

Engineering Success in “Thrice Exceptional” Students through a Rigorous STEM- focused Curriculum

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and of STEM education for The Help Group**

Who are thrice-exceptional students?

- Those who are gifted or strong cognitively, and
- who are on the autism spectrum, and
- who have a passion for, or skill at, STEM or some STEM-based activity

What is STEM?

- STEM stands for Science Technology, Engineering and Math
- The spirit of STEM has been with us since the early 20th century
- And certainly the space race of the 1950s and 60s solidified the burgeoning interest in STEM

The Challenges of Autism

Part I

- Socialization
- Emotional control
- Perseveration
- Narrow focus
- Rigid thinking
- Idiosyncratic interests

The Challenges of Autism

Part II

- Challenges to graduating high school-accommodations in school
- Challenges to graduating college-transitioning without support
- Challenges to finding and keeping a job-accommodations necessary for success

STEM and Autism

- STEM workers in demand over the next decade
- STEM workers in demand by category
- STEM skills in demand

Success and Social- Emotional Skills

- The kindergarten study—the importance of pro-social behavior
- The Harvard study—Intellectual prowess and success
- 21st Century skills and their role in success

What are 21st Century Skills

- **Interpersonal skills**
 - Communication, collaboration, cultural competence, compassion, resolving conflict
- **Creativity**
 - Imagination, implementing innovation
- **Critical thinking**
 - Self-reflection, problem-solving, analytical thinking


STEM and 21st Century Skills

The social nature of STEM activities

- Science experiments
- Robotics builds
- Real-world projects and assignments
- Makers spaces and innovation labs
- Projects and presentations
- STEM in the community

Motivation and Engagement

- **Thinking about the future**
 - Goal management, hope and optimism
- **Self-management**
 - Emotional regulation, self-discipline
- **Perseverance / grit**
 - Perseverance, goal orientation
- **Self-efficacy and mindsets**
 - Self-efficacy, growth, mastery, relevance
- **Belonging & identity**
 - Belonging, relationship building, personal identity, social capital



Dr. Helena Seli is Associate Professor of Clinical Education and Director of Program Development at the University of Southern California

Specializes in academic self-regulation; learning strategies, motivation; and self-worth

Professor Seli is the perfect person to address both the skills and the dispositions that we mentioned above, and the way in which they support success