STEM Access and Achievement for Deaf Students:

The Role of Family–Teacher Partnerships



Dr. Amie Fornah Sankoh and Geoffrey Moore

Math & Science Conference at RIT/NTID

Rochester, NY

October 26-28, 2026



Meet Your Presenters

Dr. Amie Fornah Sankoh

- Senior R&D Scientist and STEM professional
- Earned Ph.D. in Biochemistry, Cellular & Molecular Biology from University of Tennessee, Knoxville
- Earned B.S. in Biochemistry from RIT
- Champion for Deaf, Black, and underrepresented communities

Geoffrey Moore

- Communication Specialist and Account Manager
- Earned a B.S. in Computer Engineering Technology from Prairie View A&M University
- Former Mathematics and Technology Teacher
- Committed to fostering communication, accessibility, and professional development opportunities for Deaf individuals and communities worldwide.

“Every deaf child deserves the opportunity to discover what they are capable of in STEM.

Sometimes, all it takes is one parent and one teacher who believe in them.”

Dr. Amie: My STEM Journey – **Support**

- Parents strongly valued education
- Teachers who believed in my scientific ability
- Early encouragement in curiosity and experimentation
- Access to mentorship shaped my path



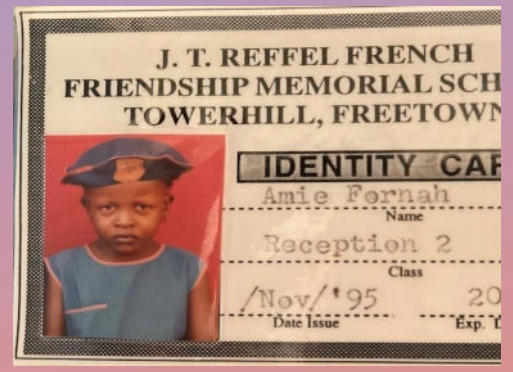




My gratitude for a PhD advisor's ‘if Amie can't do it, no one else can' mindset"

Dr. Amie: My STEM Journey – **Barriers I Overcame**

- Became profoundly deaf at **3 years old** after malaria.
- Grew up in Sierra Leone with **little to no access to language or deaf education.**
- Moved to the **United States at age 12** without a strong foundation in any formal language.
- Experienced **language deprivation** throughout childhood, delaying academic and social development.
- Began learning A**merican Sign Language (ASL) at age 15** in a mainstream educational setting.
- Built my educational foundation later than most peers through the **NTID**.
- **Overcoming** significant educational and language gaps.
- Navigated higher education as a **Black Deaf immigrant** in STEM with limited representation and accessibility.
- Persisted through systemic barriers to ultimately earn a **Ph.D. in Biochemistry, Cellular and Molecular Biology.**





A Conversation That Changed Everything

‘What made you choose a PhD in STEM field?’

My answered:

“Math was the only academic subject that truly made sense to me.”

From Math to Molecular Biology

A visual pathway:

Math → Chemistry → Biochemistry → Cellular & Molecular Biology

↓

Research → PhD

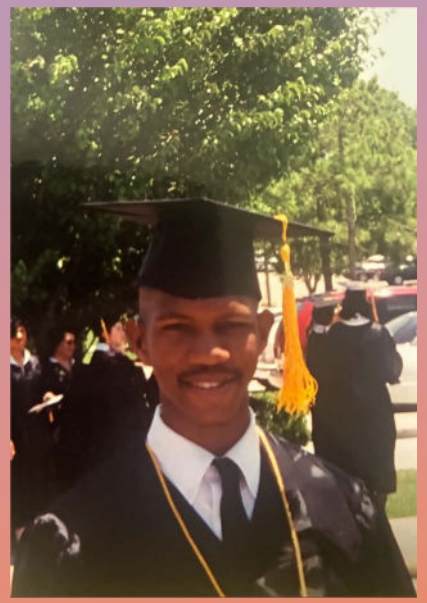
Question to think about:

“How many deaf students lose interest before reaching this point—not because they lack ability, but because they lack access?”

Geoffrey Moore's STEM Journey: Seen, Supported, and Challenged

From a Mainstream Classroom to Computer Engineering Technology

Childhood → Middle School → High School → College → STEM Career



"What if the adults around a deaf child see the potential before the child knows how to see it for themselves?"

My journey was shaped by:

Family advocacy
Teacher expectations
Educational access
Early identification of strengths
Opportunities to explore STEM
Learning self-advocacy



Question for parents and educators:

What are we doing today that could change a deaf student's STEM trajectory tomorrow?

Before a Student Can Become a Scientist or Engineer, Someone Has to Believe They Can.

- I attended a mainstream school with a small day-school program for deaf students.
- Parents and teachers - The Teamwork that makes Dreamwork

<u>What made the difference?</u>

- I was challenged academically
- My deafness wasn't treated as a reason to lower expectations
- Adults paid attention to my strengths
- My family remained involved
- Teachers communicated with my parents

A Deaf Student May Not Know What They Don't Know

Teach deaf students to:

Ask questions
Identify their strengths
Request accommodations
Communicate how they learn best
Understand academic options
Explore STEM careers
Make decisions about their future

<u>The progression:</u>

Parent advocacy → Teacher advocacy → Student self-advocacy

What Happens When Advocacy Is Missing?

Not Every Deaf Student Has the Same Starting Point

Some families may not know:

1. What educational options exist
2. How to navigate deaf education
3. What STEM pathways are available
4. How to advocate within schools
5. What their child can pursue after high school

Some students may therefore depend heavily on the adults around them to make decisions about their future.

For educators:

Don’t assume a family knows how to navigate the system.

Instead:

Invite. Explain. Connect. Empower.

Access ≠ Lower Expectations

A deaf student may need:

1. Access to communication
2. Accessible instruction
3. Visual resources
4. Interpreting accessibility
5. Family support

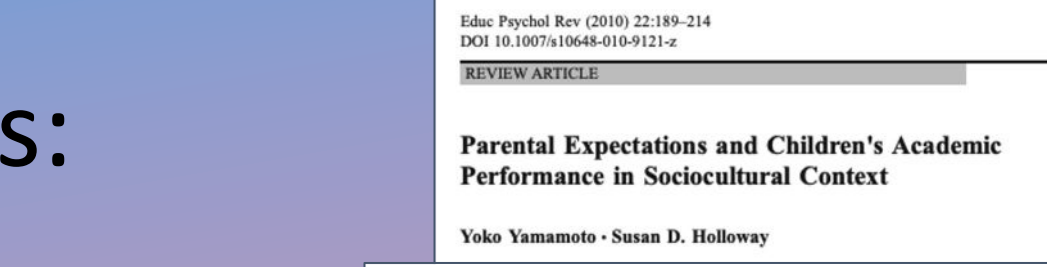
But they also need:

Challenge. Curiosity. Opportunity. High expectations.

The goal isn’t to make STEM easier.
The goal is to make STEM accessible enough for students to show us what they can do.

Research consistently shows:

- Parents' educational expectations **positively influence** student achievement.
- High teacher expectations **improve academic performance and persistence**, particularly in mathematics.
- Deaf students thrive when educators provide **equitable access and maintain appropriately high expectations**.
- Exposure to deaf role models **strengthens confidence, identity, and educational aspirations**.


Educ Psychol Rev (2010) 22:189–214
DOI 10.1007/s10648-010-9121-z

REVIEW ARTICLE

Parental Expectations and Children's Academic Performance in Sociocultural Context

Yoko Yamamoto · Susan D. Holloway


Giving the Spoon Back: Higher Teacher Expectations of Achievement for Students Who Are Deaf

David H. Smith, *California State University* Follow

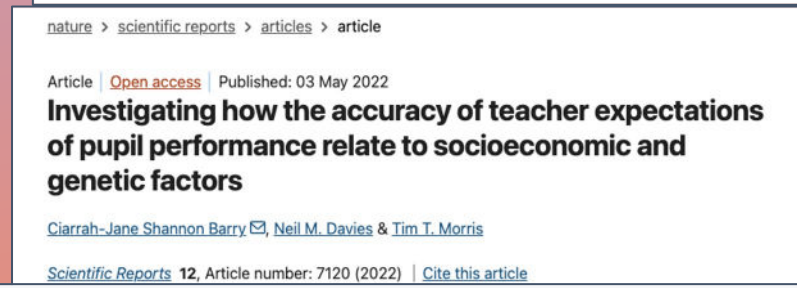

J Community Psychol. 2021 Sep;49(7):2679-2703. doi: 10.1002/jcop.22644. Epub 2021 Jul 4.

Parent and teacher educational expectations and adolescents' academic performance: Mechanisms of influence

Aprile D Benner [1], Celeste C Fernandez [1], Yang Hou [2], Chelsea Smith Gonzalez [1]

Affiliations + expand

PMID: 34219230 PMCID: PMC9150486 DOI: 10.1002/jcop.22644


nature > scientific reports > articles > article

Article | Open access | Published: 03 May 2022

Investigating how the accuracy of teacher expectations of pupil performance relate to socioeconomic and genetic factors

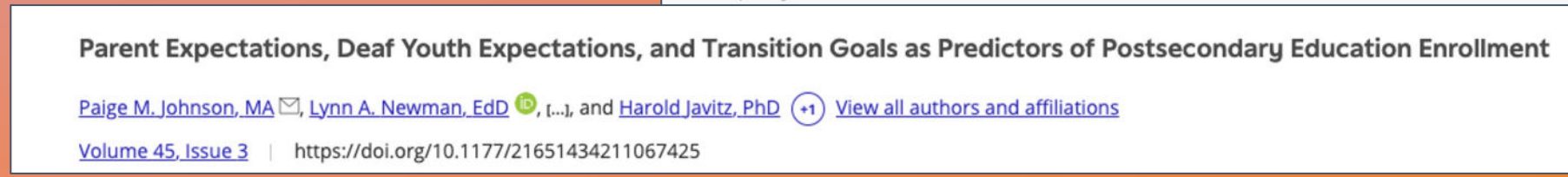
Ciarrah-Jane Shannon Barry, Neil M. Davies & Tim T. Morris

Scientific Reports 12, Article number: 7120 (2022) | Cite this article


High and appropriate expectations for deaf and hard of hearing children: the role of assessment

Amy Szarkowski*, Denise Fournier Eng

*Corresponding author for this work


Parent Expectations, Deaf Youth Expectations, and Transition Goals as Predictors of Postsecondary Education Enrollment

Paige M. Johnson, MA, Lynn A. Newman, EdD, [...], and Harold Javitz, PhD +1 View all authors and affiliations

Volume 45, Issue 3 | https://doi.org/10.1177/21651434211067425

Building Powerful Teacher–Parent Partnerships

- Building trust
- Effective communication
- Respecting family culture
- Connecting parents with resources
- Raising STEM expectations
- Encouraging curiosity at home

Barriers to STEM Access for Deaf Students

- Lack of interpreters in science settings
- Inaccessible lab environments
- Limited STEM mentorship
- Low expectations in some school systems

When Support Aligns:

- Increased STEM participation
- Higher academic achievement
- Strong identity development
- More Deaf scientists and innovators

“Who was the adult who made you believe you could succeed?”

“Could you be that person for a deaf child?”

From Experience to Impact — **Why We Care**

Partner with schools, organizations, parents, and educators to:

- Bridge communication gaps between families and schools
- Empower parents to become effective advocates for their deaf children
- Support teachers in creating accessible and inclusive learning environments
- Promote STEM pathways and career readiness for deaf students
- Increase awareness of Deaf culture and best practices in education
- Help students develop confidence, self-advocacy, and leadership skills

“To empower families, educate professionals, and create pathways for deaf students to thrive.”

SEE THE POTENTIAL. BUILD THE PATHWAY. RAISE THE EXPECTATIONS.

THE NEXT DEAF STEM INNOVATOR MAY ALREADY BE IN YOUR CLASSROOM.

“Will you recognize the potential before they recognize it in themselves?”

Learning Objectives

- Identify factors that influence deaf students' interest and persistence in STEM.
- Recognize the importance of high expectations and accessible learning environments.
- Apply strategies to strengthen partnerships between families and educators.
- Foster a classroom culture that encourages deaf students to see themselves as future scientists, engineers, mathematicians, and researchers.

"Every deaf child has the potential to succeed in STEM. Together, families and educators can help unlock that potential."

Thank you for your attention!

We are happy to take any questions