STEM through the Eyes of Gen Z

PBCWE
PHILIPPINE BUSINESS COALITION FOR WOMEN EMPOWERMENT

UNILAB FOUNDATION

Australian Government
Department of Industry, Science, Energy and Resources

STUDENT EDGE

Youth Insight
Powered by Student Edge

Student Edge and YouthInsight

- YouthInsight, the full-service research arm of Student Edge supports government, industry bodies, corporations and charities to understand how they're positioned in the minds of young people and how to improve engagement with this young cohort.
- Student Edge is Australia's largest youth membership organisation with over 1.2 million members across the country.
- Our mission is to help young people make more informed life and career choices by supporting them with information and a range of benefits as part of our FREE membership offering.

STUDENT EDGE

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Background

The Youth in STEM research was commissioned by the Department of Industry, Science, Energy and Resources in Australia in 2018

A ten-year tracking study among young people aged 12-25 and their key influencers – Parents, teachers and career advisors

The Youth in STEM research was replicated in the Philippines in 2020 in collaboration with the Unilab Foundation and The Philippine Business Coalition for Women Empowerment (PBCWE)

The goal:

to better understand the attitudes and perceptions of young people towards **STEM** skills and careers, **particularly those of females.**

Research process

Online surveys

- 15-to-20-minute online surveys

Young people aged 12-25

- Nationally representative sample
- Australian youth = 3,000
- Philippines youth = 1,500

Parents of primary/secondary school children

- Nationally representative sample
- Australian parents = 1,500

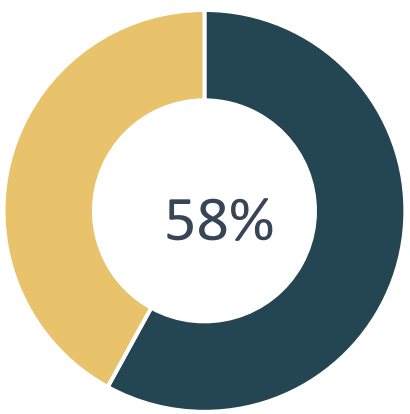
Teachers/career advisors of primary/secondary school

- Nationally representative sample
- Australian teachers = 850

Gen Z and STEM

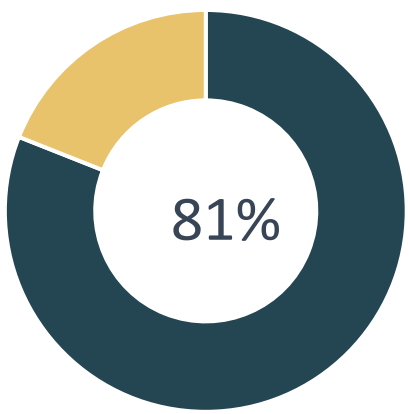
Understanding of STEM

Youth



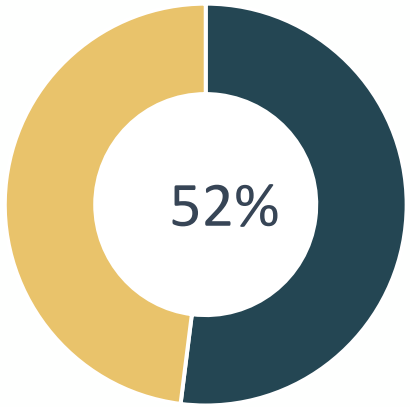
19% provided an incorrect answer and 23% were unsure

Youth



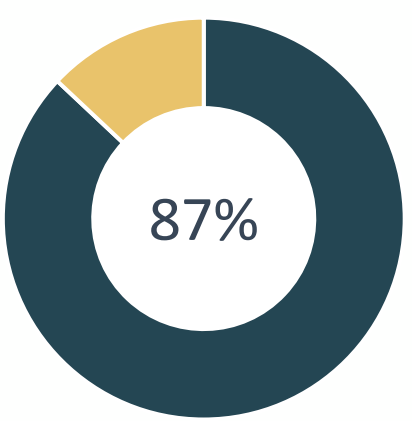
7% provided an incorrect answer and 12% were unsure

Parents



25% provided an incorrect answer and 23% were unsure

Teachers



9% provided an incorrect answer and 4% were unsure

Q. What you believe the term ‘STEM’ stands for

Engineering

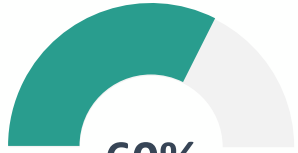
Most incorrect attribution

- English
- Environment
- Economics
- Electronics
- Entertainment
- Extension Maths
- Exercise
- Education
- Emerging Material

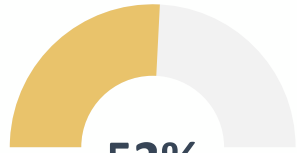
Demographic differences in the understanding of STEM

VS

FEMALE **MALE**



Metro



Regional

Jobs associated with STEM

53%	Engineering
40%	Scientist
22%	Teaching
22%	Mathematician
17%	IT roles

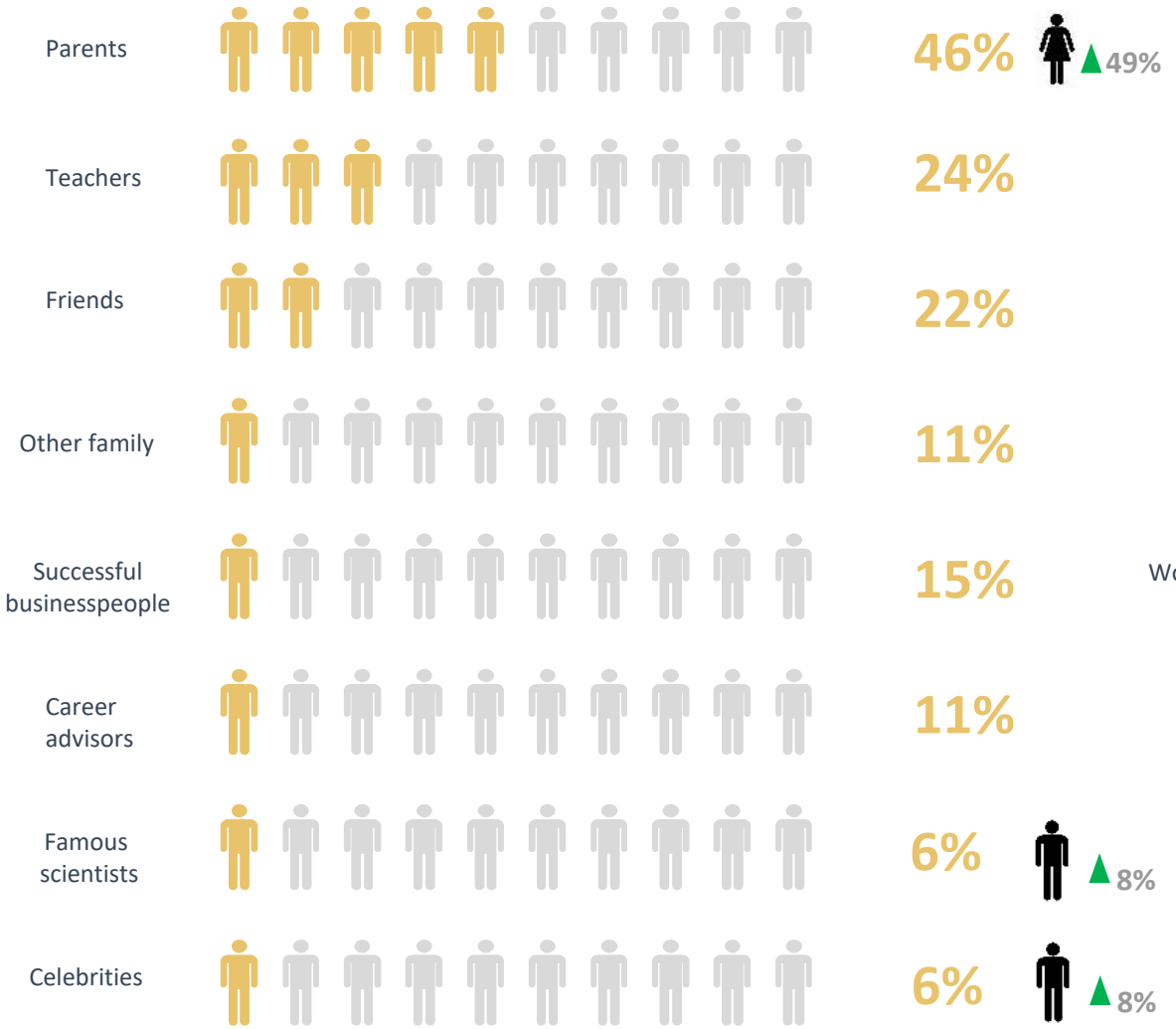
39%	Engineering
17%	Medical roles
6%	Scientist/research
5%	Nurse
4%	IT roles

Q. What type of jobs do you think you would be able to get if you have a STEM degree or certificate?

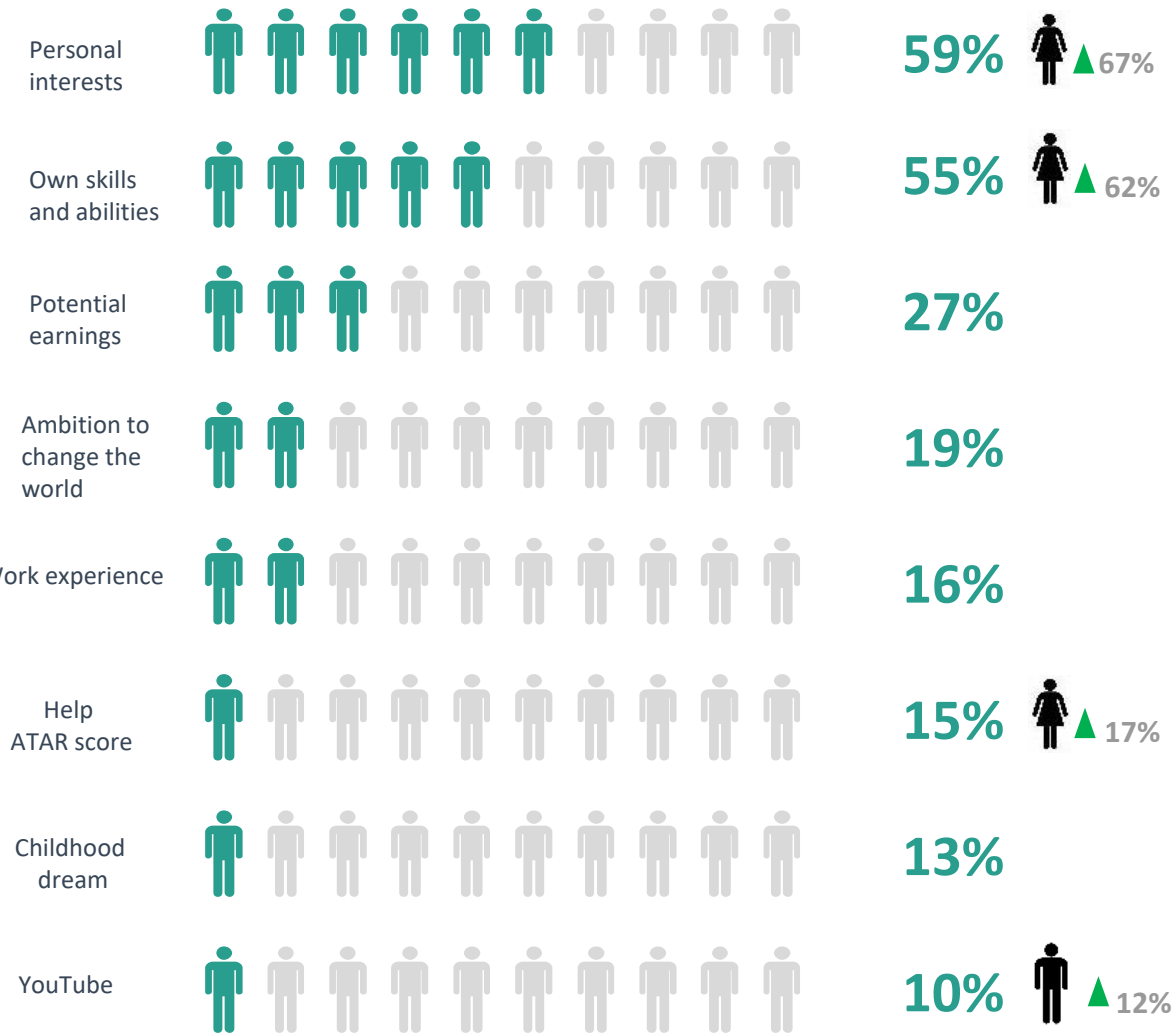
Australian study only

Influencers of student subject selection

People influencing subject selection



Influencing factors for subject selection

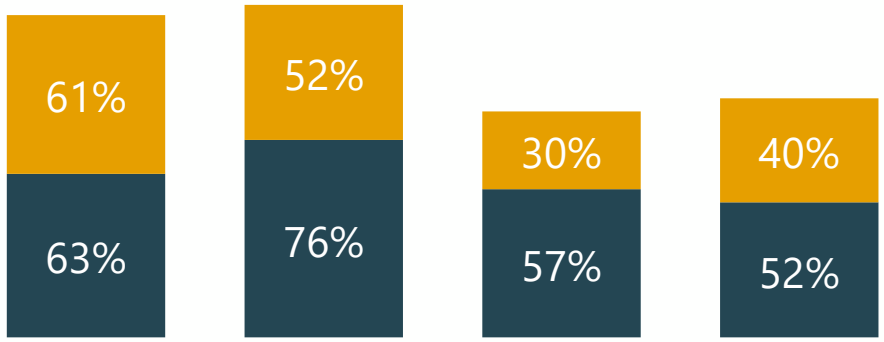


Q. And which of the below people most influence your decision of the subjects you choose to study? Please select up to 2 groups of people which influence you the most?

Q. From the below list, which factors most influence your decision of the subjects you choose to study? Please select up to 3 factors which influence you the most.

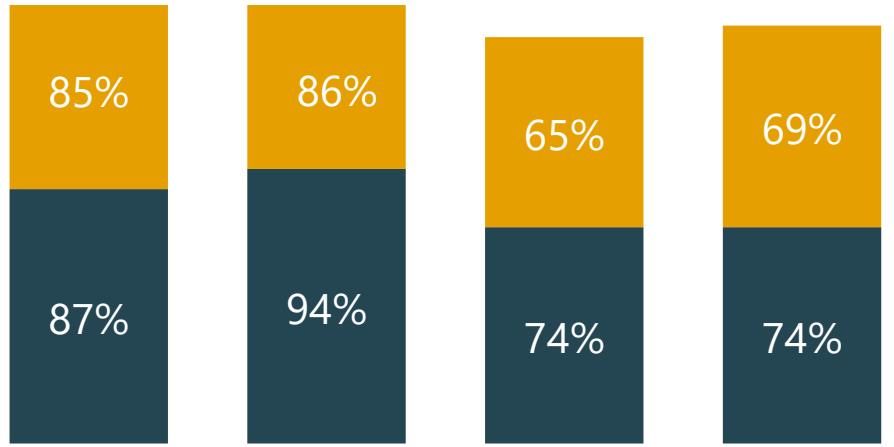
Interest in STEM

	Science	Technology	Engineering	Maths
Average	62%	64%	42%	46%



2 out of 3 are interested in science and technology and males show significantly higher interest across all subjects

	Science	Technology	Engineering	Maths
Average	86%	90%	70%	71%



Around 9 in 10 Filipinos are interested in Technology and Science. Gender differences still exists but less apparent than in Australia

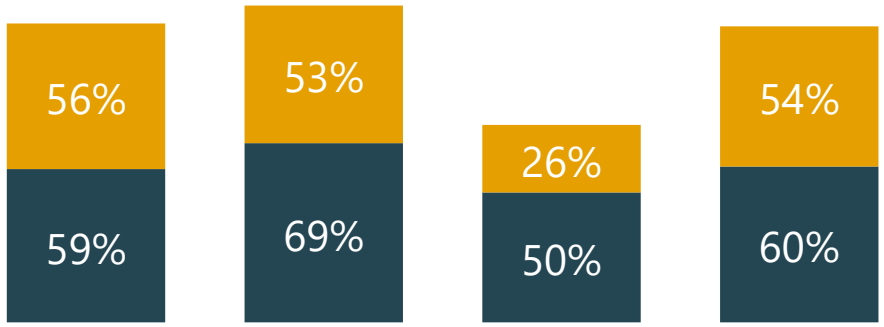
Males

Females

Q. How interested are you in each of the below subjects?

Confidence in STEM

	Science	Technology	Engineering	Maths
Average	58%	61%	38%	57%

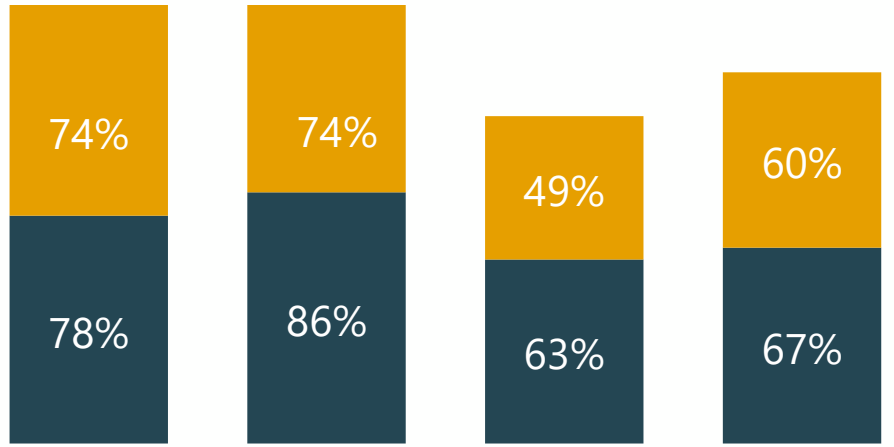


Males

Females

2 out of 3 are interested in science and technology and males show significantly higher interest across all subjects

	Science	Technology	Engineering	Maths
Average	76%	80%	56%	63%

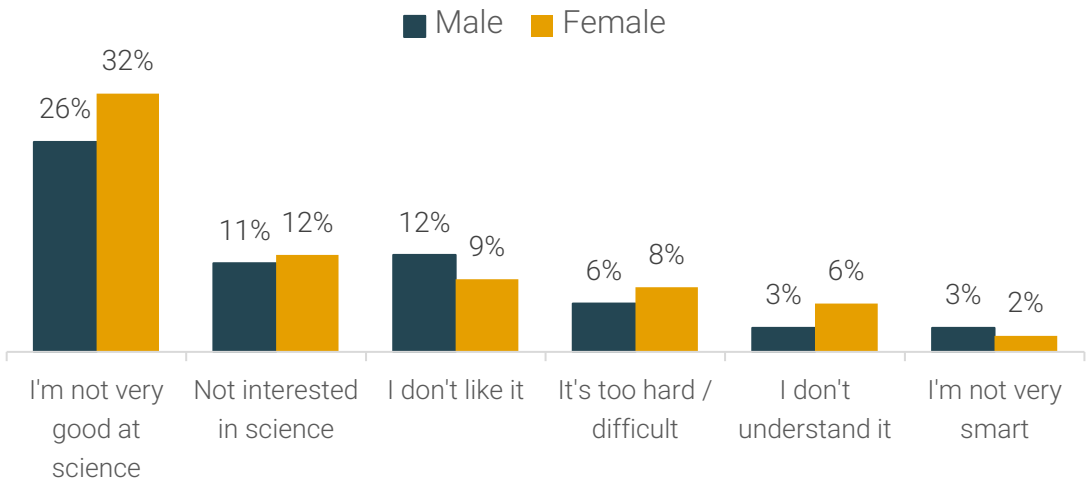


Around 9 in 10 Filipinos are interested in Technology and Science. Gender differences still exists but less apparent than in Australia

Q. How confident do you feel that you can study and get good results in each of the following subjects?

Reasons for low confidence in science and technology

Science – 19%



"I don't feel confident because I don't properly understand the concepts and rules of science." Female, 15

"I am not really good at logical and critical thinking and reading the complex language of science." Female, 24

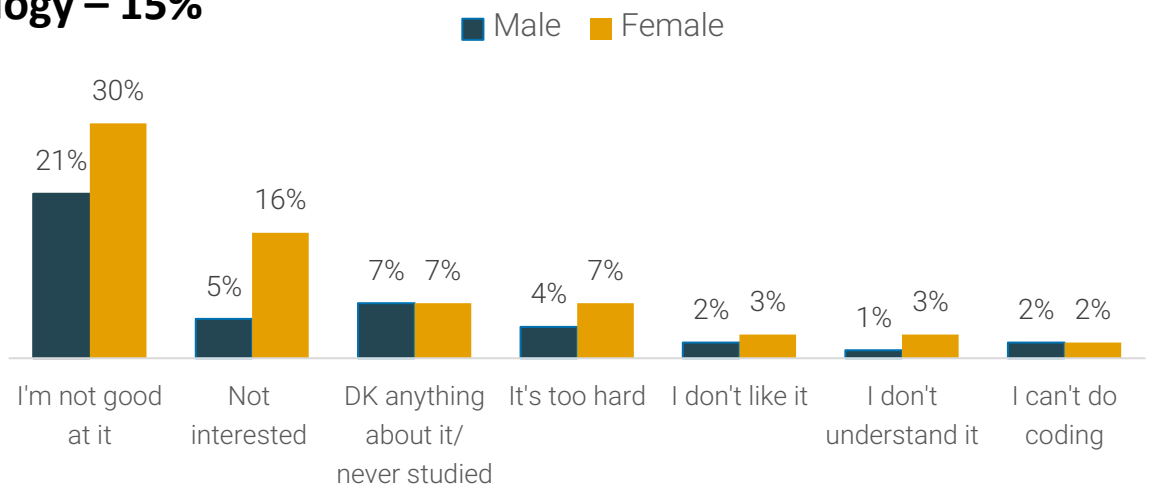
"I have never excelled in these subjects, and avoided them in high school." Male, 21

Technology – 15%

"I don't know one thing to the next about technology as its getting more advance and harder for me grasp." Female, 18

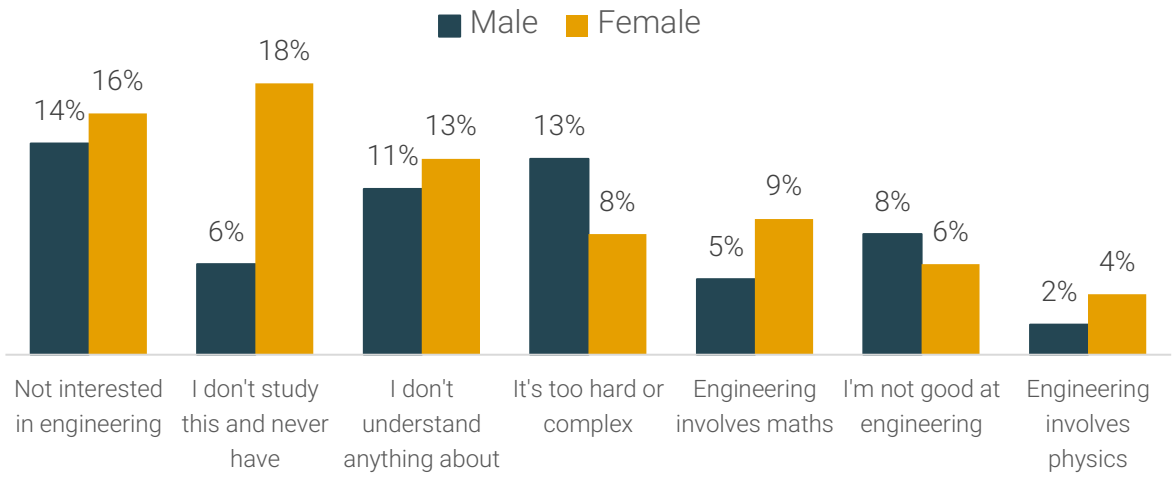
"I'm not very good at programming and it seems pretty confusing." Female, 17

"Although I know how to use technology, I would struggle to understand the concepts behind it." Female, 17



Reasons for low confidence in technology and engineering

Engineering – 31%



"I have never done anything related to engineering." Female, 20

"I don't have brains to do it as its far out of my comfort zone." Female, 15

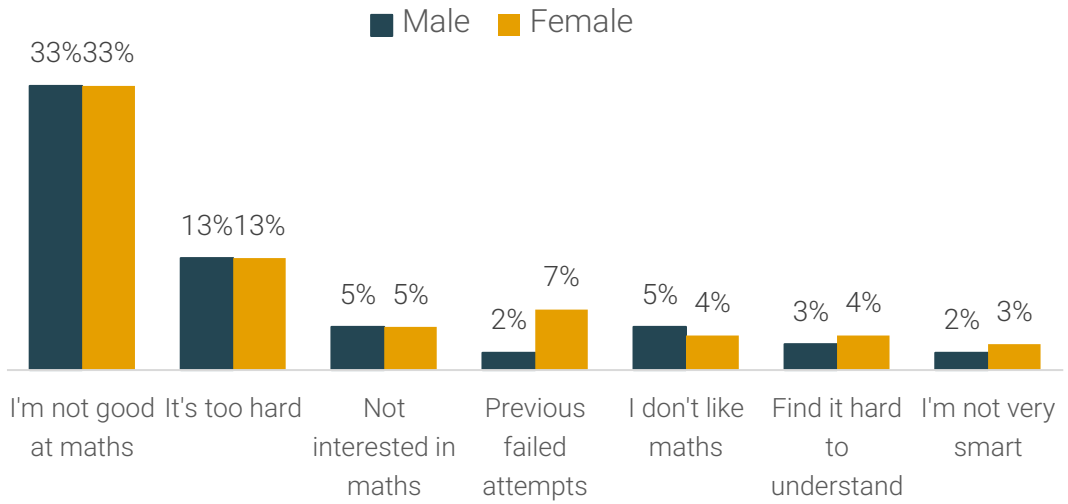
"I don't do this subject and you have to be very good at maths and I don't like maths." Male, 16

Maths – 22%

"I try my hardest but I'm only just below average." Male, 15

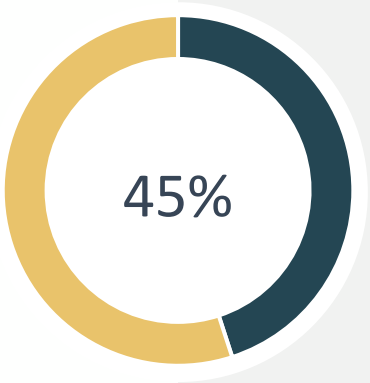
"I find it extremely boring and would struggle to be motivated." Female, 25

"Because of past experience and it does not interest me." Male , 18



Consideration of studying STEM in the future

Less than half of all Australian youth consider studying STEM in the future.



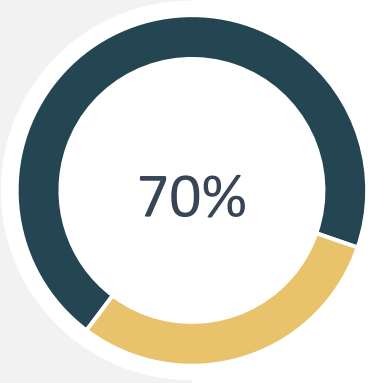

49%


41%

Seven out of ten Filipino students consider STEM studies in the future.

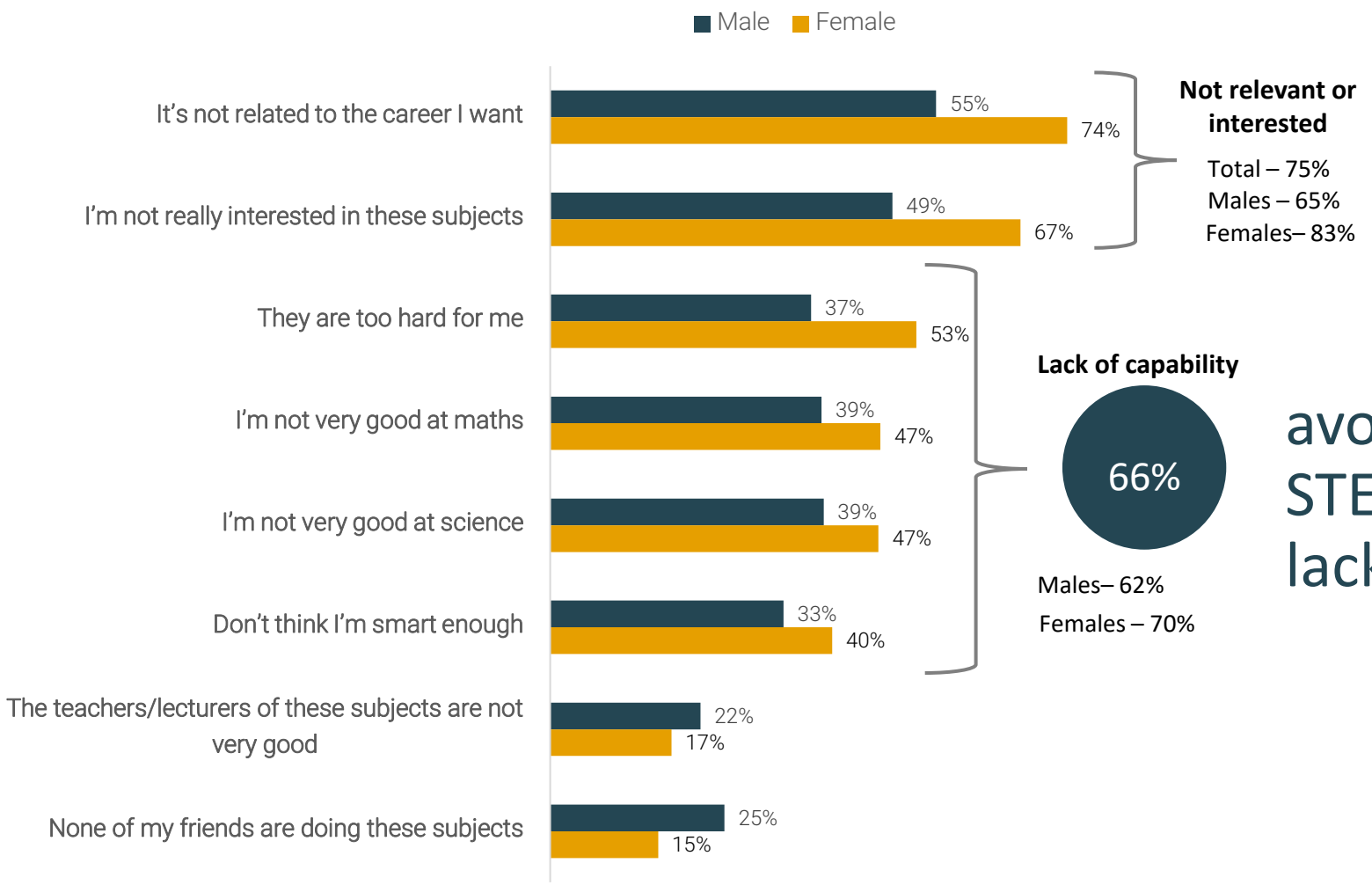

75%


66%



Q. Are you considering studying STEM related subjects in the future?

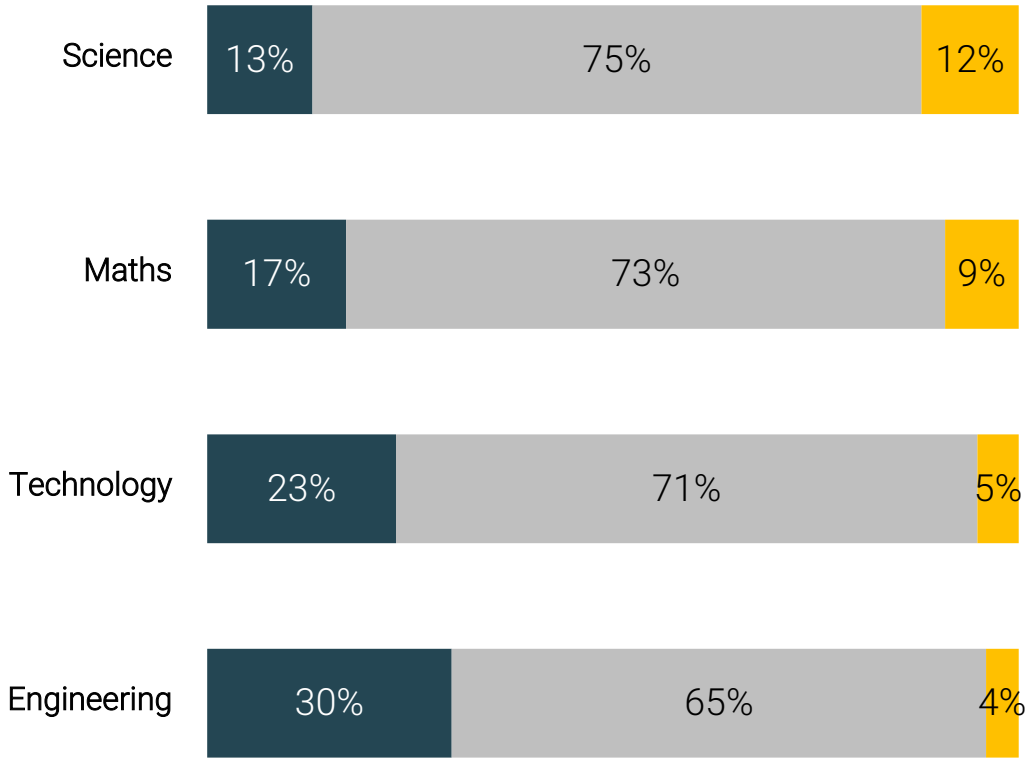
Reasons for no intentions to study further



avoid further study in STEM due to perceived lack of capability

Q. Below are some statements people have made about reasons which prevent them from studying subjects related to STEM? Thinking about yourself, how much do agree or disagree with these statements

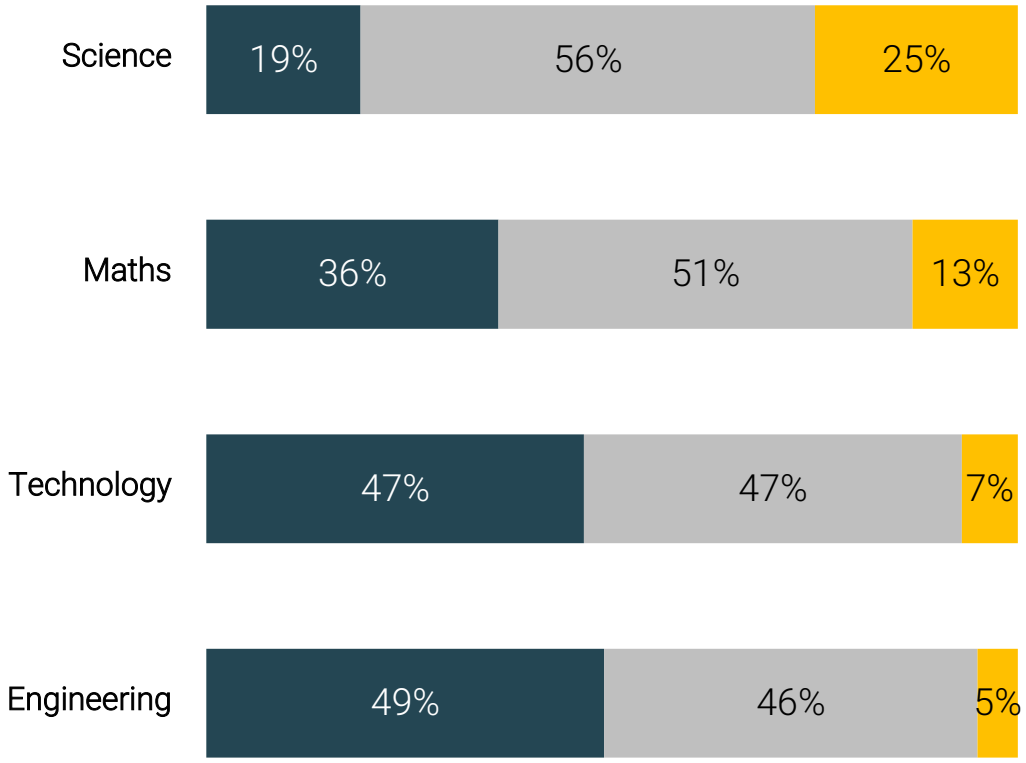
Perceived gender superiority in STEM



Boys are better than girls

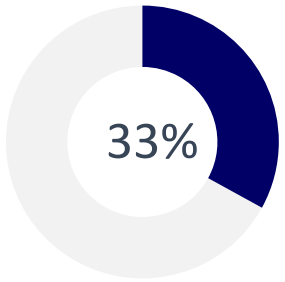
Neither girls or boys are better

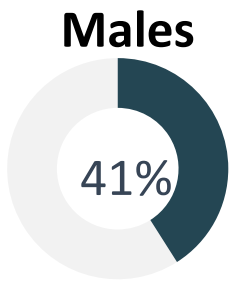
Girls are better than boys

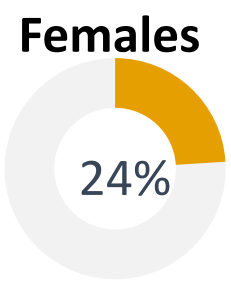


Q. In your opinion, who is better at the following subjects?

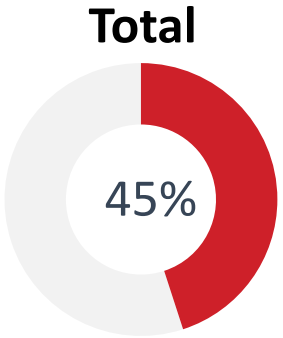
Intentions of a STEM career

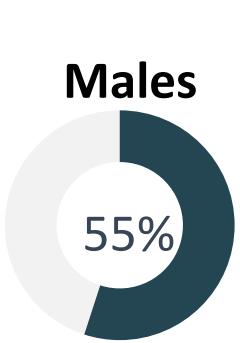


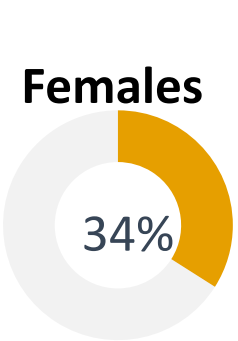




- Top 3 professions – Business owner, medical doctor, engineer
- Main STEM jobs – Engineer, IT, Scientist
- Females opt for medical jobs and teaching while males choose for engineering, IT and business ownership.







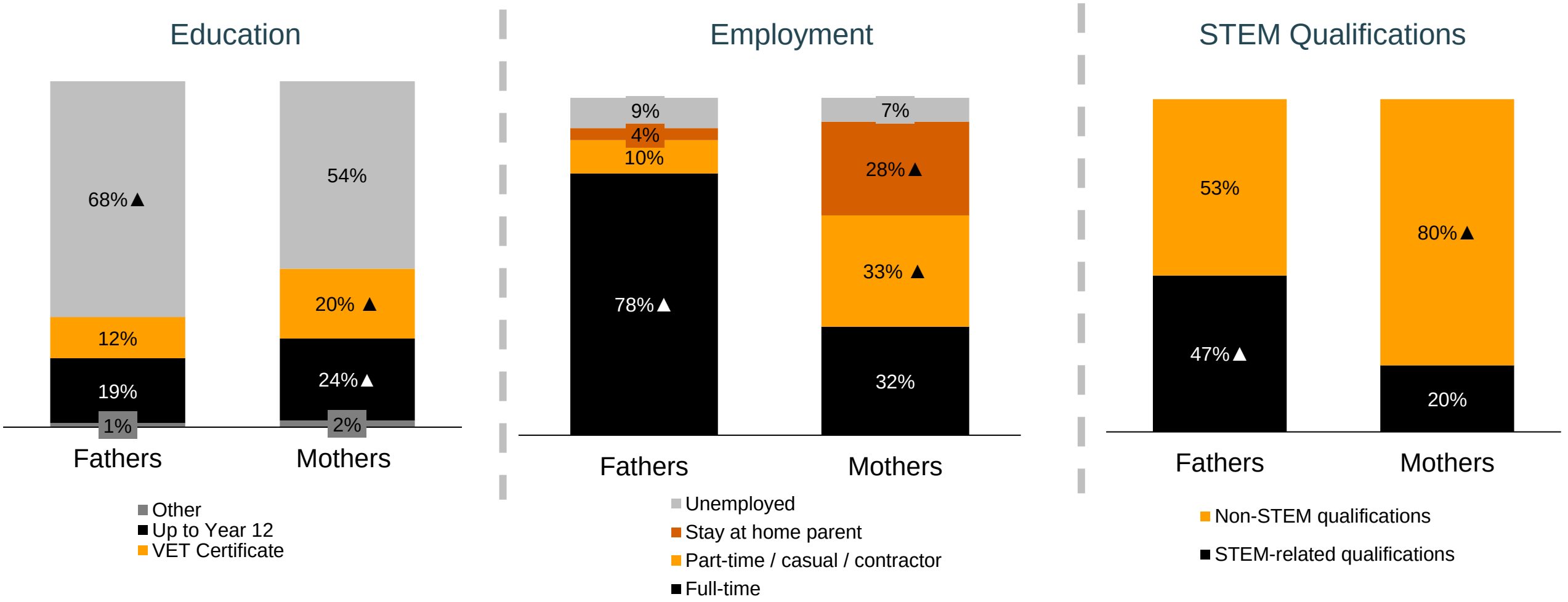
- Top 3 professions – Business owner, engineer, programmer
- Main STEM jobs – Engineer, programmer , (medical doctor), STEM educator
- Females opt for medical jobs while males choose engineering and programming

Q. And what type of career would you like to have in the future?

Parentsand STEM

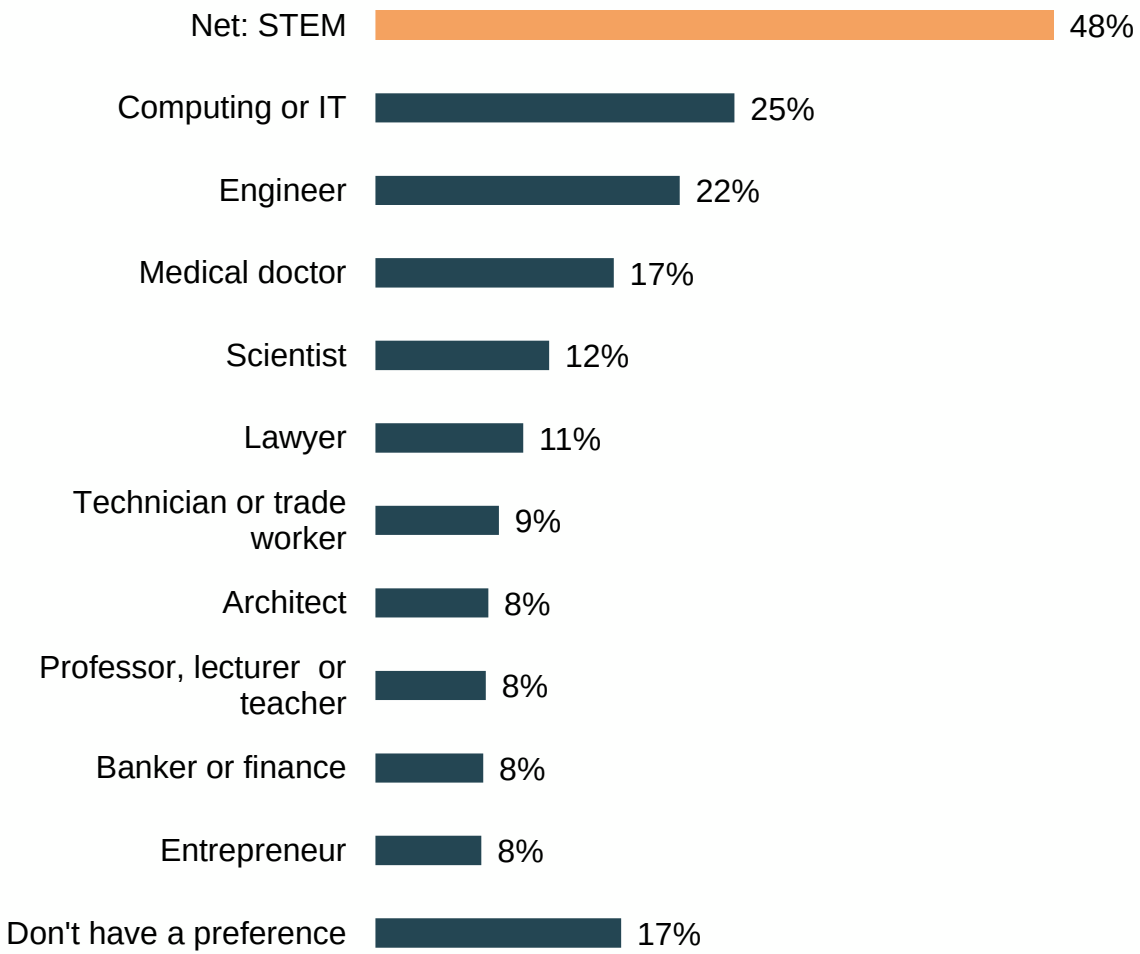
Parents' influence over their children's decisions starts from their own lived examples

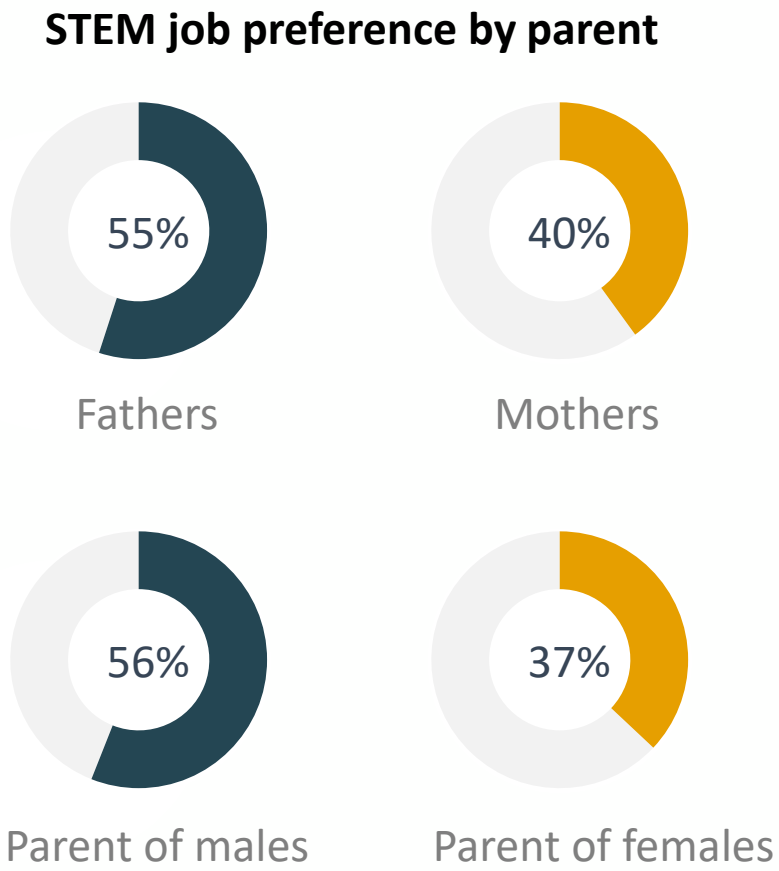
Parents education, employment and STEM qualifications



Q. What is the highest level of education you have attained?

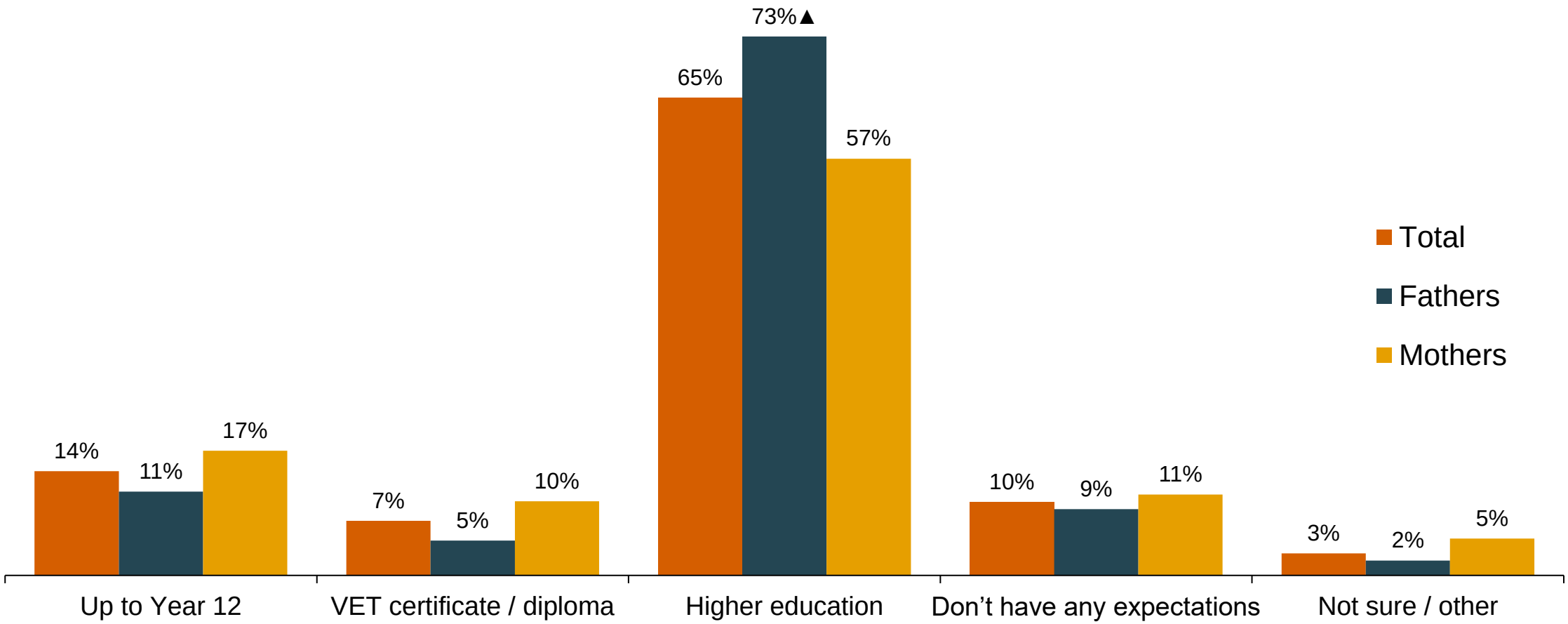
Top ten professions wanted for child to pursue





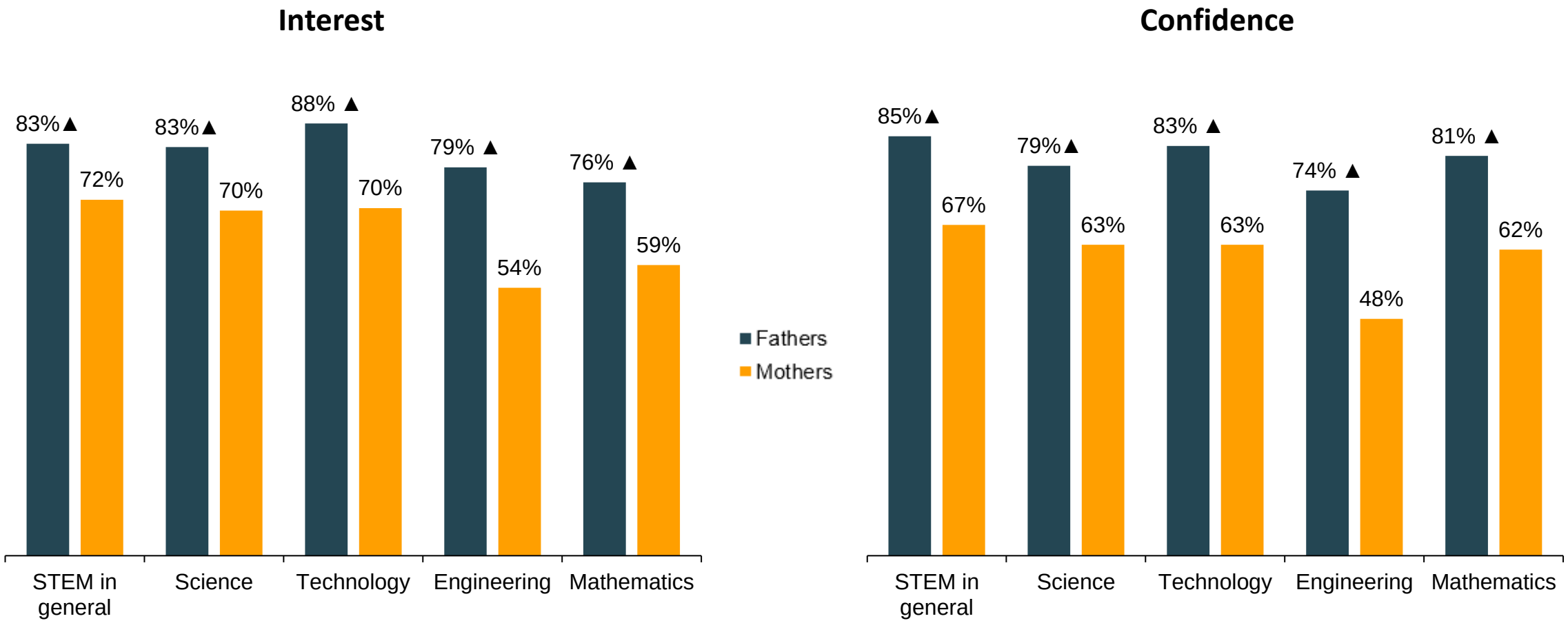
Q. From the professions listed below, which are the top 3 professions you would most like the eldest child to pursue?

Highest level of education expected for child



Q. What is the highest level of education you expect your eldest child to attain when they grow up?

Interest and confidence to support child with STEM schoolwork



Q. How interested are you in topics related to STEM and each of the individual STEM subjects?

Q. How confident are you to support your child with homework/projects related to STEM?

Resources to help increase confidence to support child with STEM work

48%

Specific resources for parents

48%

Instructions from the school for individual tasks

39%

General STEM information from the school

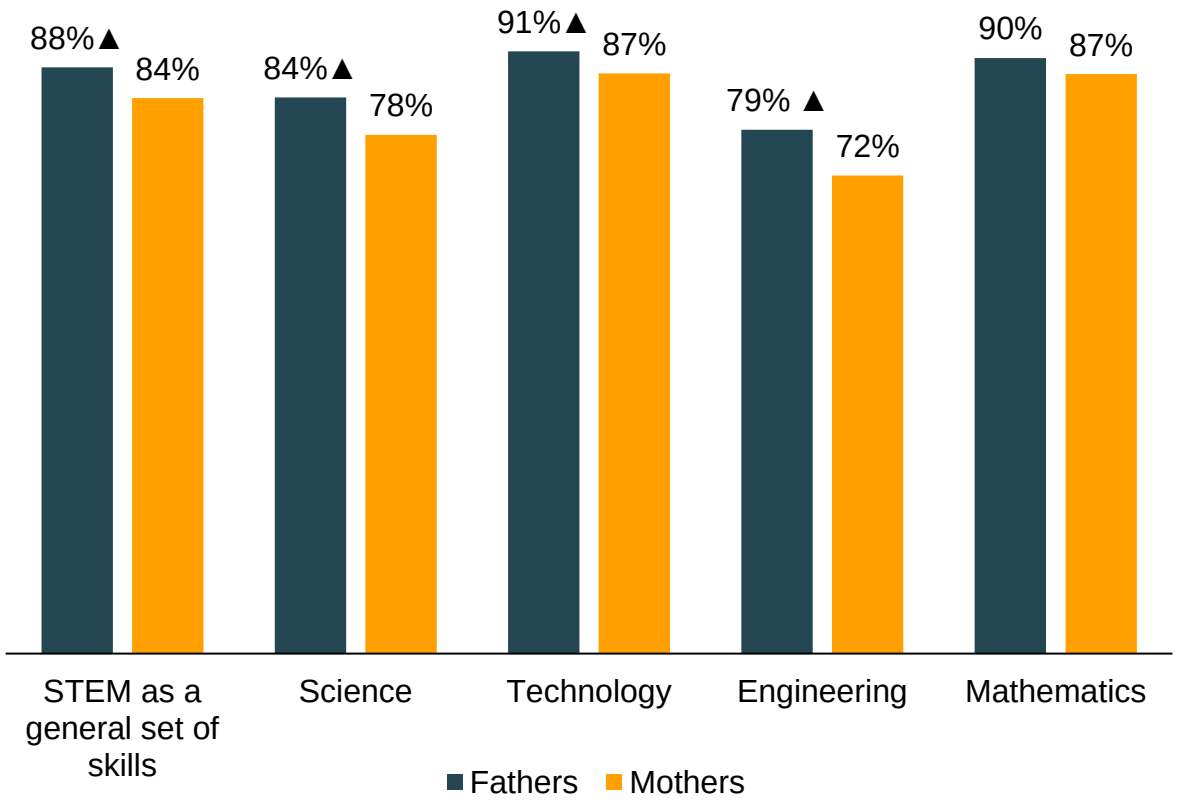
29%

STEM short course

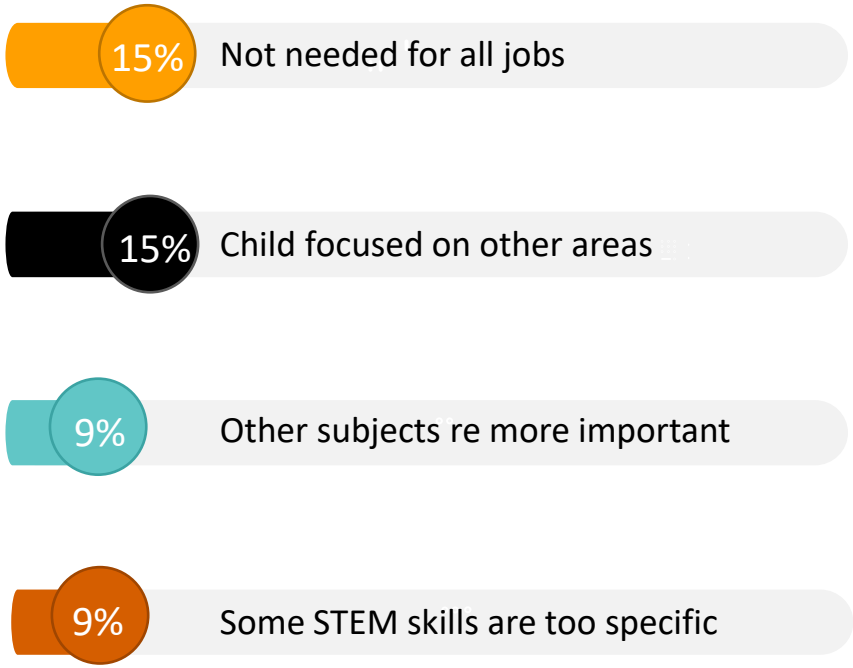
Q. Which of these would you be likely to use to increase your confidence to support with homework/projects related to STEM?

Importance of STEM skills for future employment

Importance of STEM skills

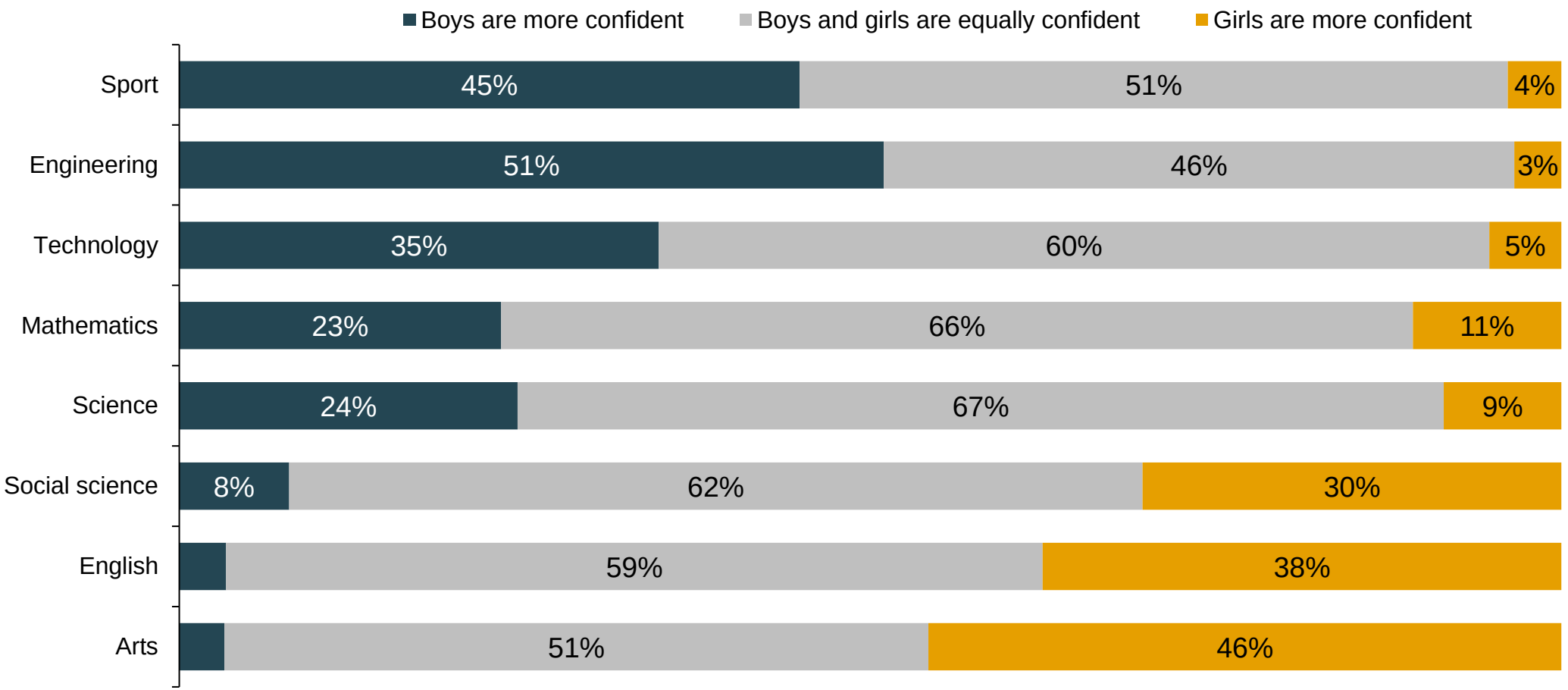


Reasons why its NOT important (coded)



Q. In your opinion, how important is it for your child to have STEM skills in order to acquire a good job in the future?

Perceived gender difference of confidence in school subjects



Q. In your opinion, who do you believe is more confident in the following subjects

Teachers/career advisors and STEM

Demographic breakdown of educators

Educator profile	Sample distribution
Gender	
Male	15%
Female	85%
Main role	
Classroom teacher	61%
Career advisor	7%
Other	21%
Tertiary educator	9%
School type	
Government	66%
Catholic	13%
Independent/other	20%
School level	
Primary	48%
Secondary	43%
Tertiary	9%

This presentation focuses on secondary teachers only.

Of all **male** secondary teachers **68%** teach a STEM subject in their main role.

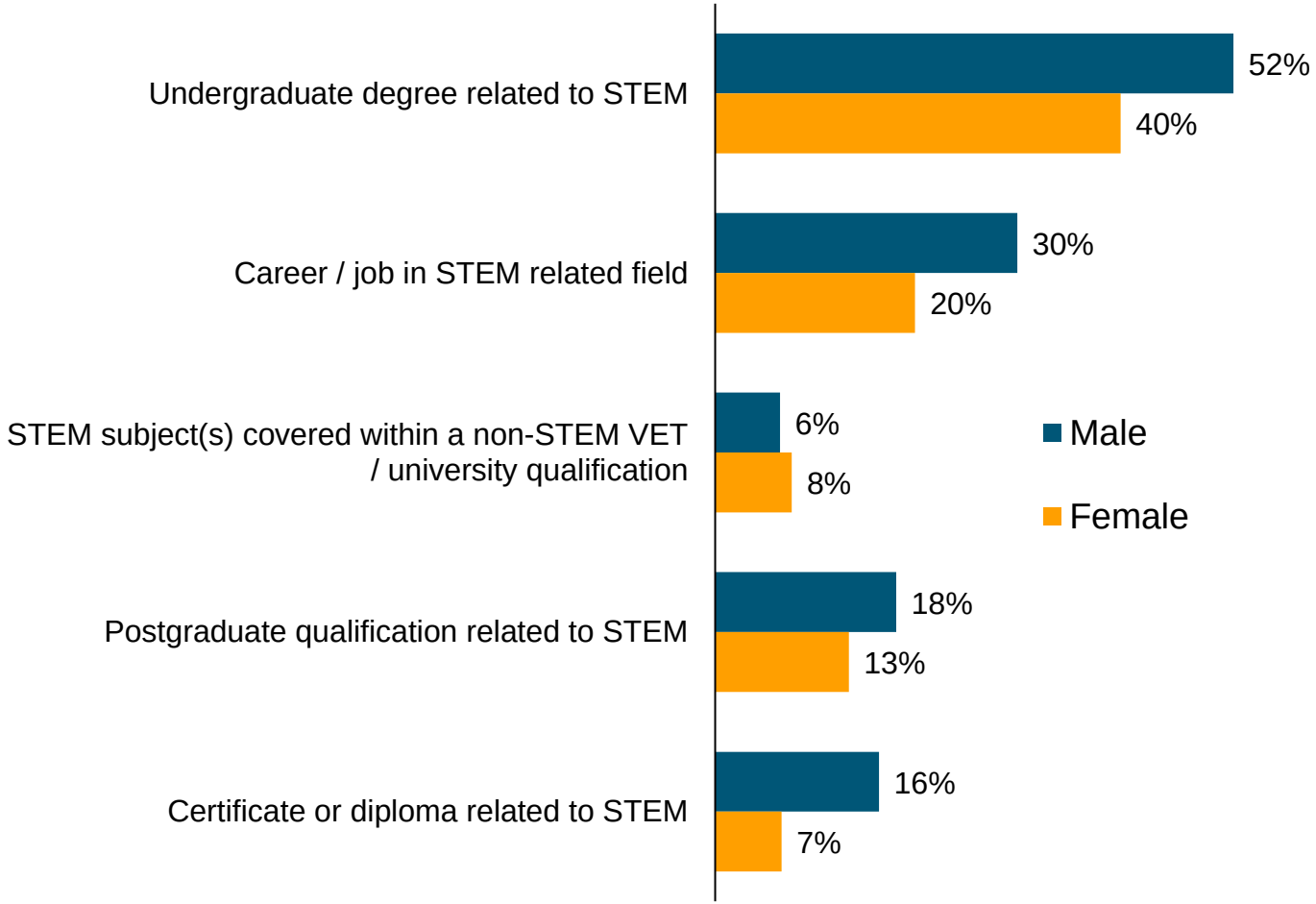
Of all **female** secondary teachers **55%** teach a STEM subject in their main role.

Secondary teacher mix of STEM and non- STEM subjects:

Male teachers
- 42% STEM only
- 22% mix of STEM & non-STEM
- 30% non-STEM
- 6% non-teaching roles

Female teachers
- 19% STEM only
- 32% mix of STEM & non-STEM
- 41% non-STEM
- 8% non-teaching roles

STEM qualifications among secondary STEM teachers prior to starting teaching role



66%

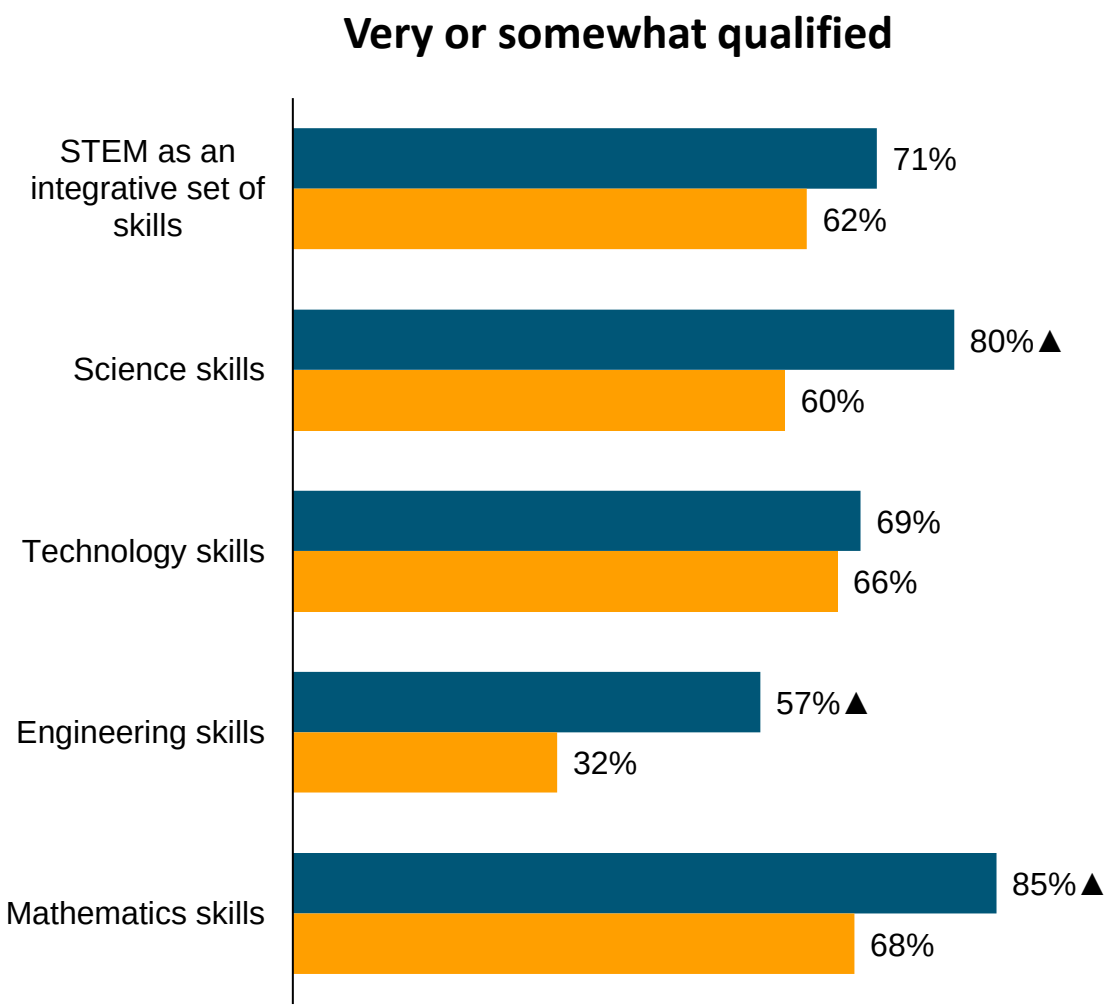
57%

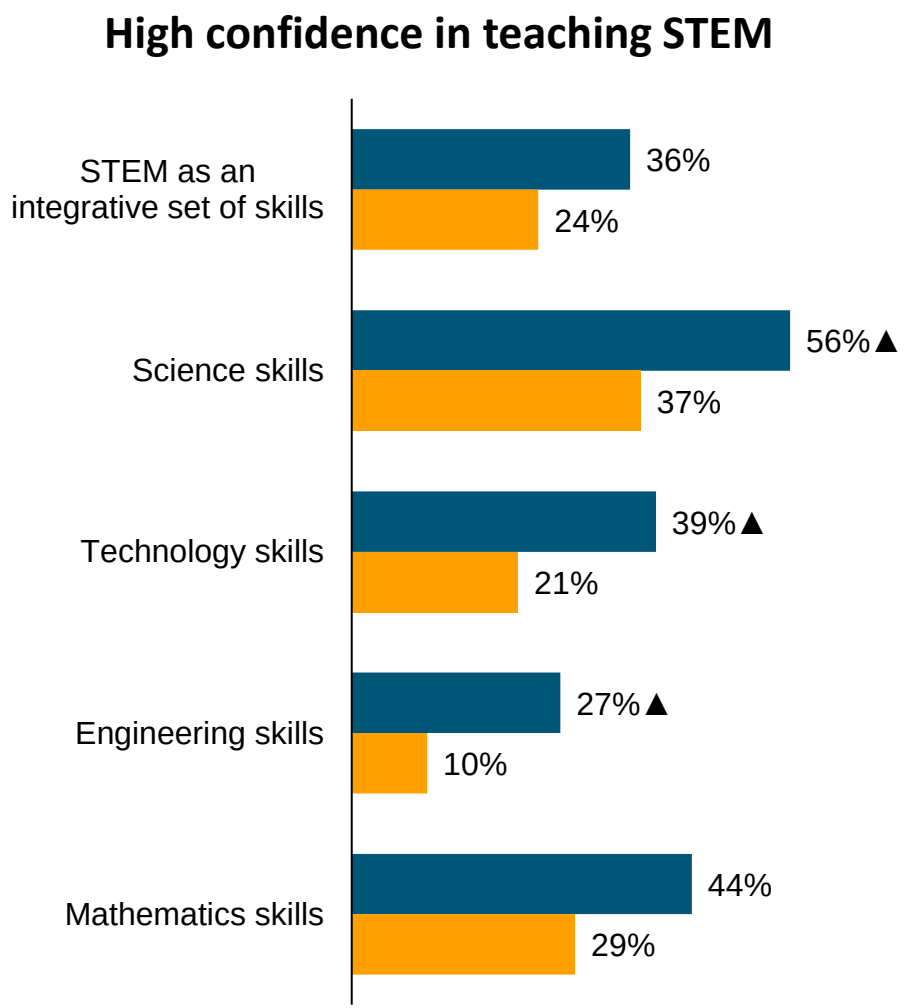
Encouragingly, of all secondary STEM teachers

91% have undertaken further STEM education improve your knowledge of STEM

Q. Which of the following qualifications or experiences related to STEM did you have prior to working in the education sector? Among secondary STEM teachers

Confidence and feelings of being qualified



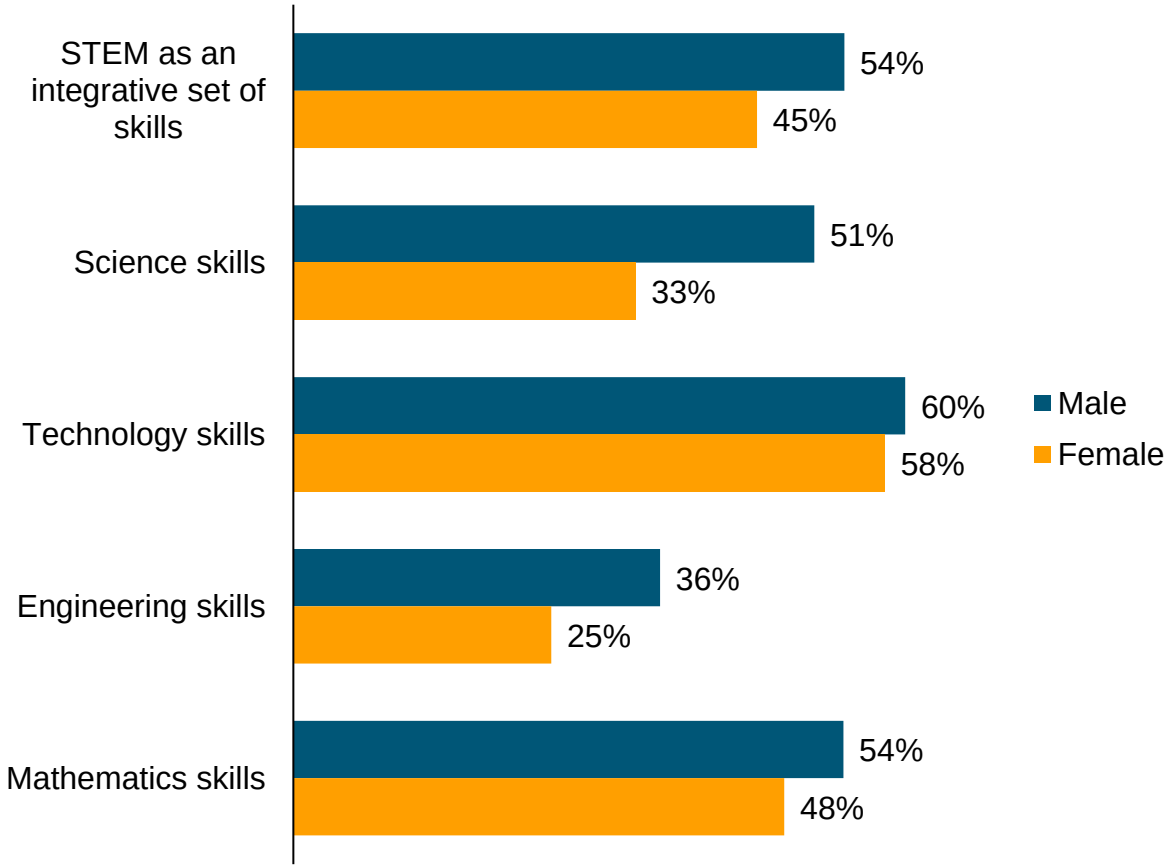


Q. How qualified do you feel to teach STEM subjects ? Among secondary STEM teachers

Q. What is your confidence in teaching STEM related subjects? Scores of 'High' among secondary STEM teachers

Perceived importance of STEM for employment

Very important



Reasons why not important

"Because most of my students will be engaged in lower skills professions, if they are able to gain employment at all." **Male teacher**

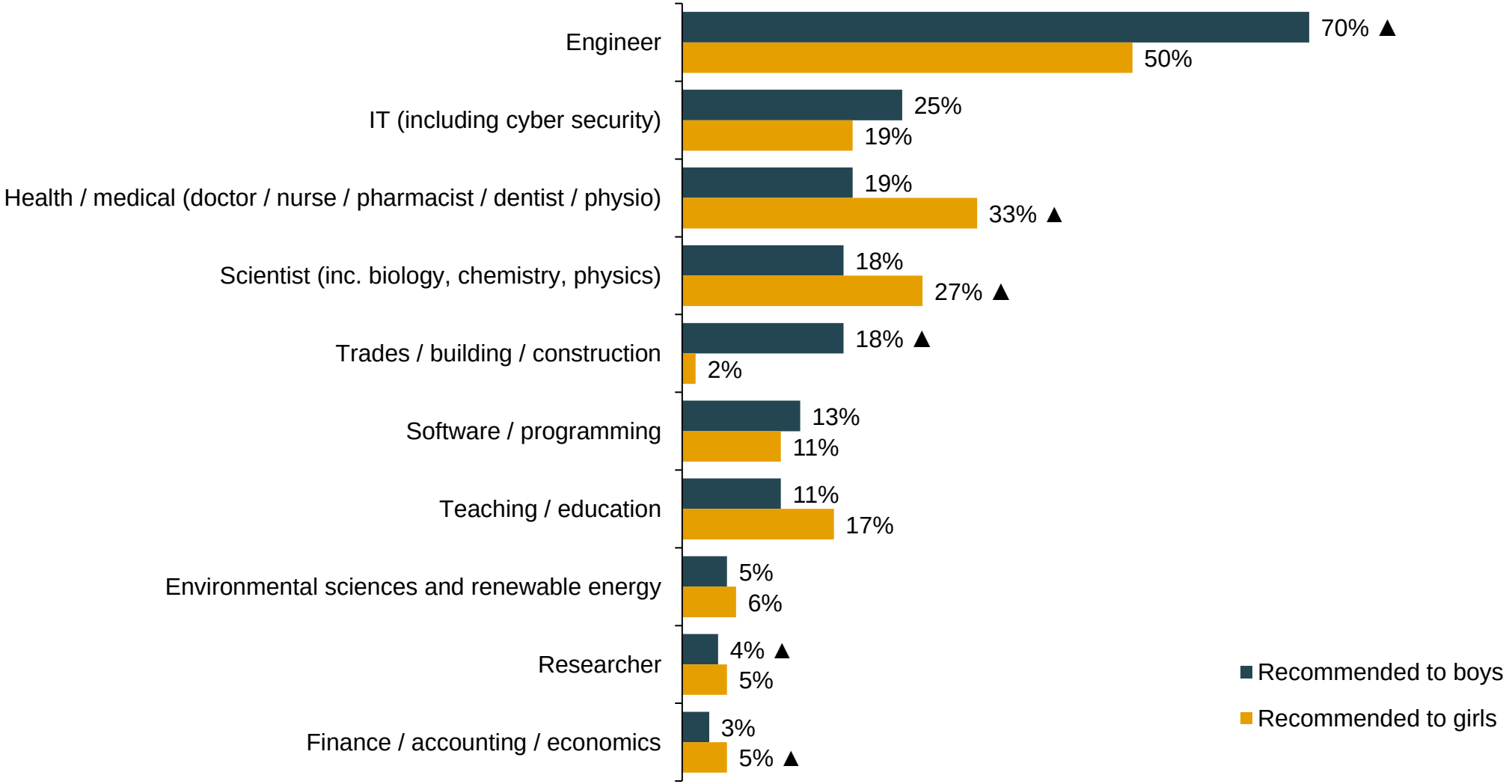
"No jobs in science in Australia." **Male teacher**

"There are many other areas of the economy where jobs exist which have no need for this whatsoever." **Female teacher**

"I think the definition of STEM is too narrow - engineering is not essential to an improved knowledge and system of looking at the world, where as Science, Technology and Maths are clearly important." **Female teacher**

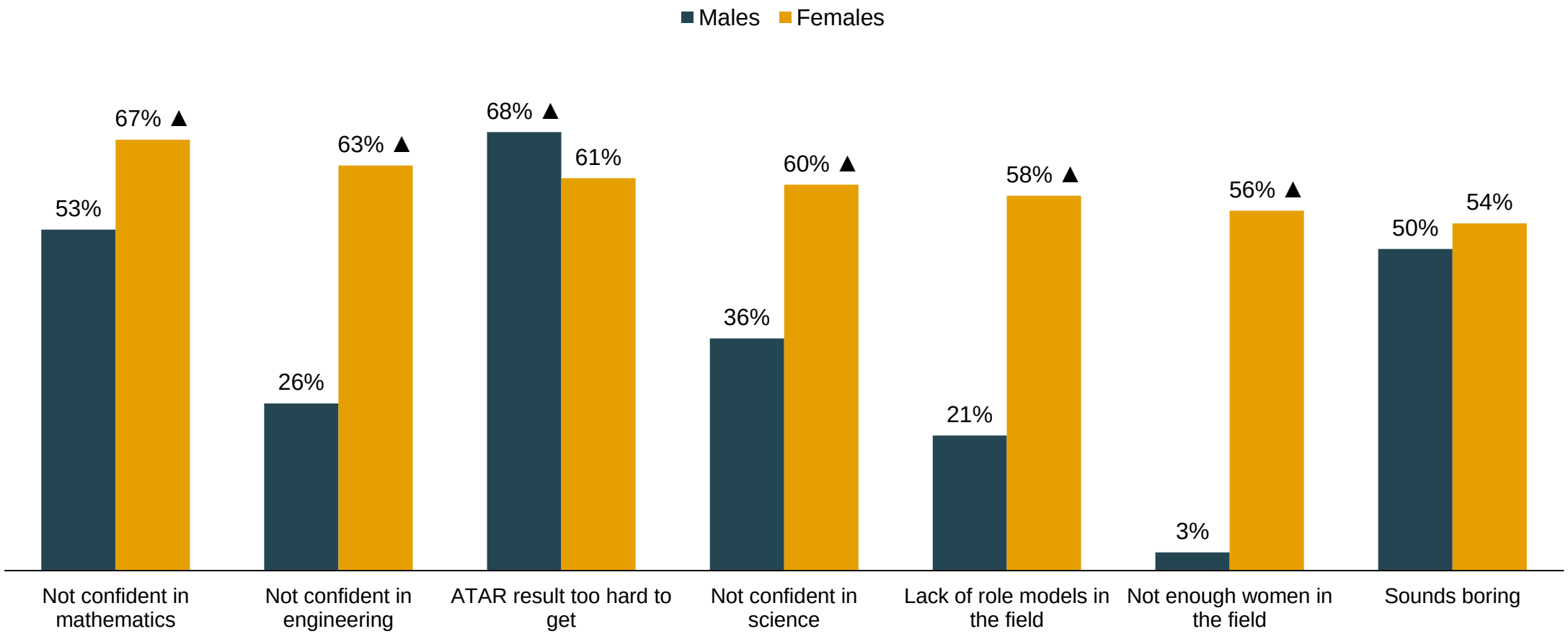
Q. In your opinion, how important is it for your students to have STEM skills in order to acquire a good job in the future (Very Important)

Top 10 recommended STEM careers by career advisors



Q. What are the top 3 STEM careers you recommend to students.

Barriers to STEM careers raised by students



Q. When having career conversations with students about a STEM career, what are some of the barriers students raise?Please select all that apply?

Thank you

Cristiano@studentedge.com.au

Youth in STEM Research Links

youthinsight.com.au/advancing-women-stem/
industry.gov.au/stemequitymonitor
industry.gov.au/womeninstemstrategy
youthinsight.com.au/world/philippines-youth-in-stem-2020-report/
https://pbcwe.com.ph/
https://www.unilabfoundation.org/programs/94/stem-ph

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