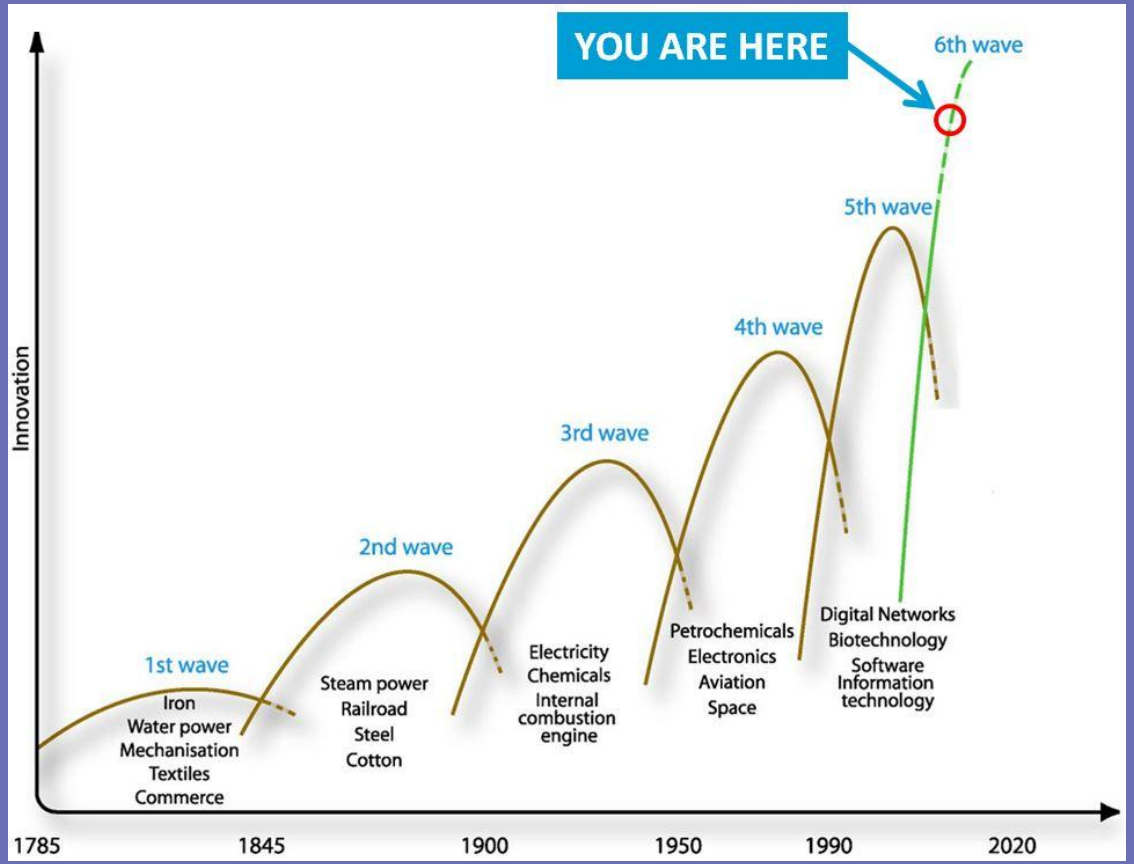
“The future’s already arrived; it’s just not evenly distributed yet”

William Gibson

“Age of Acceleration”



Urgent Need for a Different Mindset

"What we don't understand, we fear. What we fear, we judge as evil. What we judge as evil, we attempt to control. And what we cannot control… we attack." — unknown

- Income gap is at the level of the 1920s.
- Real risk that the digital divide will widen into rift when underserved communities feel even more alienated and disenfranchised.
    - Demands for new skills, lack of access to retraining, negative interactions with algorithm-based systems

Special implications for girls and mothers

16 million working age women out of the workforce *Hamilton Project*

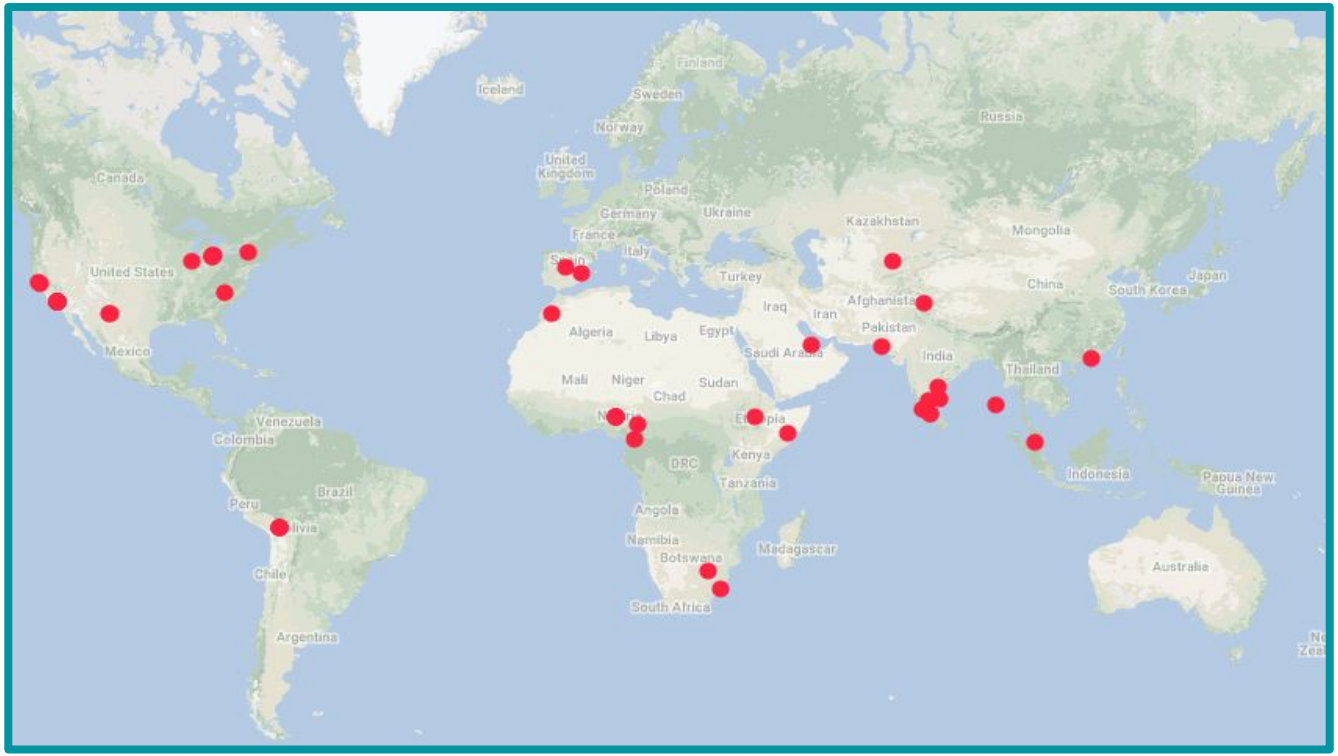
Our approach

Providing a systemic, two-generational STEM program, targeting *parents* so that the whole family adopts a lifelong learning mindset

The AI Family Challenge

Global competition for 10,000 underserved 3rd-8th grade students and parents to develop AI-based products to solve problems in their communities.

~80 community partners across 5 continents



Survey of public perceptions around AI

- Determine familiarity with technology and AI
- Understand present usage and comfort with technology and how that differs from expected future usage
- Understand how parents choose enrichment programs for their children in 3rd - 8th grades
- Gauge interest in learning more about technology and AI

Research Design

- Survey conducted online in Jan, 2018 by Veraquest.
- 1,566 respondents in the US, ages 25+ who have a child in grades three through eight.
- Sample constructed from U.S. Census proportions to be representative of the population based on age, income, education, race/ethnicity and geography.
- 40% of respondents earned < $50K annually

Interest. The Gap. Fear & Mistrust

- ~75% of children (grades 3-8) of low-income parents do NOT have access to CS/technology classes
- Low-income black families want more technology programs for their children (more so than Hispanic & White families)
- ~60% of low-income families are interested in at-home technology education
- ~80% of low-income families believe AI will replace too many jobs
- 43% of low-income families are interested in learning more about AI

Fear, Mistrust (57%)

- *"AI is to dangerous to be used around children. You do not know what could happens."*
- *"Afraid it will take over and destroy our working world"*
- *"The great drawback here is that it is putting way too much trust in man-made machines. That will lead us into a lot of trouble in the long run."*
- *"Richer schools will have more advantages than the poorer areas."*
- *"Its ai. It feels like propaganda with it being in schools and making false claims of the world being a better place for it. It wont."*
- *"The "human" touch (KINDNESS) may be lost in the future world."*
- *"I don't really know a lot about it besides I really don't like the idea of computers doing things that humans have been doing for so long why do we need all this technology what happen to some one working hard for what they have. I just feel that so many things can go wrong."*
- *"I do not trust machines or anything thing with no soul or spirit"*

Fear, Mistrust (57%)

- *“I think the drawback would be that it gets the focus off of natural creation”*
- *“it does not help them with morality”*
- *“I think it's just making people lazy"*
- *“Not learning first hand the enjoyments of doing yourself”*
- *“Computers Will be the end of man kind”*
- *“I don't see how this would help my children in the long run, when AI takes over jobs and replaces the human race in production and lively hood.”*
- *“It seems that it was created as a way to make kids think that AI is not a bad thing when we don't know the real consequences that having AI would make for our future.”*
- *“AI needs to be introduced as needed, I don't think the children need any extra indoctrination”*
- *“It might be good, but it depends on the biases of those teaching the program and how truthful they are”*
- *“Feeling a little inept at what my grandson already knows”*

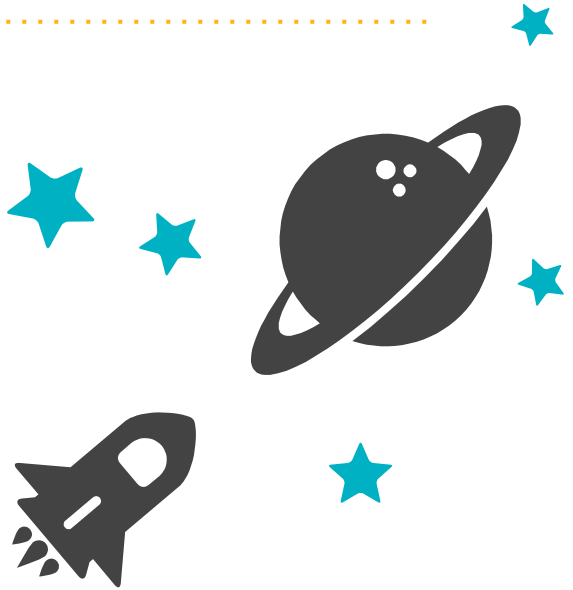
Interest, Curiosity (43%)

- *“Letting us have a hand in new technology”*
- *“I think AI is the future so this would give us an unbiased head start on learning more what AI can be firsthand and to participate in challenges would be a nice fun family activity to do”*
- *“Well we would be together..we’d be using teamwork to get it done.. listening to each other”*
- *“It's going to be taking over the world so we better get our hands on this concept and ride”*
- *“It will help for myself and my family to not be biased towards AI through being more educated on the concept.”*
- *“Help students develop better in their communities they can help the seniors learn things about technology.”*
- *"Im already behind in today's technology and my children are ahead. I believe we could all benefit in very positive way n grow rite along with the worlds speed.”*

Interest, Curiosity (43%)

- *“AI makes me a little nervous but I didn't grow up in this technology generation, I think it will help more than anything.”*
- *“It will make them more intelligent also I feel this will help so many kids to stay away from wars! Because is something super interesting!!! Hailey is super smart sometimes she will definitely interesting help and building making the brain work inteligente”*
- *“The benefits would be that in the near future the world I'd turning to a lot of artificial intelligence and this would help us learn about ai”*
- *“We will be able to have a hands on experience with the concepts. Technology is forever changing”*

STEM Education



Taking Computer Science/Robotics/Engineering in School

- Among Low-Income (< $50k) Respondents -

Grades 3 – 5
(n = 317)
20%

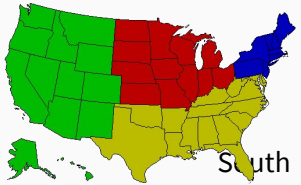
Grades 6 – 8
(n = 268)
29%

Boy
(n = 331)
29%

Girl
(n = 254)
19%

Midwest
(n =124)
21%

West
(n = 106)
28%



Northeast
(n = 110)
36%

South
(n = 245)
19%

The prevalence of boys and students from the Northeast and West in technology education was consistent throughout the study

Q702 Which of the following subjects is **[CHILD]** currently taking at school? (n = 583)

Consider STEM Subject to be Extremely Important

- Among Low-Income (< $50k) Respondents -

Public School
(n =512)

67%

Non-Public School
(n = 73)

55%

Black
(n = 85)

77%

Hispanic
(n = 130)

64%

White/Other
(n = 370)

64%

Within low-income households, math is regarded as more important among public school and Black parents, in comparison to their counterparts.

Q703 How **important** do you feel each of the following school subjects are or would be in terms of contributing to the success of **[CHILD]'s** future?

Child's Participation in STEM-Related Extracurricular Activities

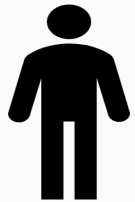
	Robotics Club			Engineering Club			Science Club			Computer Science Club		
	Low-Income <$50K	Mid- Income $50K-$99.9K	High- Income $100K+	Low-Income <$50K	Mid- Income $50K-$99.9K	High- Income $100K+	Low-Income <$50K	Mid- Income $50K-$99.9K	High- Income $100K+	Low-Income <$50K	Mid- Income $50K-$99.9K	High- Income $100K+
	n = 585	n = 528	n = 424	n = 585	n = 528	n = 424	n = 585	n = 528	n = 424	n = 585	n = 528	n = 424
Currently participating	4%	7%	9%	4%	5%	7%	7%	9%	14%	11%	14%	18%
Not currently participating, but interested if available	54%	59%	57%	45%	53%	49%	46%	56%	48%	53%	56%	51%
Not currently participating, and not interested even if available	42%	34%	34%	51%	42%	44%	47%	36%	39%	36%	30%	31%

- Rate of participation in STEM-related extracurricular activities is low, although it varies somewhat by type of activity and level of income
- In the low-income group, between five and ten times as many children would participate in such activities if they were available versus the percent currently participating

Q706 Which of the following best describes **[CHILD']'s** participation in the following extracurricular activities?

Would Like Child's School to Offer More Technology-Related Classes/Extracurriculars/Enrichment Programs

- Among Low-Income (< $50k) Respondents -



Black
(n = 85)
93%

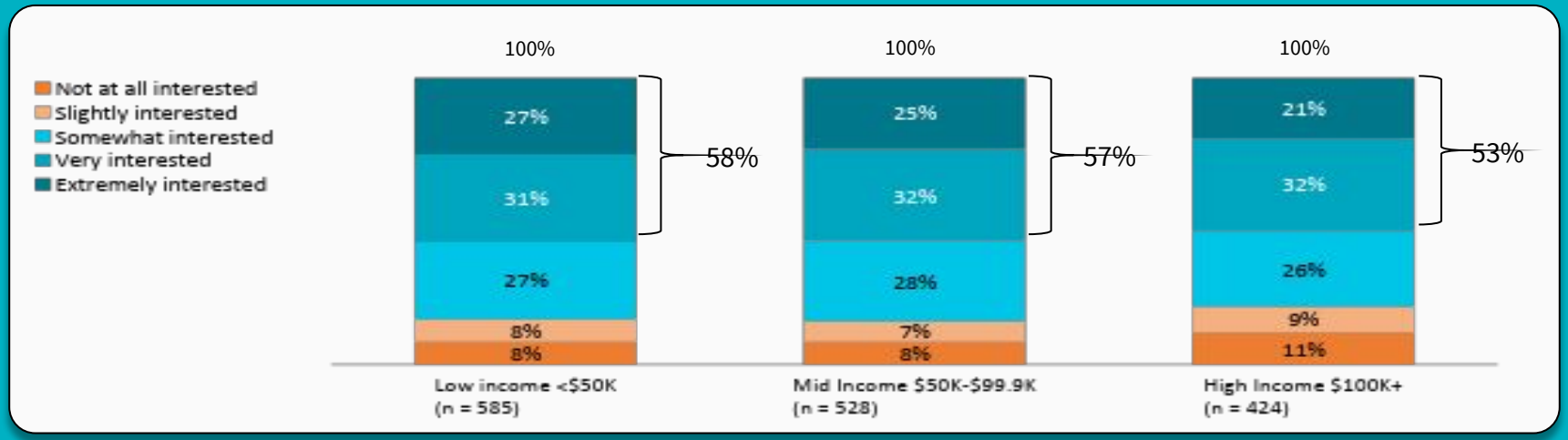
Hispanic
(n = 130)
90%

White/Other
(n = 370)
84%

While the desire for more technology-based extracurricular activities are high across the board, it's higher among Blacks and (to a slightly lower extent) Hispanics than Whites.

Q707 Would you like **[CHILD]'s** school to offer more technology-related classes and/or extracurricular or enrichment programs?

Interest in At-Home Technology Education Among Parents



- A majority of parents from all households say they themselves would be extremely/very interested in at-home technology education.
- 27% of low-income parents indicate they'd be extremely interested
- Interest in at-home technology education is higher in low-income families than in families earning $100K or more.

Q711 How interested would you, personally, be in taking classes, joining a club, or participating in events that provide more guidance for at-home technology education?

Extremely/Very Interested in At-Home Technology Education

- Among Low-Income (< $50k) Respondents -

Male
(n = 176)
51%

Female
(n = 409)
61%

Black
(n = 85)
71%

Hispanic
(n = 130)
64%

White/Other
(n = 370)
52%

Public School
(n =512)
59%

Non Public School
(n = 73)
45%

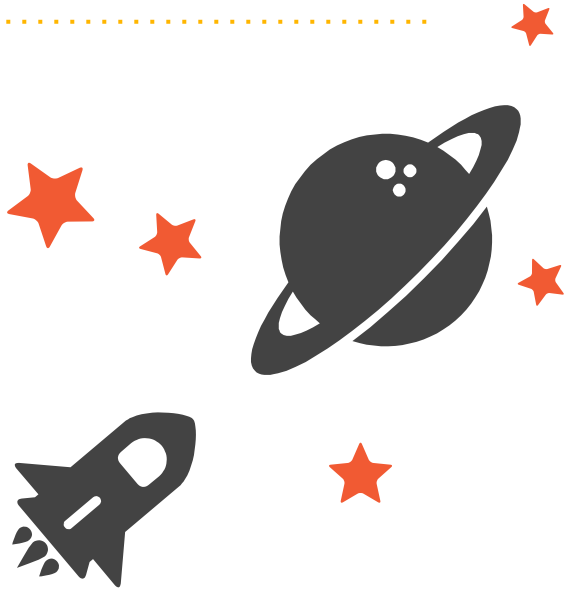
Married
(n = 330)
52%

Unmarried
(n = 255)
65%

A disproportionate percent of the following groups expressed greater interest in receiving at-home technology education: women, Blacks, unmarried respondents, and those with kids in public schools.

Q711 How interested would you, personally, be in taking classes, joining a club, or participating in events that provide more guidance for at-home technology education?

Artificial Intelligence



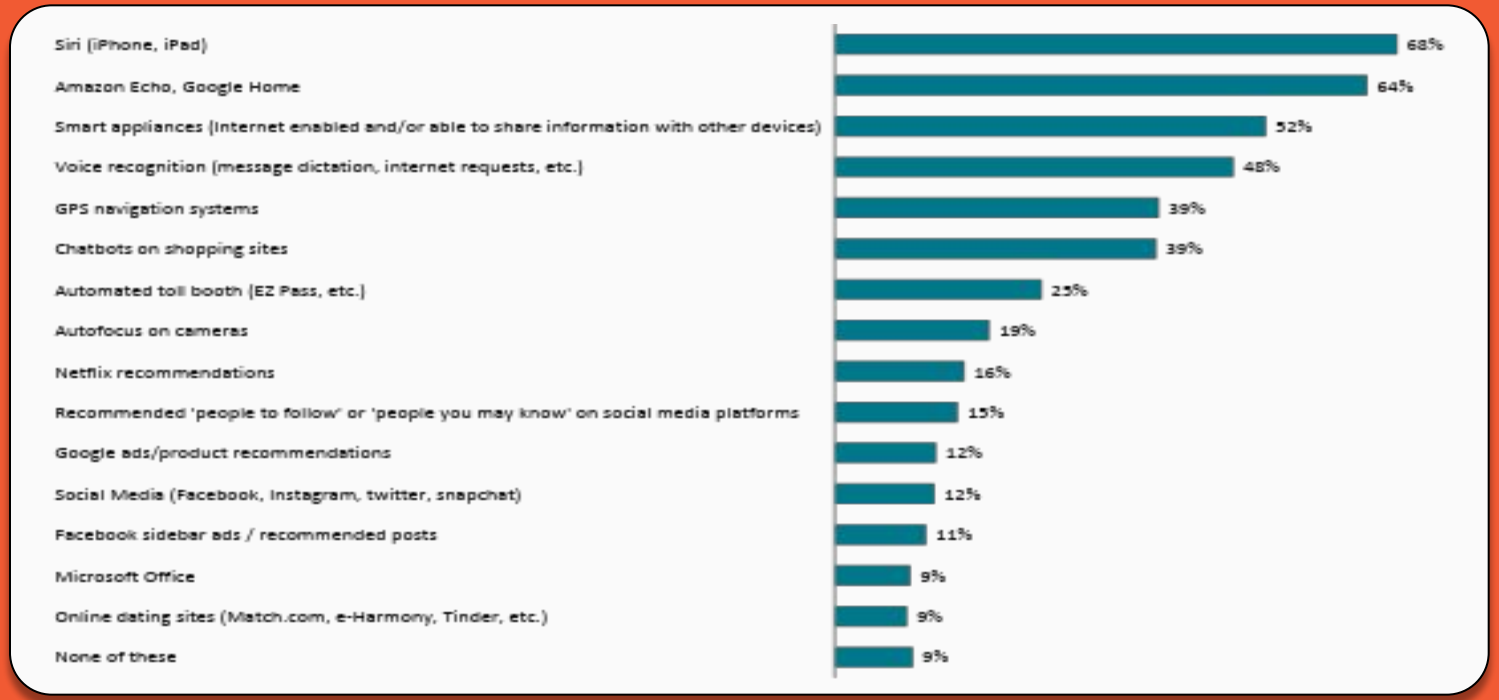
Familiarity with AI and Household Income

Only 21% of low-income parents claim to be very familiar with AI, with a majority (78%) reporting a slight familiarity with AI. Familiarity of AI directly correlates with income level.

Q712 How familiar are you with the term **AI (Artificial Intelligence)**?

Examples of AI

- Among Low-Income (< $50k) Respondents at Least Slightly Familiar with AI -

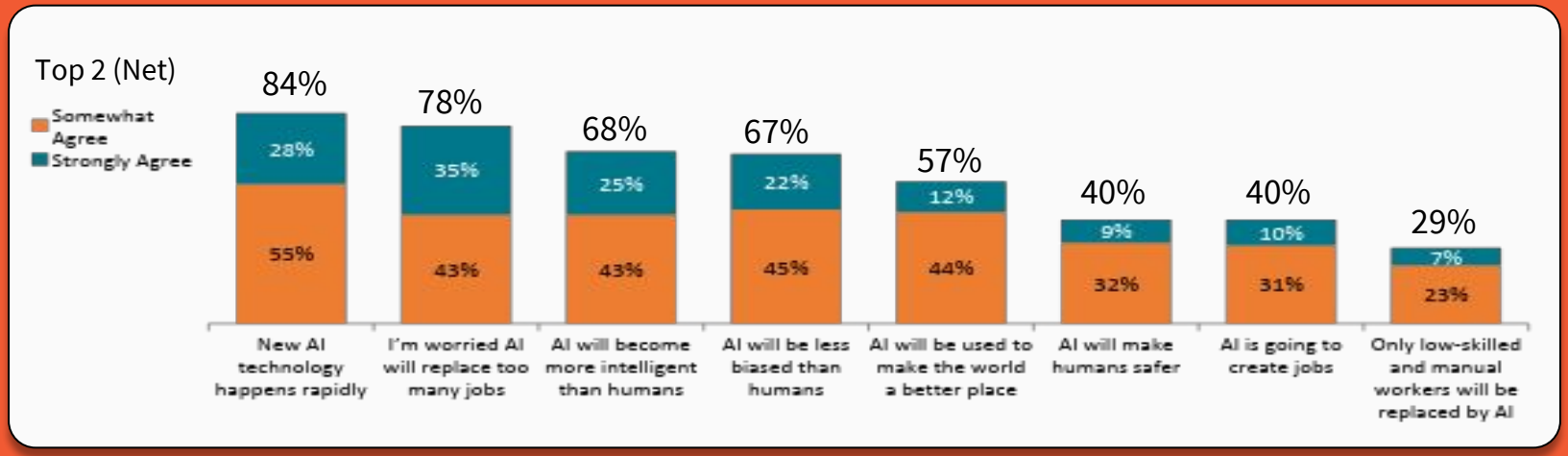


Siri, Amazon Echo/Google Home, and smart appliances were the most commonly known examples of AI

Q714 Which of the following do you believe are examples of AI (Artificial Intelligence) being utilized? *Select all that apply* (n = 460)

Agreement with Statements about AI

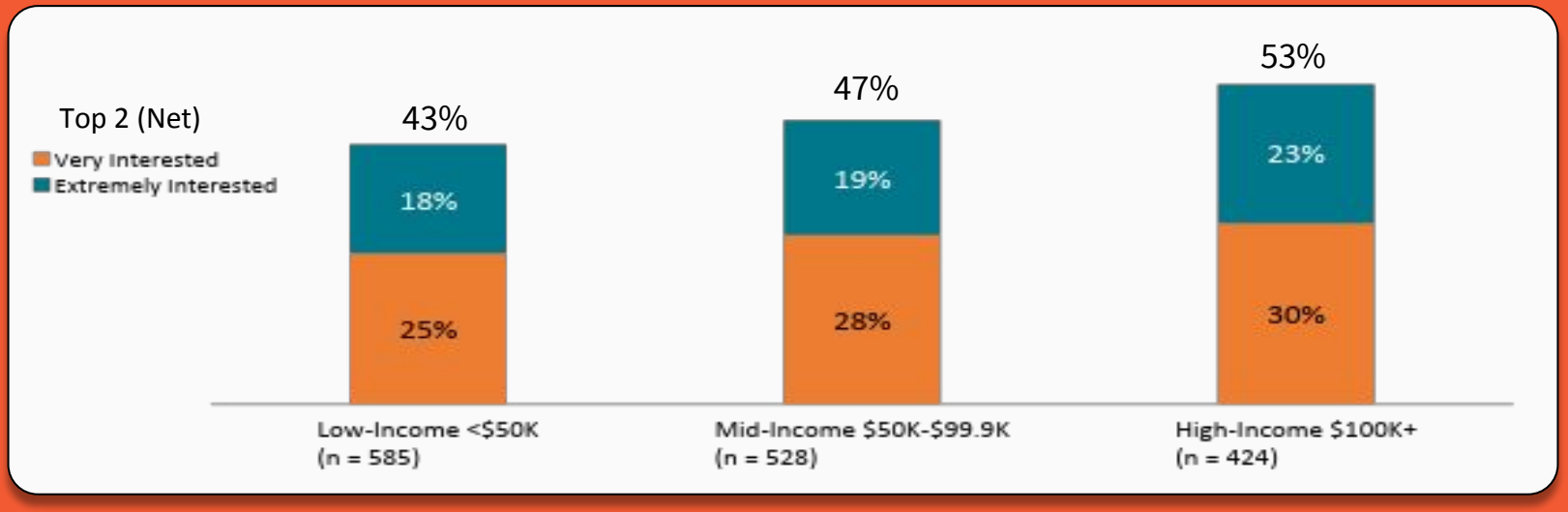
- Among Low-Income (< $50k) Respondents at Least Slightly Familiar with AI -



- A large percentage of parents agree new AI technology happens rapidly and many also believe AI will replace too many jobs
- Very few (7%) strongly agree with the assertion that only low-skilled jobs will be affected and very few (10%) strongly agree that AI will create new jobs

Q715 How much do you agree or disagree with each of the following statements about AI (Artificial Intelligence)? (n = 460)

Interest in Learning More about AI



- When queried about their interest in learning more about AI, fewer than half (43%) of low-income parents respond that they are extremely/very interested
- Interest in learning more about AI increases as income increases

Q716 How interested are you in learning more about AI (Artificial Intelligence)?

AI Family Challenge Goals

Short-term Outcomes

- Develop basic understanding of AI Concepts
- Deepen curiosity about AI
- Be part of the global AI conversation

Long -term Outcomes

- Develop agency
- Determine factors that motivate underserved parents to sign up
- Determine impact of AI Family Learning model on community