

# Examining the State of STEM and Inclusion in Early Education

UNC FRANK PORTER GRAHAM CHILD DEVELOPMENT INSTITUTE

UNIVERSITY OF DENVER MORGRIDGE COLLEGE OF EDUCATION  
 IDEAS that Work Office of Special Education Programs  
 Marsico Institute FOR EARLY LEARNING

Jessica Amsbary, PhD and the STEMIE Team

- Young children interested and able to learn foundations of STEM learning (Sarama et al., 2018)
- Early STEM linked to improved academic skills (Paprzycki, et al., 2017).
- Yet, early childhood providers often are not adequately prepared or confident in their ability to teach STEM (Sarama & Clements, 2009) & STEM opportunities not readily available to children with disabilities (Clements & Sarama, 2014).

## Research Questions:

1. What are providers' feelings and beliefs related to inclusion, science, technology, engineering, math and STEM in early intervention and early education?
2. What is happening related to inclusion, science, technology, engineering, math, and STEM in early intervention and early education?
3. What do providers know and want to know about inclusion, science, technology, engineering, math, and STEM in early intervention and early education?

# Survey Development & Findings

## Development Process

- Draft Survey Questions
- Pilot survey with Experts
- Cognitive interviews with variety of practitioners
- Final Questions (examples):
  - I believe teaching [concepts] are important for infants and toddlers, infants and toddlers with disabilities, preschoolers, and preschoolers with disabilities.
  - My workplace supports me in using inclusive practices with my children/caseload

## Participants

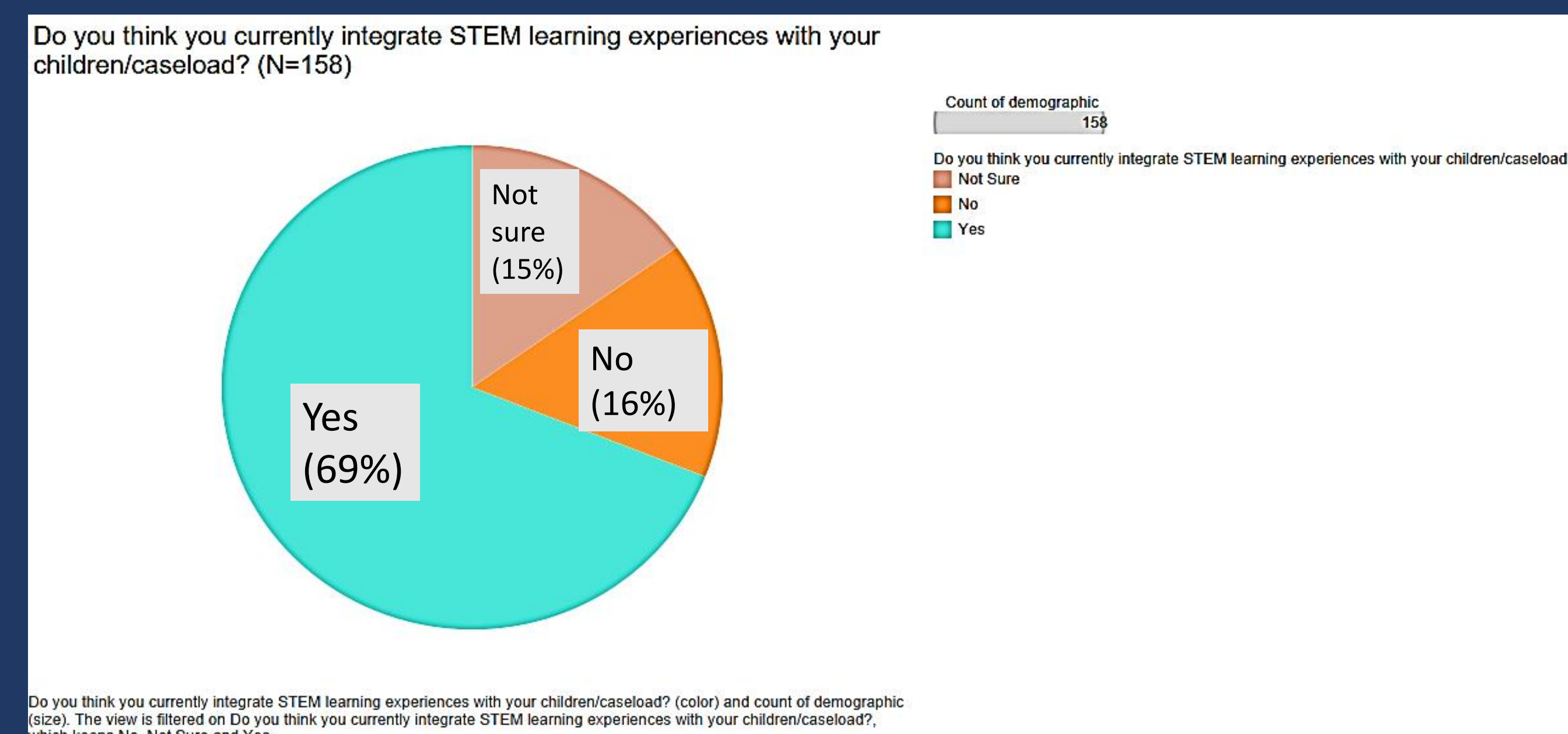
- 161 practitioners (160 female, 1 male)
  - 80% White, 10% Black, 2% American Indian, 2% Asian, 1% Native Hawaiian, 4% Other, 17% Hispanic or Latinx

### Participant Role:

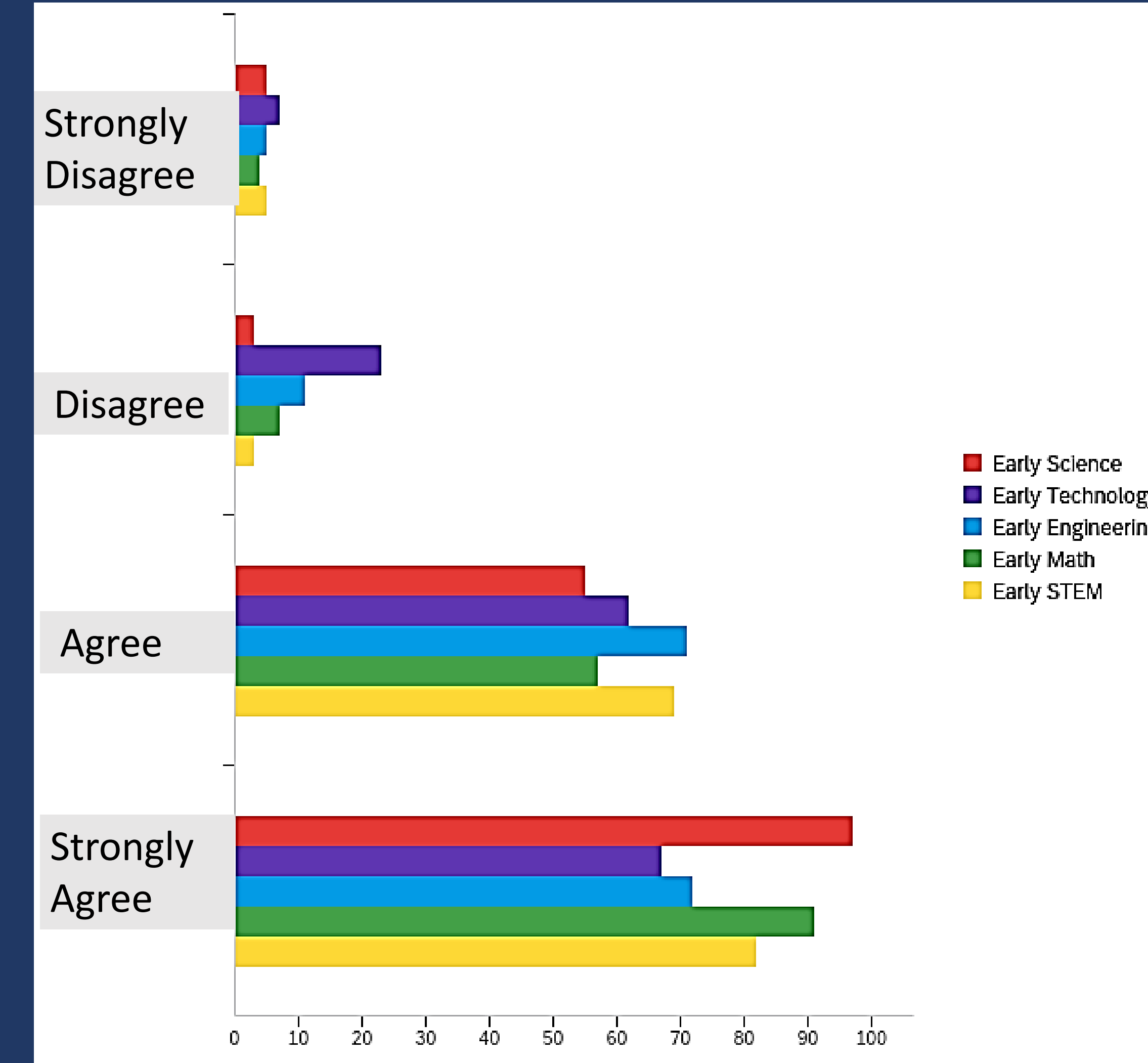
Field	#	%
Early Interventionist	6	3.7%
Preschool or Head Start Classroom teacher	54	33.5%
Classroom Instructional Assistant	3	1.9%
Preschool Special Education Teacher	25	15.5%
Center-based Group Child-care Provider	11	6.8%
Home Child-care Provider	27	16.8%
Speech Therapist	1	0.6%
Vision Specialist	2	1.2%
Itinerant Teacher	1	0.6%
Other	31	19.25%

Note: Other included: PD & TA Providers, Early Childhood Specialist/Consultant, Parent Educator, Supervisors, Museum Staff, Faculty, ABA provider

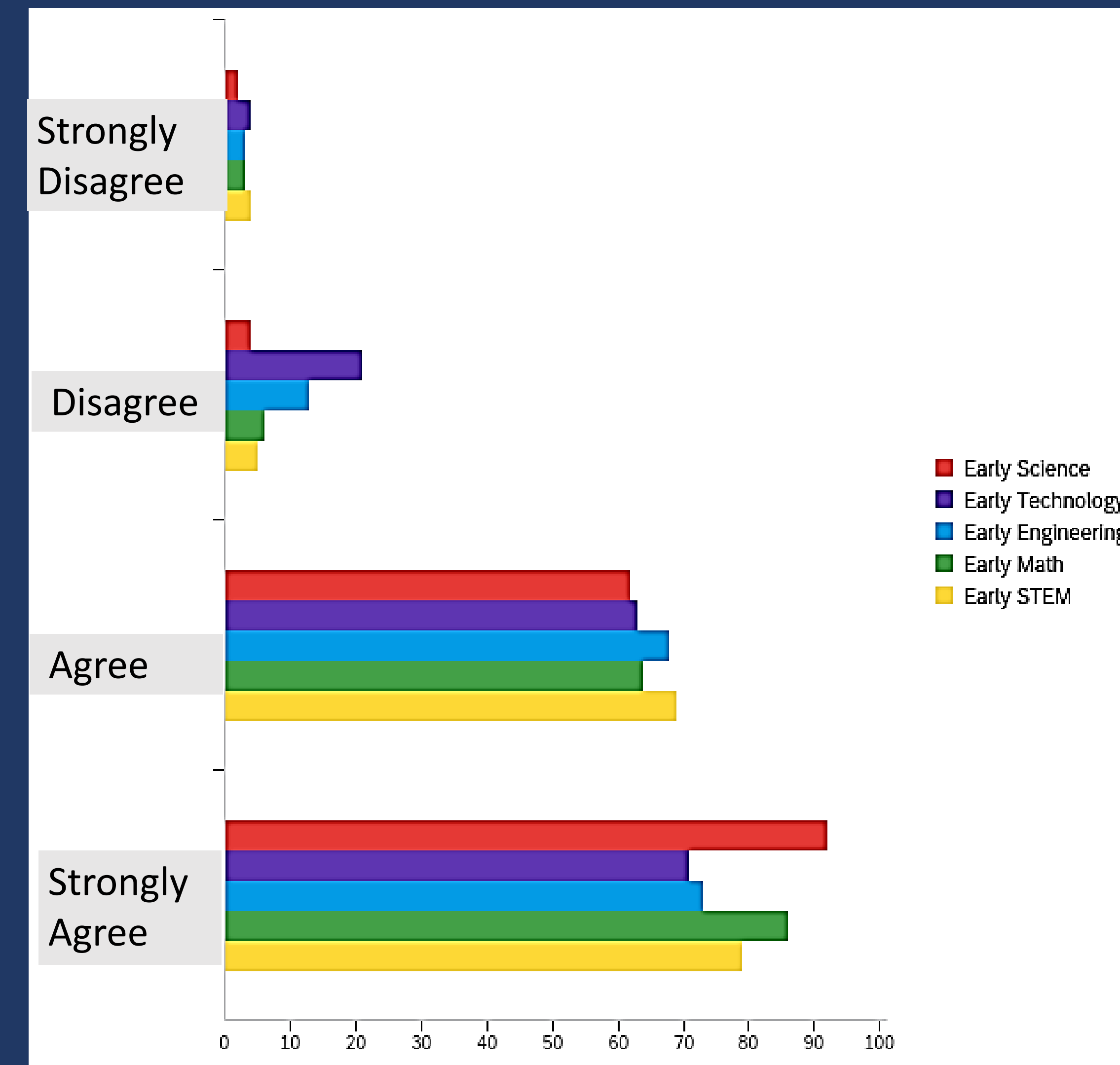
## Do you think you currently embed STEM learning?



I believe teaching S (red), T (purple), E (blue), M (green), and STEM (yellow) are important for infants and toddlers



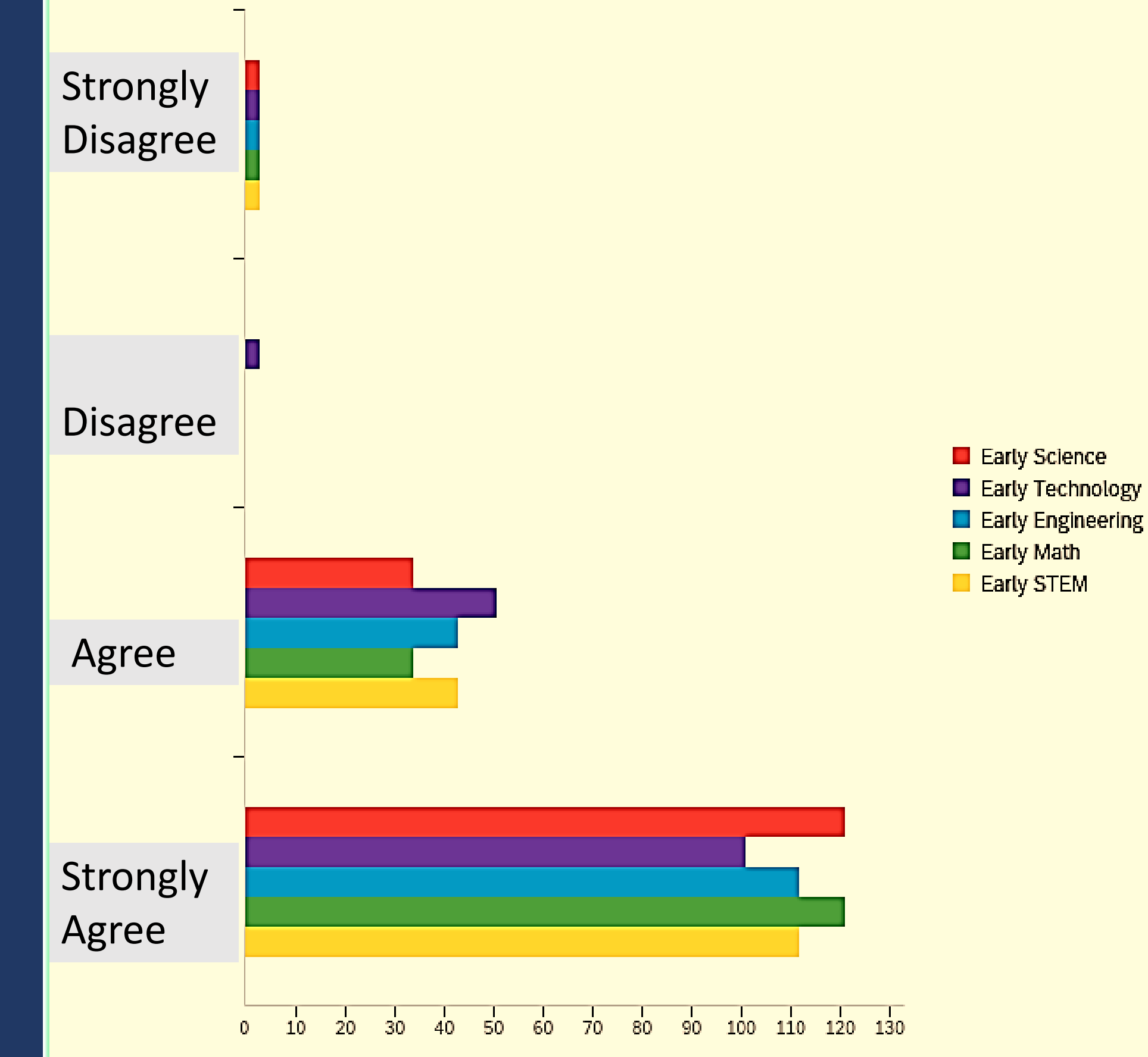
I believe teaching S (red), T (purple), E (blue), M (green), and STEM (yellow) are important for infants and toddlers with disabilities



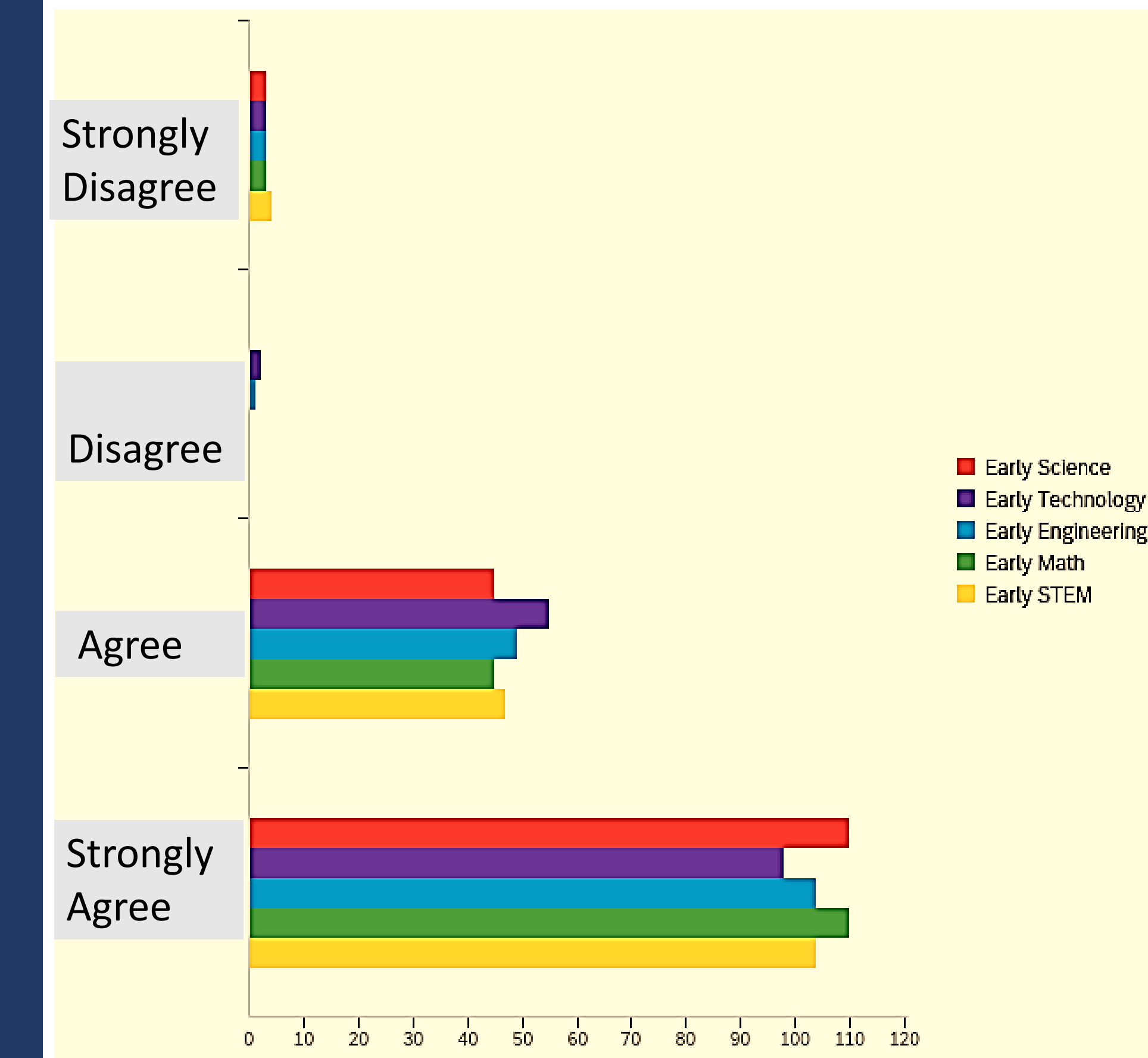
## What did we learn?

- Need to purposefully embed STEM learning for infants and toddlers
- Need to make PD opportunities readily available
- Facilitate understanding of foundational computational thinking concepts as tech

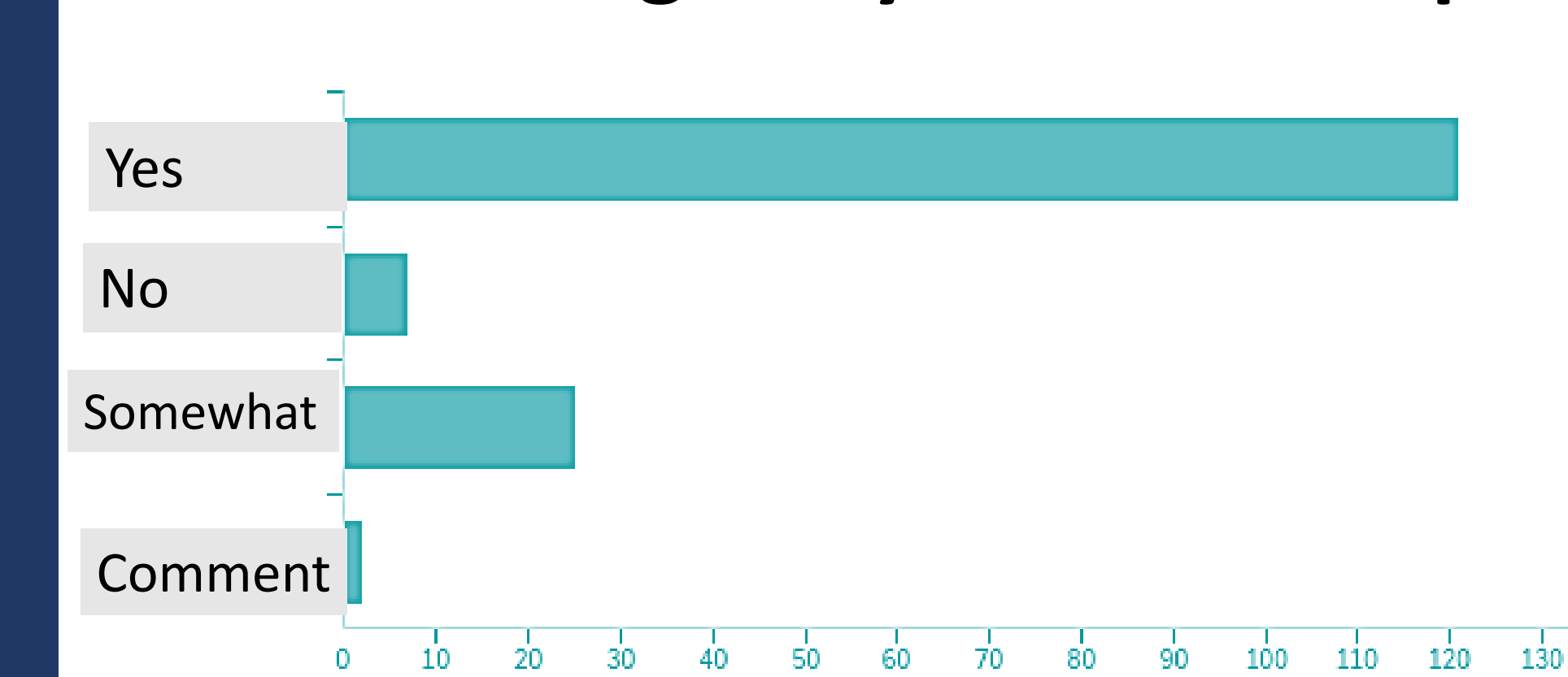
I believe teaching S (red), T (purple), E (blue), M (green), and STEM (yellow) are important for preschoolers



I believe teaching S (red), T (purple), E (blue), M (green), and STEM (yellow) are important for preschoolers with disabilities



## Are you interested in learning more about teaching early STEM concepts?



## Next Steps:

- Disseminate survey to Institutes of Higher Education Faculty
- Disseminate Survey and collect info from families

**Please share your ideas/recommendations on how to best engage families in our data collection**