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From Insight to Action:

Building Collective Resilience
for Girls in STEM

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Summary

Across Canada, Actua is inspiring the next generation of innovators and problem solvers. Through hands-on experiences at camps, clubs and workshops, Actua and its network empower more than 500,000 youth each year to explore and excel in science, technology, engineering and math (STEM).

A key part of our work is creating bold and inclusive learning opportunities for girls and gender-diverse youth. Actua's National Girls Program engages over 25,000 girls annually, with an additional 225,000 reached through other co-ed programs that nurture confidence, creativity and resilience. While progress continues, gender gaps in science and technology persist, underscoring the importance of our ongoing efforts to build a more inclusive STEM community that can lead Canada's future economy.

To ensure our National Girls Program remains relevant and responsive to girls' needs, we have spent the past year and a half consulting with youth, educators and experts to understand the challenges girls face today, their aspirations and the barriers that stand in their way. Our first National Girls Program Roundtable was held in 2024, followed by a discussion at our national conference in January 2025[1]. In September 2025, we held a second roundtable discussion to delve into new topics and issues relevant to girls' experiences.

This report describes the key takeaways and themes from our 2025 National Girls Program roundtable including:

GENDERED DISINFORMATION: Disinformation, or content created to mislead or cause harm, has a powerful impact on how girls see themselves and their place in STEM and in society. Participants highlighted the need to help girls recognize how online spaces can distort self-image and discourage authentic participation, and to strengthen critical thinking and digital literacy as essential skills for navigating these challenges.

INTERSECTIONALITY AND PROGRAM PARTNERSHIPS: Participants recognized that girls and women with intersecting identities, including Black, Indigenous, racialized, disabled and trans women, face distinct barriers that call for intentional and tailored solutions. They emphasized the need to look beyond traditional quantitative measures and include qualitative insights, process evaluations and long-term studies that more fully capture the impact of intersectional programs.

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[1] Insights from the first roundtable discussions were captured in the report Empowering Girls in STEM: Insights for an Equitable Future, published in September, 2025.

UNDERSTANDING KEY DECISION POINTS IN HIGH SCHOOL: The choices girls make in grades 9 and 10 can have a lasting impact on their future in STEM. Unfortunately, the structure of the education system often discourages exploration by rewarding early specialization and framing early outcomes or uneven experiences as signals that students "aren't good at" a subject. Experiences often reinforce narrow definitions of success that disproportionately affect girls' confidence in STEM. To create more opportunities, we need to build girls' confidence before high school by helping them understand that one difficult course or low mark does not mean they are "bad at science." We must also provide clear, intentional guidance on course choices so girls keep STEM options open for as long as possible, while helping them see challenge as a normal part of learning and connect STEM to real-world issues they care about.

Together, these insights revealed the complex interplay between digital culture, systemic educational barriers and personal identity shaping girls' engagement with STEM. They also reaffirmed the importance of listening to girls' lived experiences as we design programs that truly meet their needs.

This report offers learnings and recommendations that will guide Actua's programming and provide valuable guidance for any organization or individual working with girls and striving toward a more inclusive and equitable future.

ABOUT ACTUA'S NATIONAL GIRLS PROGRAM

Actua's National Girls Program inspires girls and young women to fulfill their unique and important role in STEM. Actua's university-based network members deliver all-girls camps, clubs, workshops and events across Canada. They are led by women and gender-diverse instructors and welcome female STEM professionals as role models. The program aims to build social connections, break down deeply rooted stereotypes and create safer spaces for girls to design, build, experiment and grow their confidence. Actua's all-girl programs welcome transgender girls, non-binary and Two-Spirit youth, and it is worth noting that in addition, Actua recognizes and supports the distinct program needs and partnerships for queer youth.

ROUNDTABLE EVENT DETAILS

The 2025 National Girls Roundtable was held on September 24th, 2025, at The Lord Elgin hotel in Ottawa, Ontario and included the following participants:

- **Jennifer Flanagan**, President and CEO, Actua
- **Jennifer Ladipo**, National Programs Manager (National Girls Program & Black Youth in STEM Program), Actua
- **Val Iannitti**, VP, Development and Partnerships, Actua
- **Madeline Sialtsis**, Coordinator, Network Member Services, Actua

- **Richael Aryee**, Coordinator, National Programs (National Girls Program & Black Youth in STEM Program), Actua
- **Rhaya Clyne**, InSTEM Intern, Actua
- **Monique Lugli**, Facilitator
- **Anna Ampaw**, Founder, Career Spotlights
- **Dr. Janos Botschner**, Behavioural Scientist, Community Safety Knowledge Alliance and Principal, HumInsigh
- **Antoinette Ellis**, Founder & Director, Ace & Co
- **Dr. Sara Grimes**, Wolfe Chair in Scientific and Technological Literacy, McGill University
- **Raphaelle Jean-Baptiste**, Former Instructor, UOttawa Engineering Outreach
- **Aany Kempcke**, Student
- **Caitlin Mullan-Boudreau**, Manager, Public Affairs, TD Bank Group
- **Faidat Olatunbosun**, Outreach Manager, Ethós Lab
- **Dr.Toyib Olaniyan**, Environmental Epidemiologist and Research Analyst, Statistics Canada
- **Efe Fruci**, Founder and Executive Director, Odihi
- **Belinda Richardson**, Program Officer, Women and Gender Equality Canada (observer)
- **Kesheni Samaranayake**, Clinical Research Operations Manager, Deciem
- **Laura Thursby,** Director, Ontario Tech Engineering Outreach

Discussion Overview & Recommendations

The discussion was exceptionally rich and wide-ranging, shaped by the diversity of perspectives in the room. Participants included practitioners, researchers, girls, parents, STEM professionals, and educators, each bringing distinct experiences and insights. From this collective dialogue, the following areas emerged as clear priorities for attention and as key opportunities for Actua to focus its efforts moving forward.

1. GENDERED DISINFORMATION

A dangerous online threat is targeting women and gender-diverse people in Canada: gendered disinformation. These harmful online campaigns silence voices, poison online spaces and even undermine our democracy.[2]

Roundtable participants discussed how gendered stereotypes can be weaponized in digital spaces, examining the ways these narratives undermine a sense of belonging in STEM and how generative AI raises the stakes by increasing the speed of disinformation's spread and its scale.

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[2] To learn more about gendered disinformation and for learning resources for parents/caregivers, educators and youth, visit actua.ca/misinformation.

Participants discussed the push and pull of online spaces for girls, including how social media provides access to critical role models, social connections and information about the world around them. However, these spaces also create anxiety and fear of judgement, pressure to be perfect, and access to inaccurate information, often driven by likes and shares, rather than experience or expertise.

Roundtable participants discussed strategies for promoting positive counter-narratives, emphasized the importance of building critical thinking skills, and highlighted the need to identify and address toxic content that can become normalized online.

The group also emphasized the power of in-person community as a grounding force for building a stronger sense of self in the face of online negativity. Importantly, the discussion shifted the focus from individual responsibility to collective resilience, underscoring that interventions should strategically challenge social norms and address systemic biases.

RECOMMENDATIONS TO COUNTER GENDERED DISINFORMATION AND ONLINE HARMS FOR GIRLS

1. **Help girls develop critical thinking skills:** Provide systems and support that teach girls how to evaluate information, spot bias and understand that likes and follows do not equate to authority or expertise.

2. **Help girls build strong in-person communities:** Encourage girls to create supportive in-person networks that boost their confidence and can support them through any challenges and negativity they might encounter online.

3. **Help girls navigate systemic barriers:** Create programs that recognize how some educational and professional systems can disadvantage girls, and focus on collective solutions rather than placing the burden on each individual.

4. **Help girls benefit from supportive adults:** Equip parents, caregivers and other adults to challenge, not reinforce, stereotypes and disinformation and provide tools to girls on how to interpret and navigate digital spaces safely and confidently.

2. INTERSECTIONALITY IN PROGRAM PARTNERSHIPS

Women remain significantly underrepresented in Canadian STEM, holding just 12 percent of full-time STEM professorships[3]. Black, Indigenous and other racialized women face compounded barriers rooted in systemic inequities and bias. Girls who hold intersecting identities encounter these challenges early on, making it harder to participate fully in STEM, even when diversity and inclusion programs are in place.

Roundtable participants reflected on the role of intersectionality in shaping girls' experiences and emphasized the importance of programs that intentionally support girls with intersecting identities. The discussion highlighted how many girls navigate environments where they feel pressure to adapt or "code-switch" in order to belong. Participants underscored the need for thoughtful, responsive programming that helps girls feel safe, confident and fully supported as their authentic selves.

The group also identified limitations in reporting and evaluation methods, which can fail to capture the true impact of programs serving girls with overlapping identities. They emphasized the importance of prioritizing youth voices, stories and lived experiences to better understand the changing experiences of girls.

Participants highlighted the need for greater collaboration among organizations working toward similar goals for girls, recognizing that shared knowledge, coordinated efforts and mutual support can strengthen programs designed for girls with intersecting identities, and increase their overall impact.

RECOMMENDATIONS FOR STRENGTHENING PROGRAMS FOR GIRLS WITH INTERSECTING IDENTITIES

1. **Create opportunities to collaborate:** Larger organizations can act as connectors and mentors for smaller organizations, offering financial support when possible. Building partnerships grounded in shared values and trust can reduce duplication of effort and strengthen teamwork across organizations of varying sizes.

2. **Directly engage girls with intersecting identities:** egularly ask girls what is working, what support they need and what specific challenges they face, ensuring programs are informed by the experiences of those they aim to serve.

3. **Prioritize qualitative impact measurement:** Shift the focus of evaluation from purely quantitative metrics to stories of success and process evaluation, helping organizations better understand why a program may work for one youth but not another.

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[3] Women & Post-doctorates: life after graduation.

4. **Use creative methods to capture youth voice:** Implement engaging techniques through storytelling, art and creativity, through imaginative questions (e.g., "What do you want to be for Halloween?"), and focus groups to ensure girls' perspectives and experiences are authentically reflected.

5. **Invest in long-term research and alumni engagement:** Secure investment for longitudinal studies with parents and caregivers to track program impact over time, and actively involve program alumni to share powerful success stories that inspire and inform future programming.

3. HIGH SCHOOL NEXT STEPS: UNDERSTANDING KEY DECISION POINTS

During high school, many girls experience declining confidence and increasing social bias that can steer them away from STEM pathways. While these patterns often become most visible in adolescence, their root causes frequently begin much earlier. The roundtable discussion highlighted several defining moments and systemic barriers that can prematurely narrow girls' options and close the door to future STEM opportunities.

Research shows that girls as young as six begin to associate fields such as computer science and engineering with boys, internalizing stereotypes that influence how they interpret their own abilities and interests over time[4]. These early perceptions can shape later academic decisions, particularly when girls encounter challenges or receive a single low mark in a math or science course and come to see it as evidence that they are "not good at" STEM rather than as a normal part of learning or the result of factors beyond their control.

This internalization has significant implications for course selection in high school, where decisions are often high-stakes and difficult to reverse. For example, a girl who believes physics is "for boys" may avoid taking it in high school, reducing her ability to pursue engineering in university, as it is often a prerequisite.

Course streaming, which divides students into academic tracks based on ability or intended goals, can reinforce inequities, as students from equity-deserving groups are more often guided into lower-level courses. At the same time, efforts to de-stream can create new problems, sometimes leaving both students who need extra attention and those who need greater academic challenge without the resources or pathways to reach their full potential.

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[4] [Who Can Do STEM?: Children's Gendered Beliefs about STEM and Non-STEM Competence and Learning](#)

Beyond these structural barriers, rigid educational environments can discourage exploration and risk-taking. When early outcomes are treated as fixed indicators of ability and experimentation is penalized, girls, who research shows are often more risk-averse than boys, may be less likely to persist through challenge and build confidence in STEM subjects. Classroom dynamics, including male-dominated learning environments, can further contribute to discomfort and disengagement. At the same time, a lack of clear, proactive guidance on course selection and STEM pathways leaves many girls without the information they need to keep options open for as long as possible. Unrealistic or narrow portrayals of STEM careers can deepen this disengagement, leading some girls to opt out altogether.

RECOMMENDATIONS FOR SUPPORTING HIGH SCHOOL GIRLS

1. **Engage girls before they enter high school:** Build confidence early by helping girls interpret and navigate mixed societal messages about who belongs in STEM, while reinforcing that grades and early outcomes do not define their ability or future potential.

2. **Normalize non-linear STEM journeys:** Design programs that show girls it's okay to pivot, struggle or fail in STEM, reinforcing that one difficult course, bad teacher or setback does not end their STEM journey.

3. **Reframe success in STEM:** Highlight creativity, adaptability and other essential skills to challenge narrow stereotypes of what success looks like and help girls see themselves reflected in STEM.

4. **Expand real-world STEM experiences:** Connect girls with mentors and hands-on opportunities, such as offering dedicated spaces for teen girls during "Bring Your Kids to Work Day", particularly in cases where their parent or caregiver cannot offer this opportunity. Also, show girls how STEM is woven into non-STEM fields like art, sports or music to help some girls link it to their existing passions.

5. **Advocate for flexible academic pathways:** Support education policy changes that address inequities like course streaming and promote systems that allow for genuine exploration, recovery from failure and second chances.

Next steps

We encourage organizations and institutions committed to engaging more girls in STEM to reflect on the insights from this roundtable and consider how to implement them within their own work. At Actua, we are building on the momentum of these discussions by turning insights into action by:

- Embedding these learnings into training and capacity-building for Actua network members.

- Strengthening best practices and coaching initiatives.

- Applying these insights to shape our programming across Canada.

- Sustaining focused attention on each priority area (i.e., gendered disinformation, intersectionality and supporting girls in high school) throughout the year.

Acknowledgements

Women and Gender Equality Canada   Femmes et Égalité des genres Canada