



Science starts young: Generational patterns and structural barriers in South Africa's science engagement landscape

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Reimagining STEM Education: Shaping STE*M Education

Introduction

- Public engagement with S&T essential for economic competitiveness, democratic participation and social cohesion.
- Apartheid legacy shapes educational, social and economic inequalities
 - Influence who pursues STEM, participates in knowledge economies, benefits from scientific progress and has opportunities to engage meaningfully with S&T.
- Early and sustained engagement shapes interest, educational pathways, career aspirations and lifelong participation.
- Generational differences are an important policy consideration.

Key questions



How does science engagement differ by age group in South Africa?



What are the implications for building a more scientifically engaged young generation?



SAPRS Survey



Sample population

- ▶ Representative national sample
- ▶ Adults, 16 years and older
- ▶ 500 areas across 9 provinces



5960
respondents



Survey instrument

- ▶ 200 items about the public and science
- ▶ 28 demographic and contextual items



Survey approach

- ▶ Conducted by the HSRC through the annual SASAS



Survey interviews

- ▶ November 2022 – January 2023
- ▶ Face-to-face interviews
- ▶ 11 official languages, based on preference



Types of engagement



School-Based Engagement

Taking STEM Subjects After Grade 9



Informal Engagement

Attending S&T Spaces and Activities.



Civic Engagement

Community Science Activities



Everyday Science Communication

Sharing S&T Information.

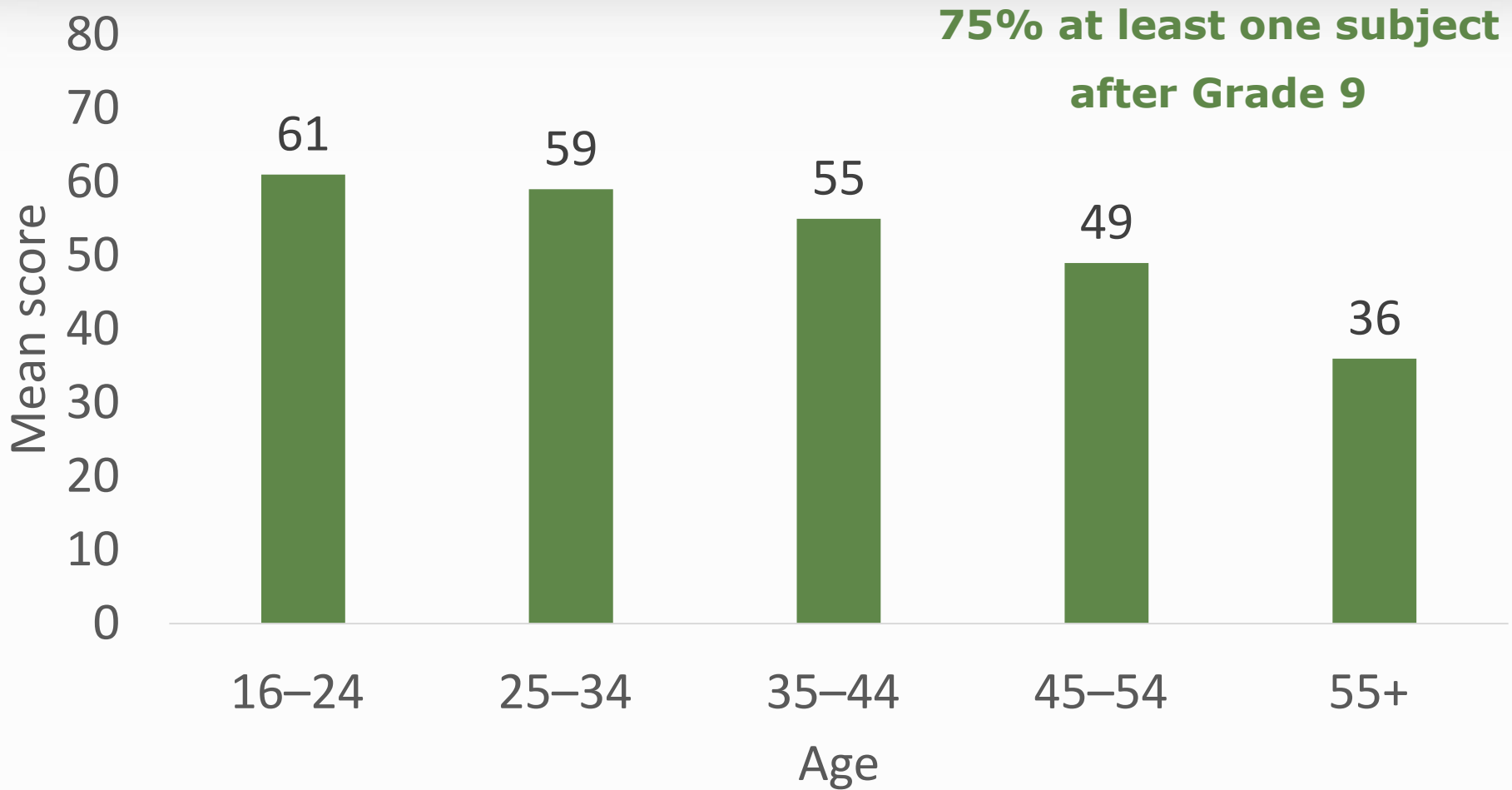


Digital Engagement

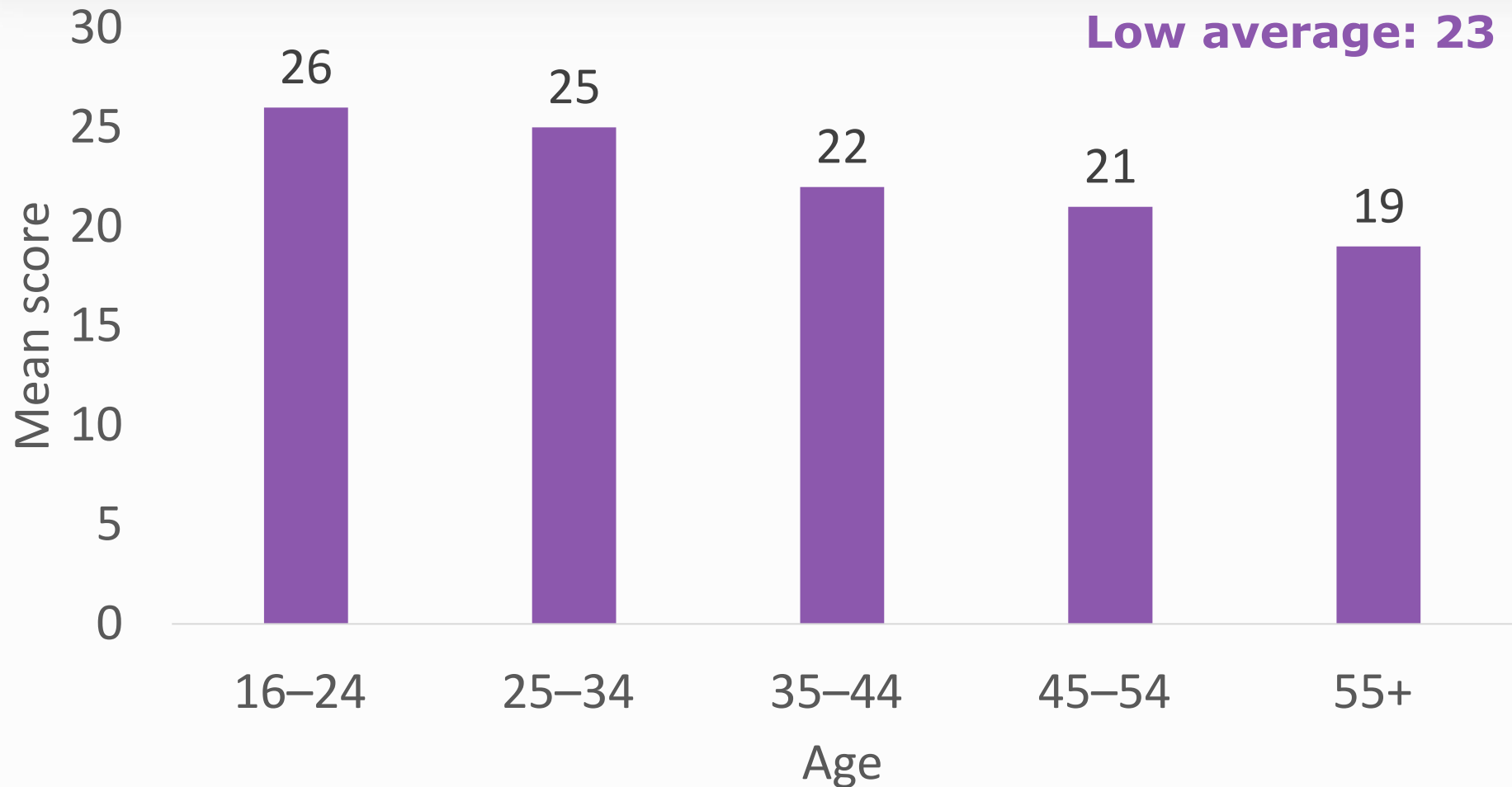
Use of Apps.



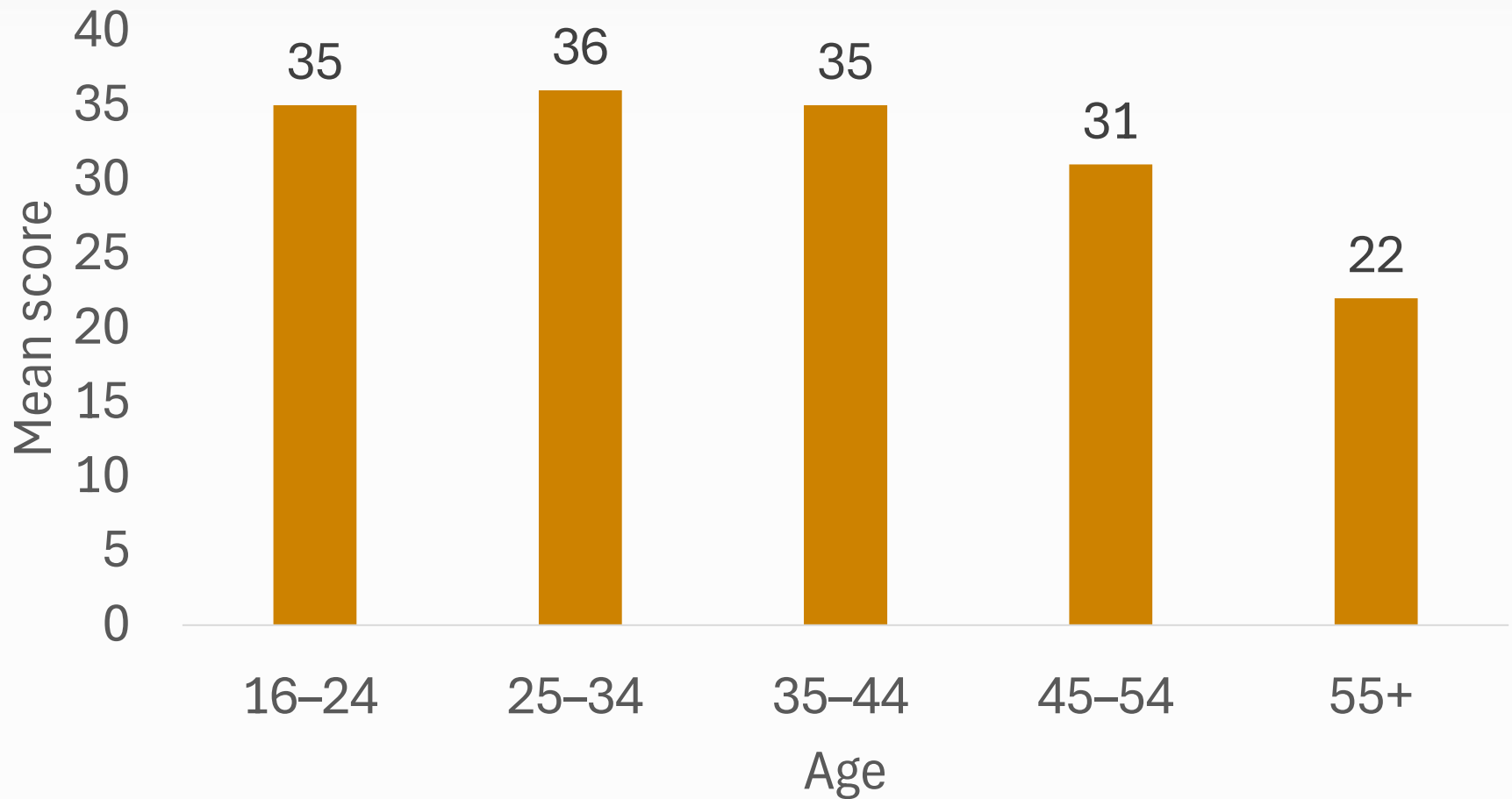
School-based engagement



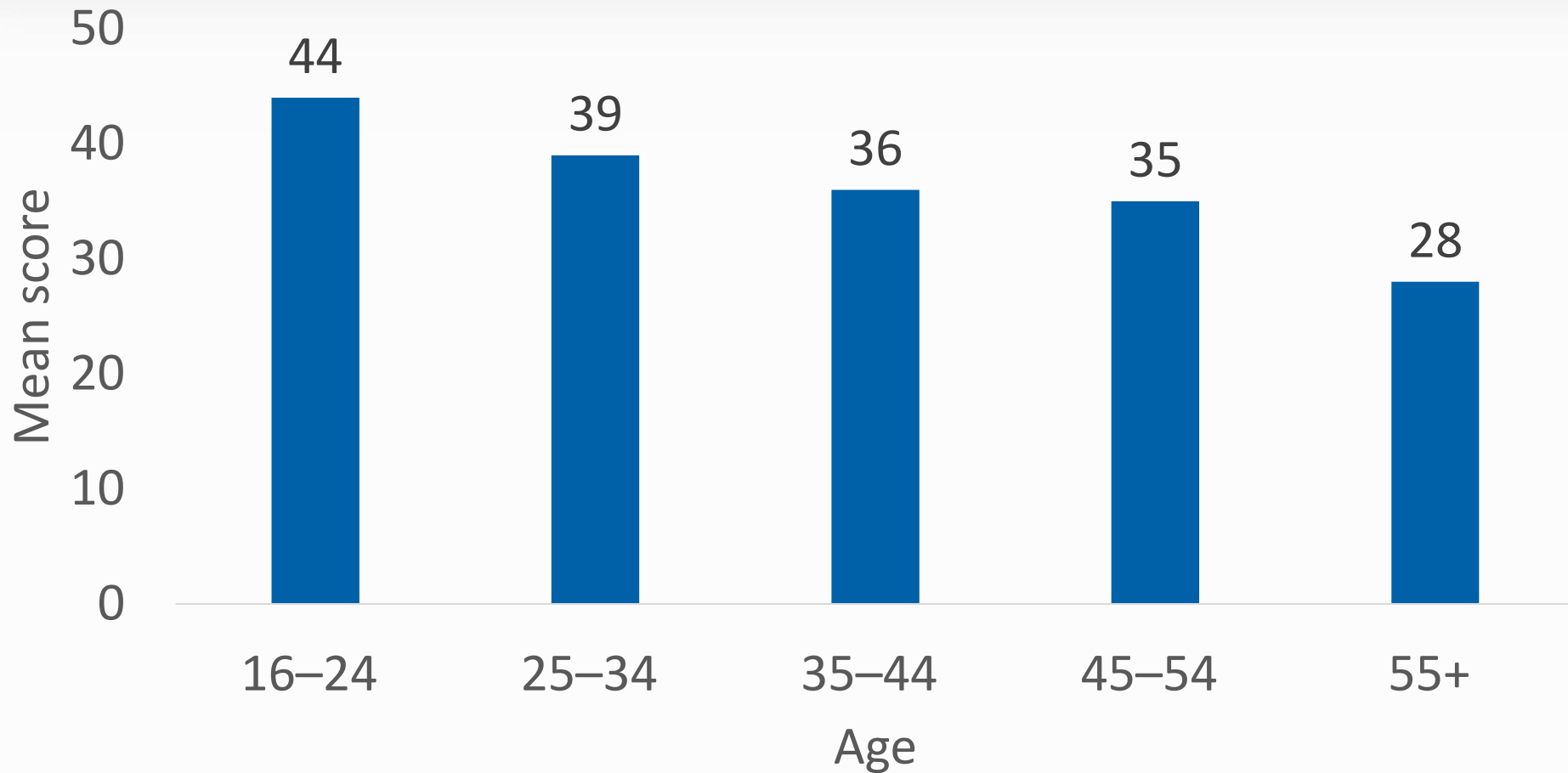
Informal engagement



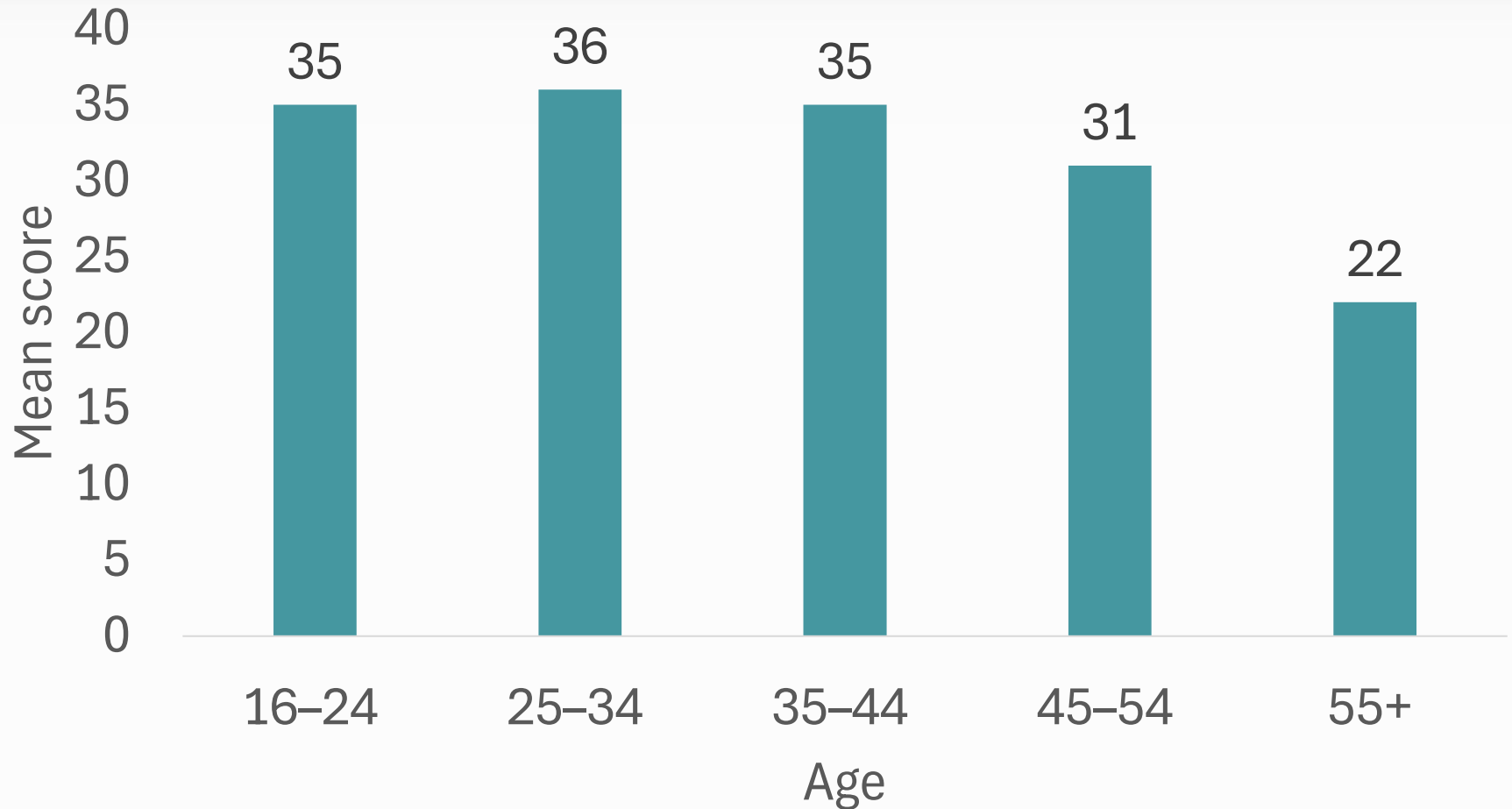
Civic engagement



Everyday science communication



Digital engagement



Socio-demographic characteristics

Greater Engagement



**Higher
educational
attainment**



Higher SES



Employed



Younger

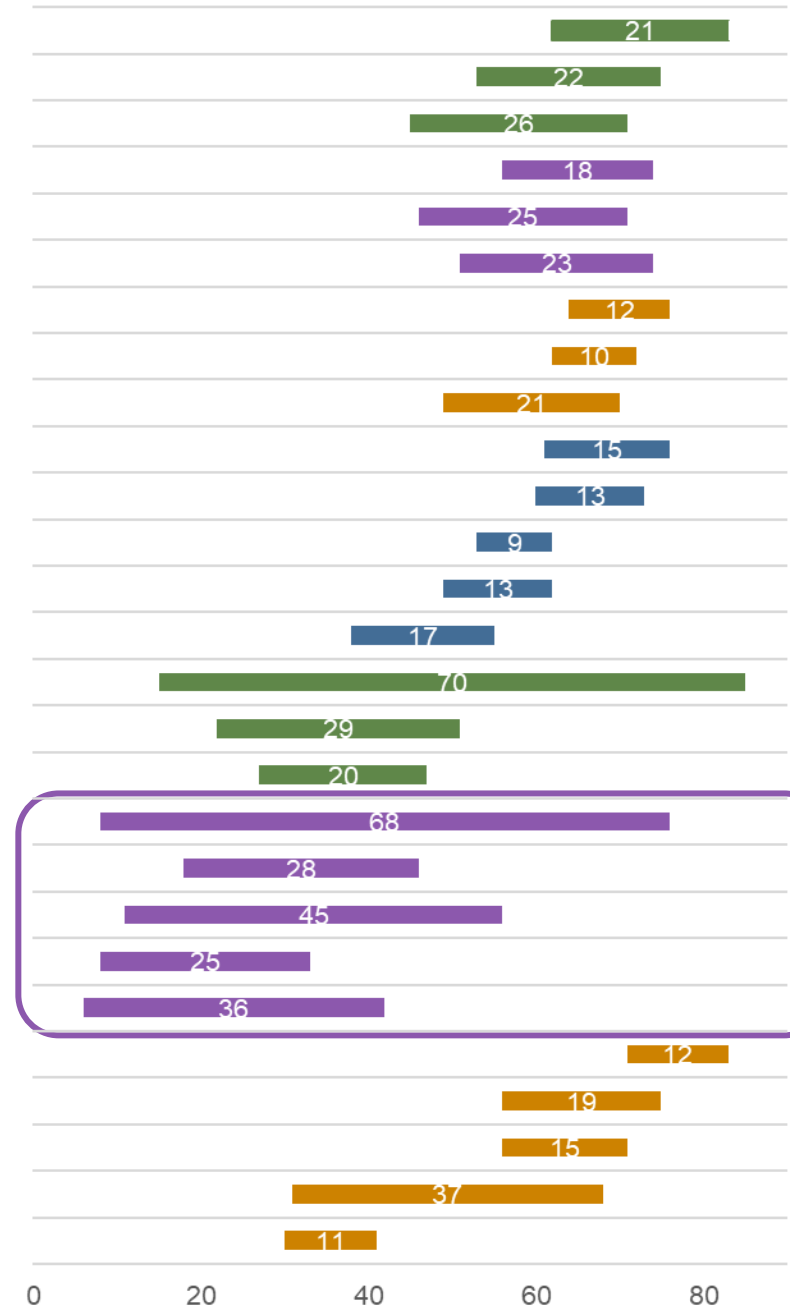


Urban formal



SAPRS fingerprint

Indicator	Sub-Indicator measures	Average Score
Interest	Environmental concern	72
	Interest in science areas	67
	General interest in S&T	58
Knowledge	Environmental knowledge	67
	Perceived knowledge of science areas	61
	Formal science knowledge	60
Promise & Reservation	Reservation of S&T	69
	Promise of S&T	68
	Promise of traditional S&T	62
Trust	Trust in S&T information from universities	68
	Trust in work of scientists	69
	Transformation of cultures in science organisations	59
	Trust in S&T information sources	58
	Trust in government evidence-based decision making	50
S&T Information	Daily usage of the internet	50
	Exposure to S&T news	42
	Consumption of S&T news	39
Science Engagements	Sschool-based engagement	56
	Everyday communication	37
	Digital engagement	32
	Civic engagement	23
	Informal engagement	23
Pride & Promise	Promise of S&T skills for young people	78
	Pride in SA S&T achievement	66
	Valuing S&T experiences	67
	Govt spending on R&D is too low	49
	SA achievement better than rest of world	36



Discussion

- Age was a significant, yet complex and non-linear, predictor of science engagement.
- Youth aged 16-24 reported the highest levels of school-based, informal and everyday science communication.
 - Closest to formal schooling - role of education in shaping science engagement.
 - Higher interest in science.
 - More opportunities for S&T engagement through school and tertiary institutions.
 - Greater familiarity with digital communication tools and a higher likelihood of peer-based information sharing.

Discussion

- Slightly older groups (25-44) reported similar or slightly higher civic and digital engagement.
 - Greater civic awareness
 - Greater access to technology and levels of digital literacy.
- Opportunities for
 - Focusing on issues that resonate with youth's lived experiences and concerns.
 - Tailoring messaging for different groups (16-24 and 25-44).

Discussion

- Low overall engagement (including among youth) points to persisting access barriers:
 - Geographic distance (location)
 - Financial constraints (access to resources)
 - Limited awareness and engagement opportunities
 - Low digital literacy

Increasing youth engagement

Strengthen school science

Improve quality and appeal, sustain participation and connect learning to STEM career pathways.



Expand lifelong science learning

Invest in science clubs, festivals, mentorship and other informal learning opportunities.



Harness digital engagement

Use social media and messaging platforms for accessible, multilingual content and promote data-free science resources.



Increasing youth engagement

Broaden access to science spaces

Expand mobile and community-based activities, reduce entry costs and improve awareness of science attractions.



Co-create with young people

Design programmes around issues that matter to youth, including health, sustainability, technology and careers.



Prioritise underserved youth

Target rural and low-income communities through coordinated partnerships across government, education, civil society and the private sector.



Conclusion

- Building a scientifically engaged young generation is important for informed citizenship and democratic participation, as well as long-term innovation and development.
- Requires more than formal education
- Sustained investment in accessible, relevant and inclusive opportunities for exposure, use and sharing science in daily lives.

SAPRS webpage

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