. One of her lessons helped children build a design challenge based on the physics of a roller coaster.

After graduating from USC, Jessica continued to stay involved with the Iridescent community through Curiosity Machine. As an online mentor, Jessica has supported students at local Los Angeles schools and libraries as well as virtually mentoring families across the country using the Curiosity Machine platform. Currently, she is a first year PhD student in Neuroscience at the University of Michigan, Ann Arbor. Her research focuses on factors regulating restorative neurogenesis in response to traumatic brain injury. Aside from academic studies, Jessica continues to be involved in educational activities in her local community. Through her dedication to providing support to the most at-need members of her community, Jessica has modelled the significant impact mentors can have on inspiring the next generation of STEM leaders.

"I believe that most of developing a child’s personal, academic, and career goals starts at home . . . Curiosity Machine not only makes science more accessible to the general public, but I also think it makes volunteering more accessible to STEM professionals.”

- Jessica Chen, Curiosity Machine mentor

Did you know?

Curiosity has been found to help build interpersonal relationships [19], subjective well-being [20], academic performance [21], learning, cognitive development [22], health [23], and even reduce mortality rates [24].
Curiosity Machine: curriculum

In addition to connecting children, parents, engineers, scientists, and educators for multiple interactions over many years, we create original hands-on projects that highlight cutting edge research in ways accessible to audiences of all ages and science backgrounds. This curriculum is developed through partnerships with leading researchers and professional engineers, and is designed to be executed with affordable and easy-to-find materials.

70 videos and design challenges produced in 2014
Of parents said that it improved their STEM child-rearing practices

Did you know?
Corporate Social Responsibility activities can increase a corporation’s financial performance - if there is already sufficient brand awareness in the public [25-26].
Our mission is to educate and inspire girls and women to solve real-world problems using technology. There are many programs working to address gender parity in technology, but Technovation is the only program with:

- **Global Reach & Diversity** - deeply engaging 2,750 girls in 28 countries.
- **Longest Track Record** - Technovation has doubled its reach each year over the 5 year history of the program.
- **Longitudinal Proven Impact** - After Technovation:
  - 70% of girls actually take more CS courses when given the opportunity.
  - 46% college age alumnae intend to major in CS.
  - 75% of mentors say that their experience mentoring helped their own professional development.

In 2014, **362 apps** were submitted by **1,500 girls** - more than all 4 previous years of the program combined. We published these apps in our first-ever public gallery of apps. This year we also launched our Regional Ambassador program, which enabled volunteers around the world to take ownership of Technovation and lead the program in their local communities. This program has been hugely successful, with 30 active ambassadors in 2014, and more already registering to inspire girls in their community during this coming year.

**Did you know?**
4 in 1,000 U.S. female college freshman choose computer science as a major [32].
This year at World Pitch, team Health in a Drop from Moldova took home first prize—$10,000 in seed funding—for their app ApaPura. Developed to help the 80% of their community in Ștefănești that lacks access to clean drinking water, ApaPura maps out local water sources and identifies the state of freshness or contamination of each one.

70% of Technovation alumnae pursue further computer science in high school and college when given the opportunity.
Our budget for 2014 was $3,174,616. The breakdown of expenses and income is as follows:*

<table>
<thead>
<tr>
<th>Expense</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Foundations</td>
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<tr>
<td>Corporations</td>
<td>14%</td>
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<tr>
<td>Individual Donations</td>
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<tr>
<td>Federal (NSF)</td>
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<tr>
<td>Web Development</td>
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<td>Operations, Assessment</td>
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<tr>
<td>Direct Program Costs</td>
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</tbody>
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*Projected amounts through December 2014.

**Goals: 2015 and Beyond**

We have a big vision for the future:

- 15,000 Engineers
- 520,000 Parents
- 21,000 Educators
- 1.2 Million Children


It takes a parent mentor village to raise a child.

Especially one who is curious, creative, and persistent. Especially one who will set her own goals, drive her own learning, and solve the world’s biggest problems.

We are the village.

Join Us
Tara Chklovski
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