



WHERE SCIENCE  
TECHNOLOGY  
ENGINEERING AND  
MATHS COME ALIVE.

# Power Challenge 2023

## Impact report



POWERED BY **CallaghanInnovation**  
New Zealand's Innovation Agency

ENERGISED BY  **TRANSPower**

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# Spreading STEM wonder

## Reach

The Power Challenge had its first large scale release in 2023, reaching around 8,500 ākonga across 293 classes in 195 unique schools. 185 of those classes were matched with Wonder Project Ambassadors (63% of participating classes). We had an additional 24 ambassadors register to take part who we were unable to match due to regional differences.

	2021	2022	2023
Ākonga*	870	6,844	8,497
Classes	30	236	293
Schools	16	122	195
STEM professionals	46	192	185

\*Based on average of 29 ākonga per class

The Ministry of Education ākonga data from 2022 shows there were 144,475 ākonga in Year 7–8 and 1,475 schools for this level. In 2023 we estimate to have reached around 6% of the available market at 13% of target schools.

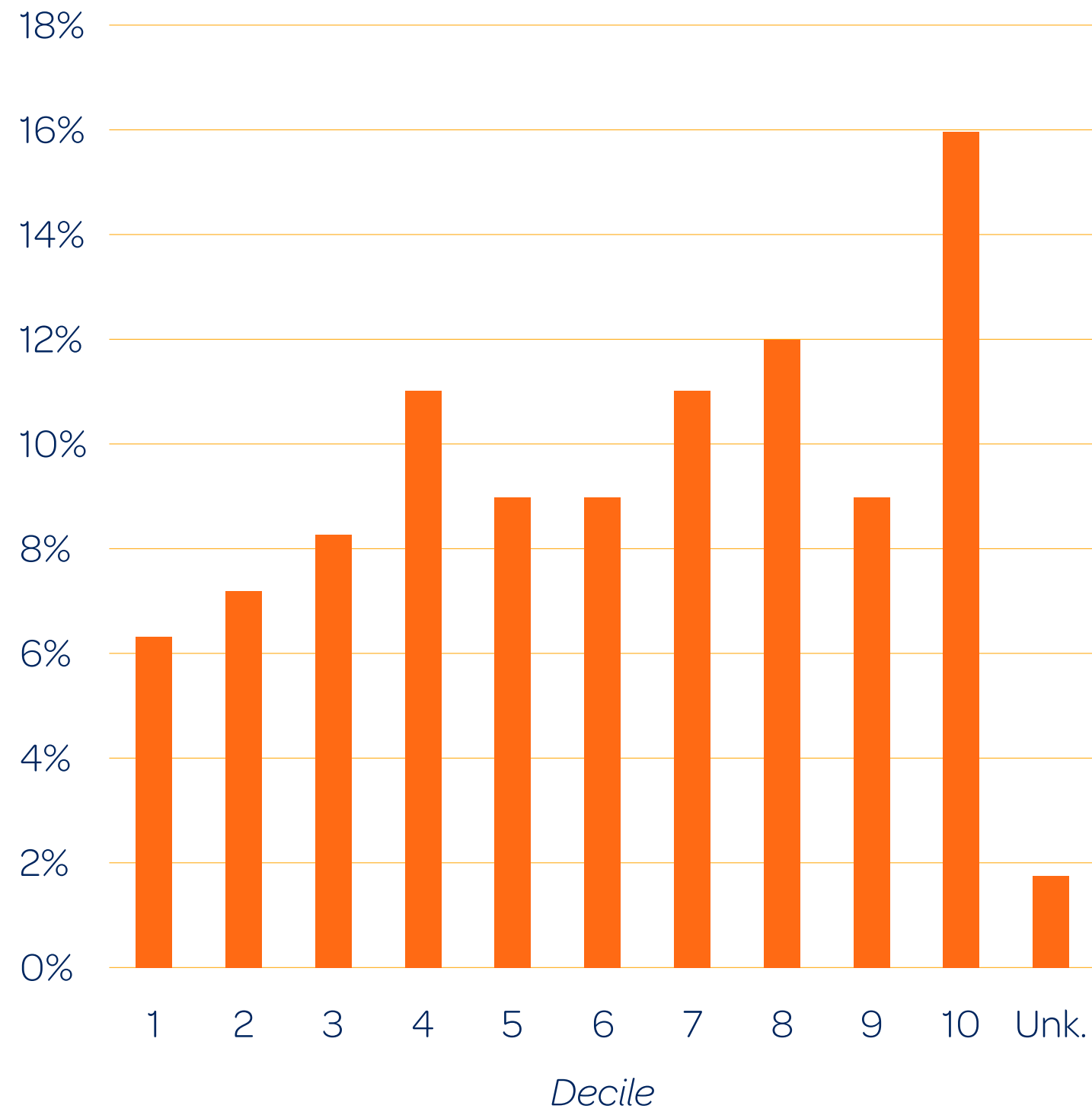
Around  
**8,500**  
ākonga  
across  
**293**  
classes in  
**195**  
unique  
schools



# Demographics

## Decile

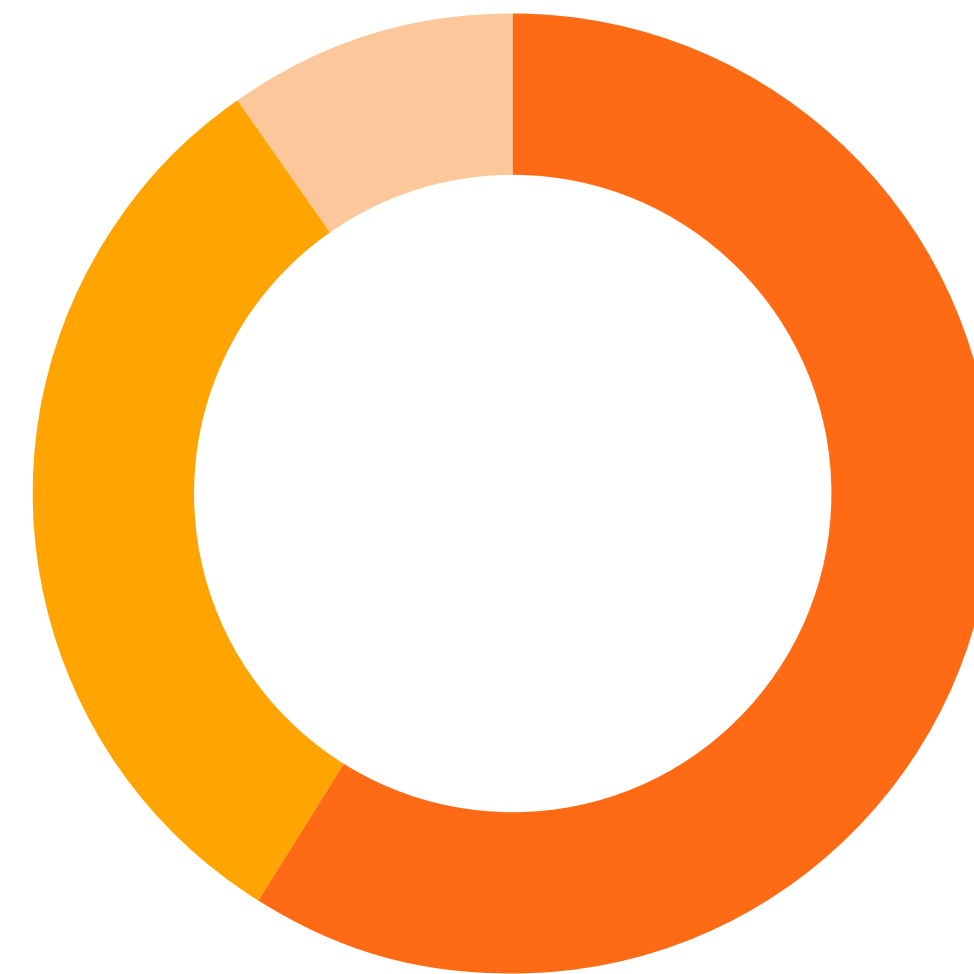
We had 61% of participating classes sitting between decile 1–7.



As decile is no longer used, we will move to the new Equity Index (EQI) model from 2023 onwards. This is an important metric to measure equitable access and focus on schools with larger socio-economic barriers.

## Ethnicity

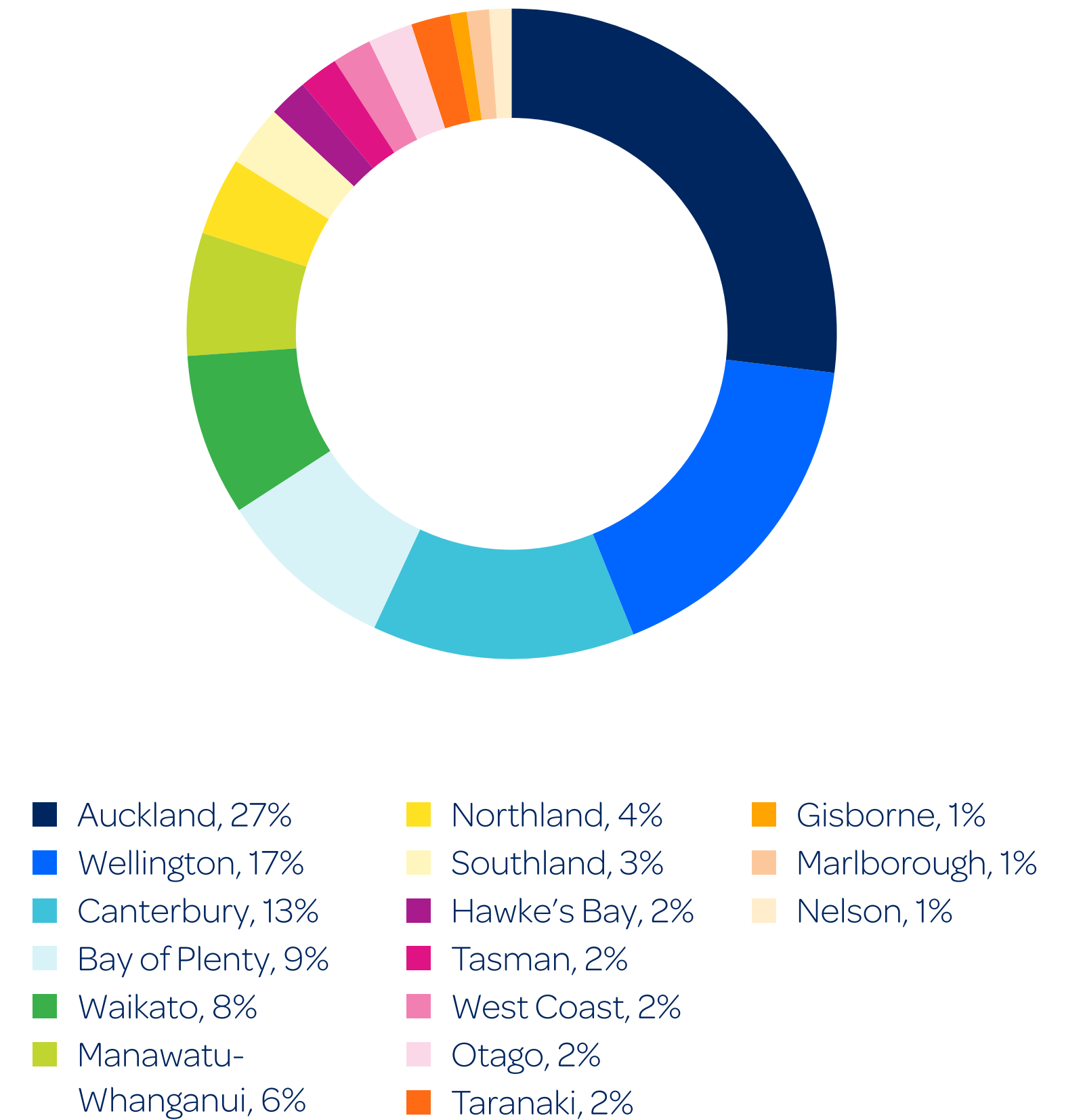
We achieved our goal to reach 15% Māori and 8% Pacific Peoples, at 26% and 8% respectively.



- Pākehā/other, 49%
- Māori, 26%
- Pacific Peoples, 8%

## Region

We had 57% of participating schools in the main centres (Auckland, Wellington and Canterbury), and 43% across the regions.



## Impact in short

**70%**  
ākonga  
said the Power Challenge  
**made them feel more  
confident** in STEM subjects

**43%**  
ākonga  
were **more interested  
in STEM jobs** after  
the challenge

**67%**  
ākonga  
said they  
**would do  
it again**

**100%**  
kaiako  
**would recommend  
the programme  
to others**

**92%**  
kaiako  
**enjoyed  
teaching the  
Power Challenge**

**93%**  
kaiako  
said they  
**would do  
it again**

**89%**  
kaiako  
noticed a **positive  
shift in ākonga  
perceptions** of STEM

**98%**  
kaiako  
**increased their  
confidence in  
teaching STEM**

**91%**  
kaiako  
said **ākonga were  
engaged** with the  
programme

**98%**  
ambassadors  
**would recommend  
the experience  
to others**

# Pre and post surveys

Before doing the challenge, ākonga and kaiako are asked to complete a survey to understand their perceptions of and confidence in STEM. They repeat this, with some additional questions, at the end of the challenge to measure the impact of the Wonder Project.

## Survey completion rate

	Pre	Post
Ākonga	3,577	1,240
Kaiako	121	88
Ambassador	-	117

**I was inspired by seeing the lights come on, metaphorically and literally, as students started to identify the challenges ahead to get to 100% renewables and how they might play a part in solving them.**

**Samantha Harrild,**  
Ambassador – Transpower



Ākonga  
experience

# Perceptions

## STEM perception

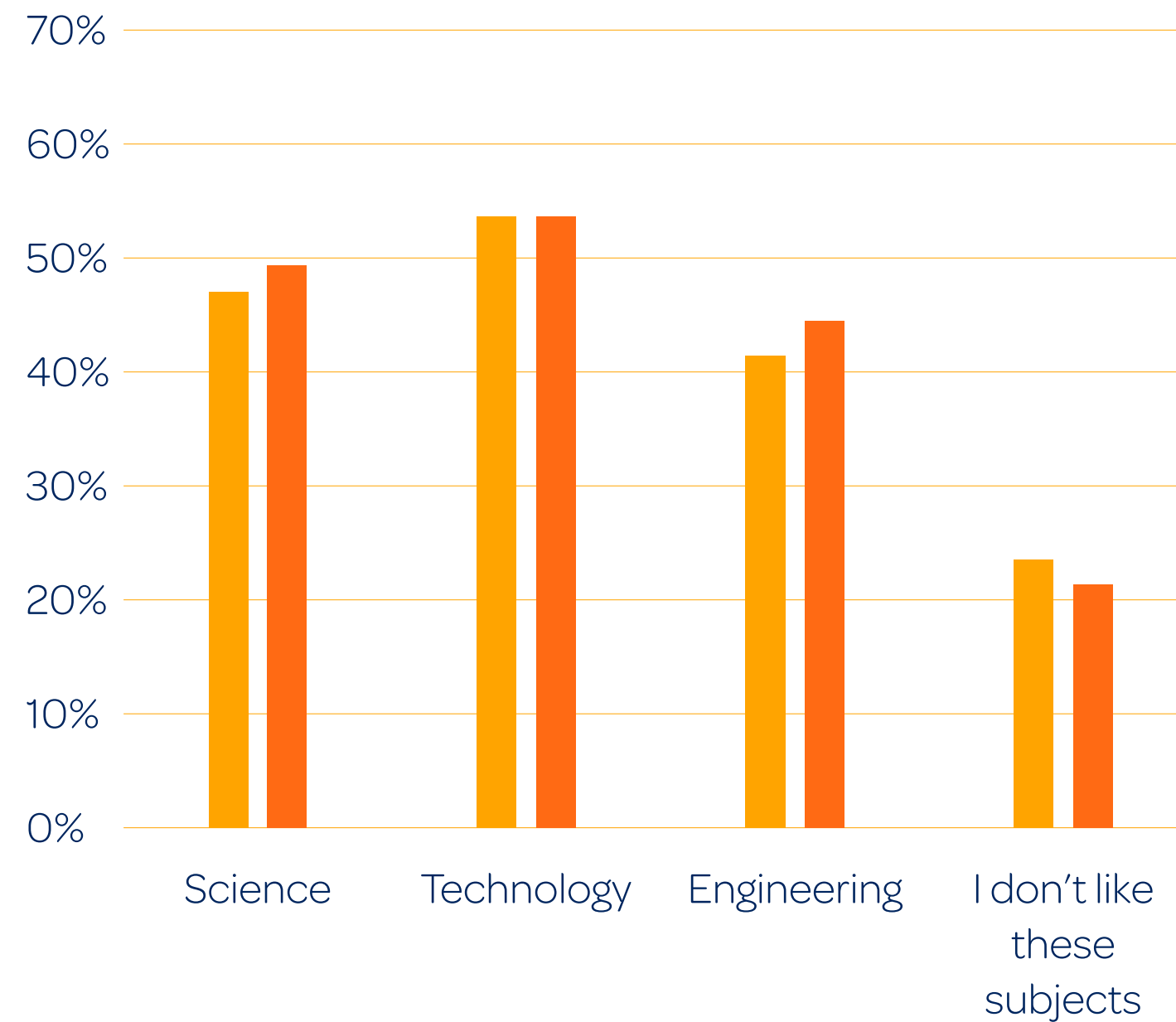
When kaiako were asked if they noticed a shift in ākonga perceptions towards STEM over the challenge, 89% said they noticed a positive shift.



- Their perceptions changed positively, 89%
- Their perceptions didn't change, 12%
- Their perceptions changed negatively, 0%

## STEM subject preference

We noticed an incremental change in STEM subject preference among participants. Interestingly, our data for 2021 shows an average of 30% of ākonga starting the challenge liking each subject. This is now around 20% higher to start with across all subjects.



- Pre
- Post

**This has been the best STEM that we have taken part in. The resources were amazing, the children were engaged and our wonderful ambassador brought it alive. A fantastic programme all round.**

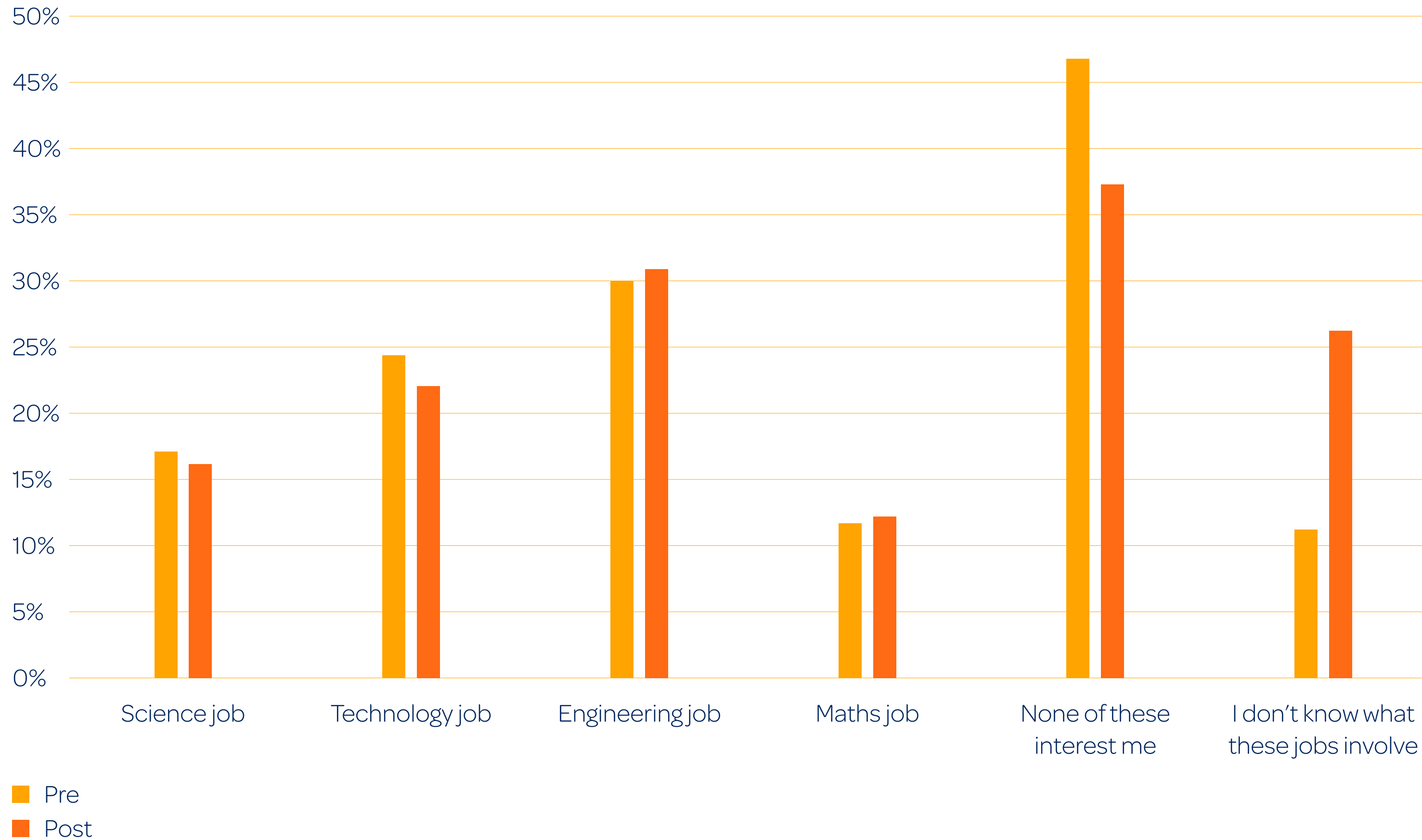
**Julie Jones,**  
Kaiako – Southend School



## Job aspirations

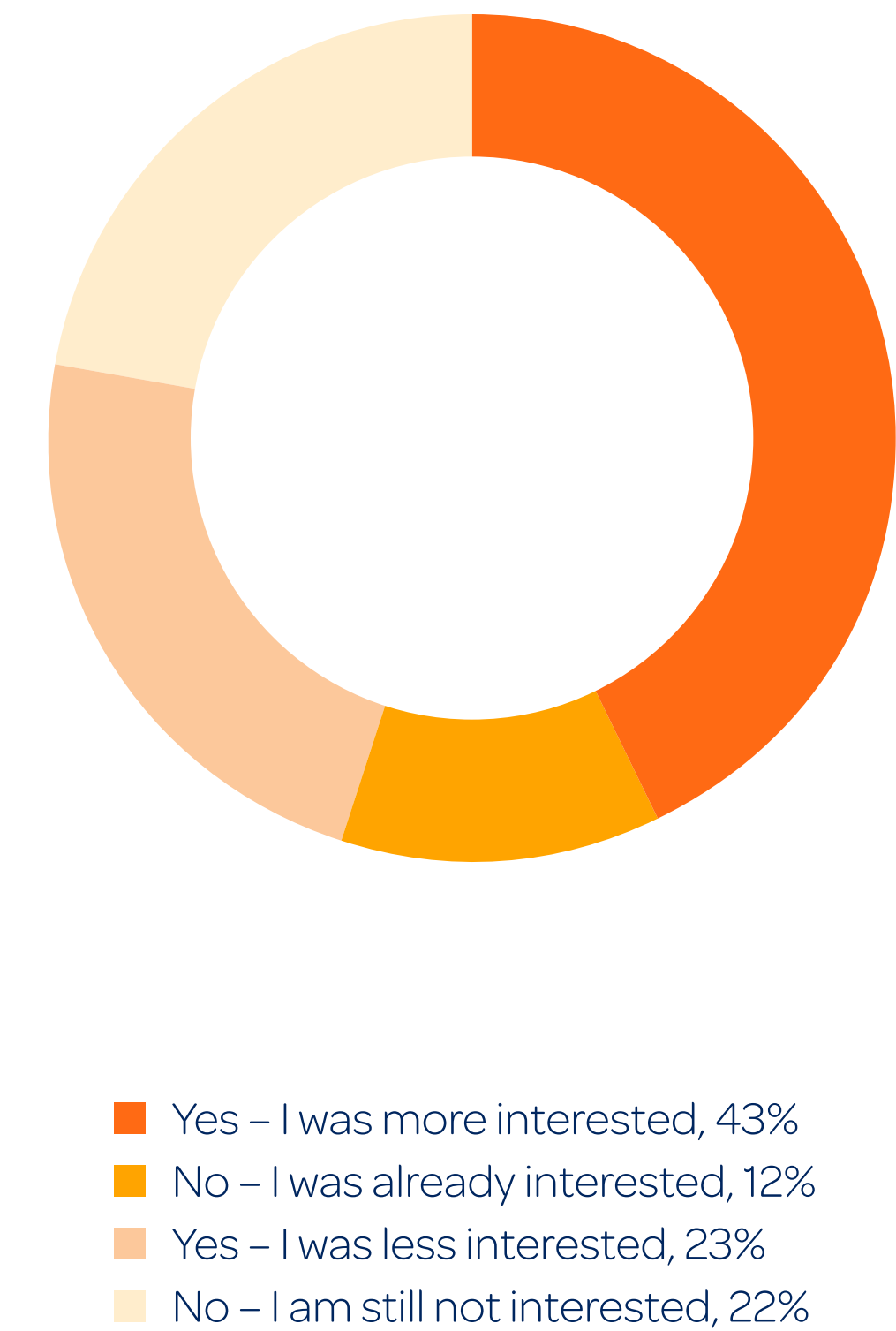
68% of kaiako believed their ākongā were more curious about the opportunities that different careers in STEM can provide, after the challenge.

From ākongā, we had a slight increase in aspirations towards engineering and maths jobs after the challenge. We saw more curiosity from ākongā, with a decline in those saying none of these jobs interest them.



## Interest in STEM jobs

More than 40% of ākongā reported that they were more interested in STEM jobs after completing the challenge. With a further 12% of ākongā already interested in STEM jobs, post the challenge, 55% of ākongā would consider a STEM career.

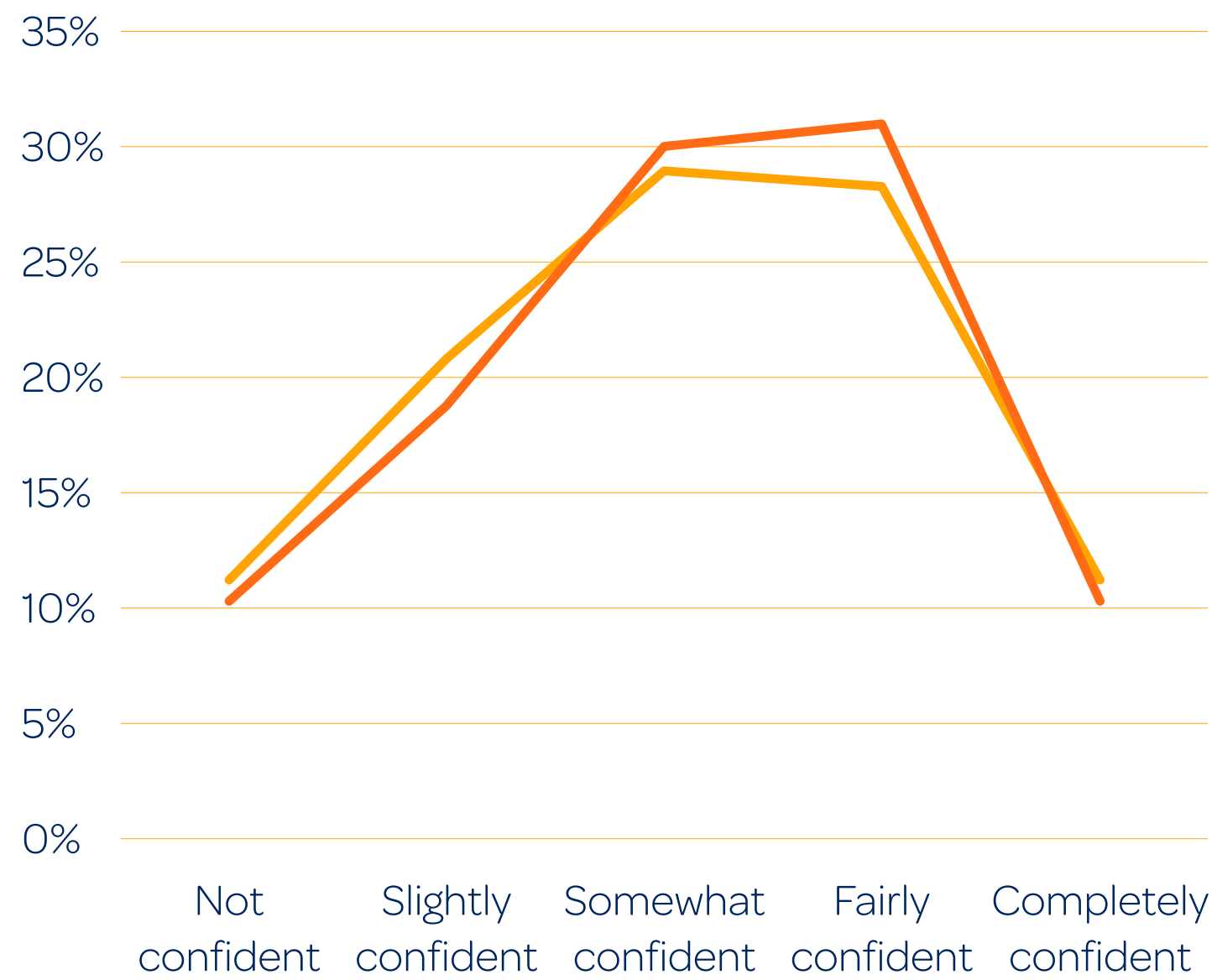


## Confidence

### STEM subject confidence

When asked if taking part in the challenge made them feel more confident in STEM subjects, 70% reported that it did.

When asked about confidence across each subject, we saw a slight shift overall with more moving into the 'fairly confident' category from being 'not confident'.

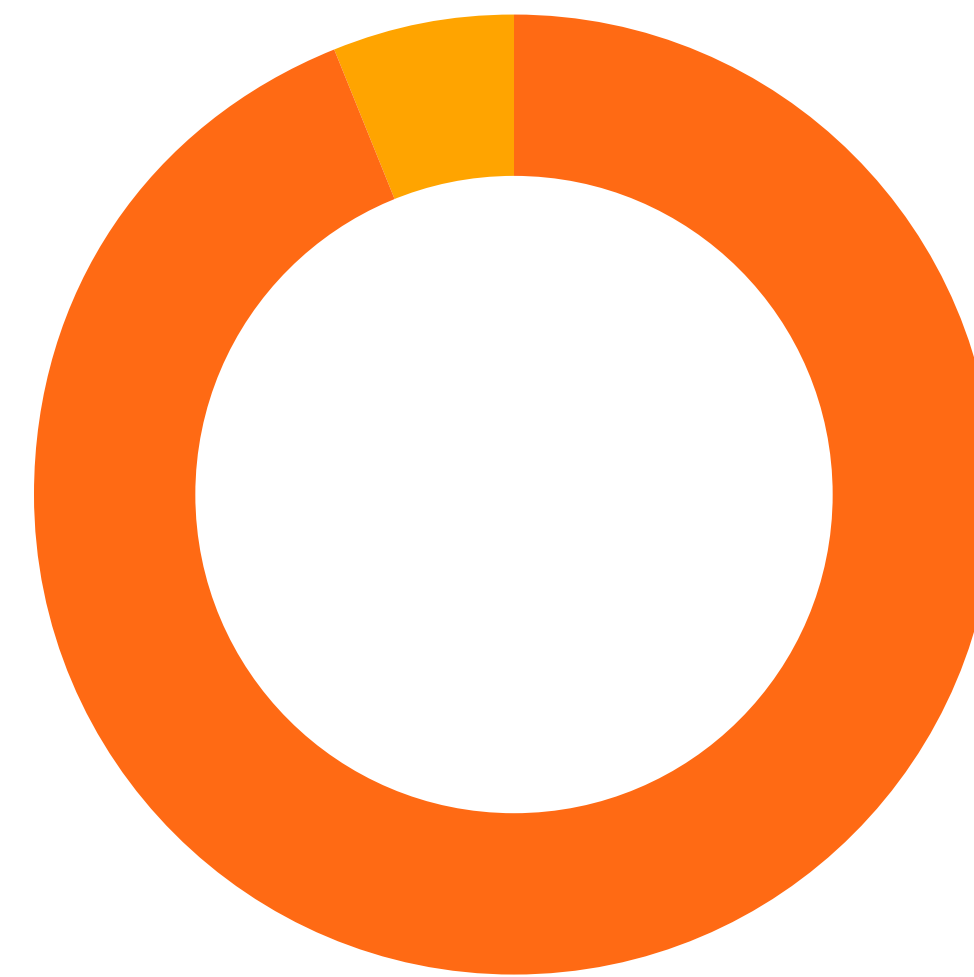


■ Pre  
■ Post

## Knowledge and skills

### Level of challenge

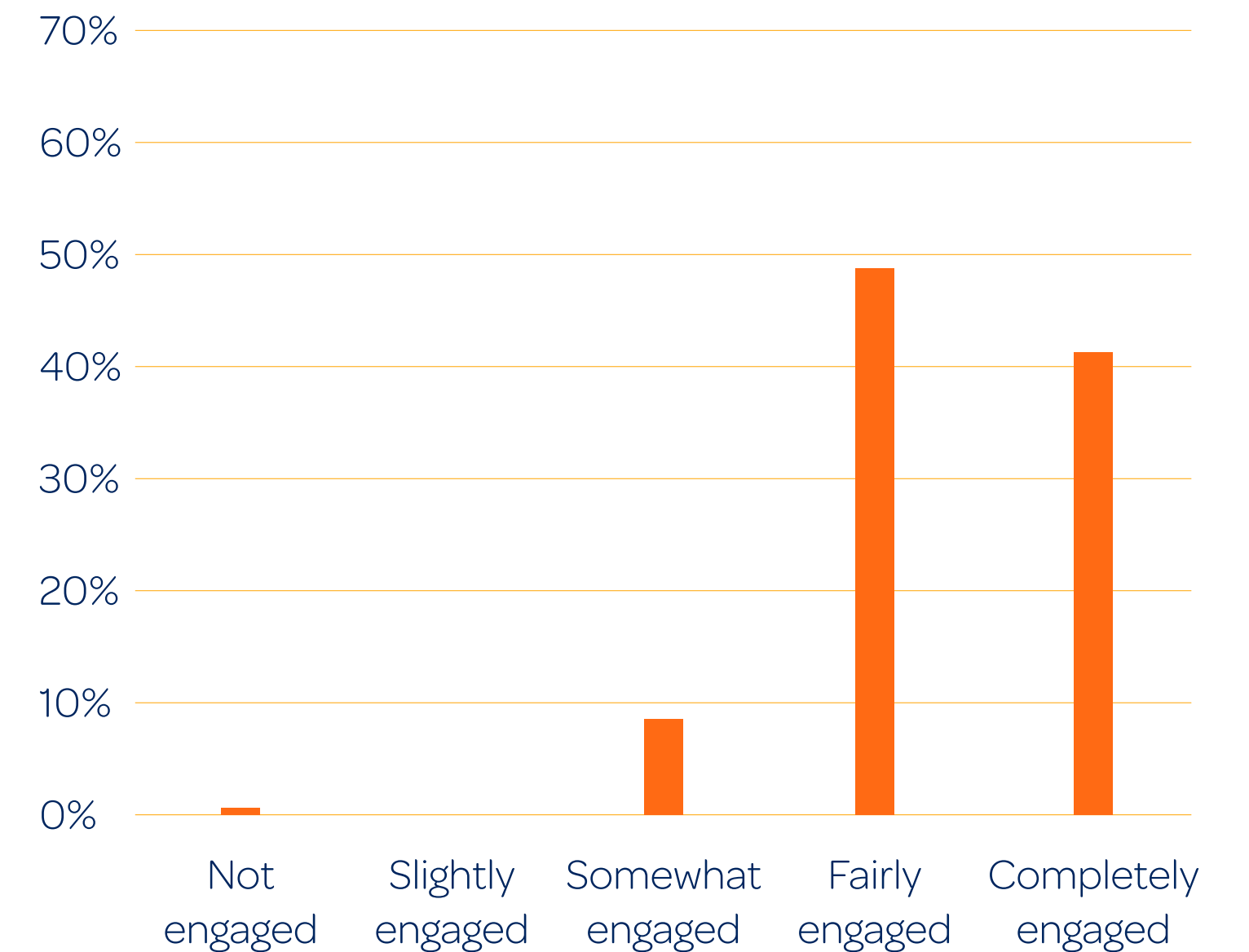
Most kaiako said ākongā were challenged by the learning material at about the right level.



■ About the right level of challenge, 94%  
■ A bit too challenging, 6%  
□ It was too easy, 0%

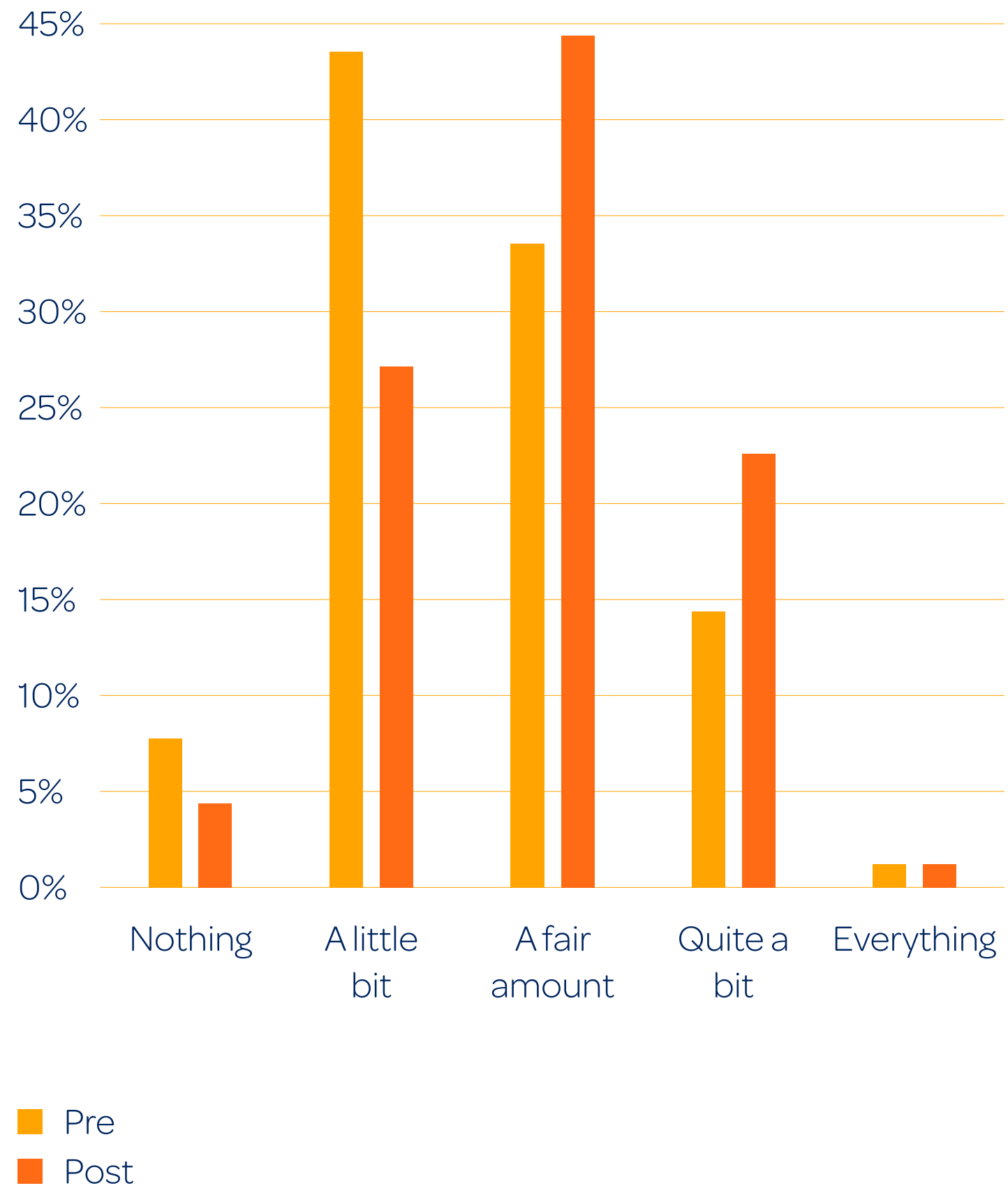
### Engagement with learning

Kaiako reported that 91% of their ākongā were fairly or completely engaged with the learning journey.



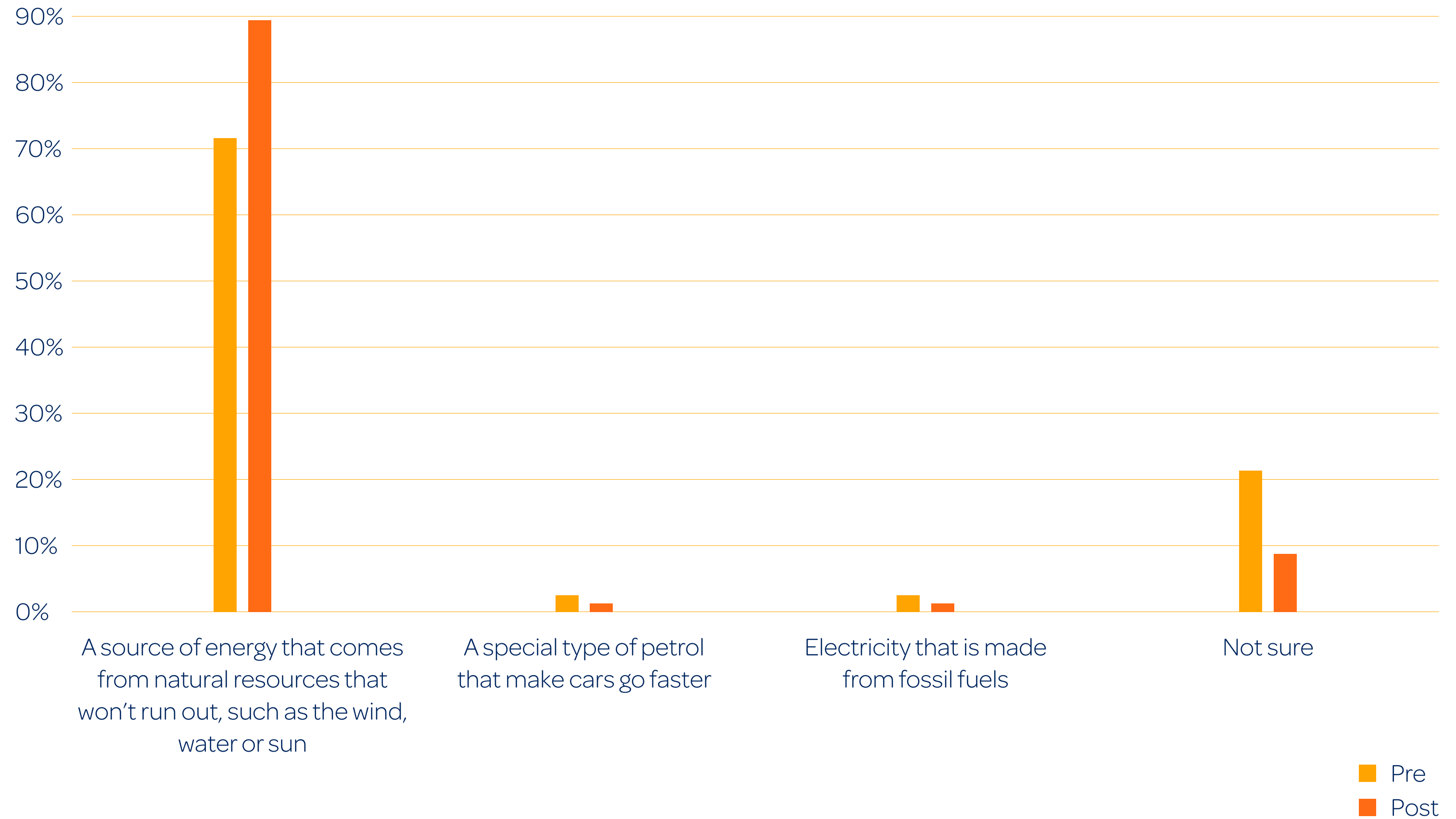
### Electricity knowledge level

We saw a positive shift in what ākonga knew about one of the key learning outcomes, electricity.



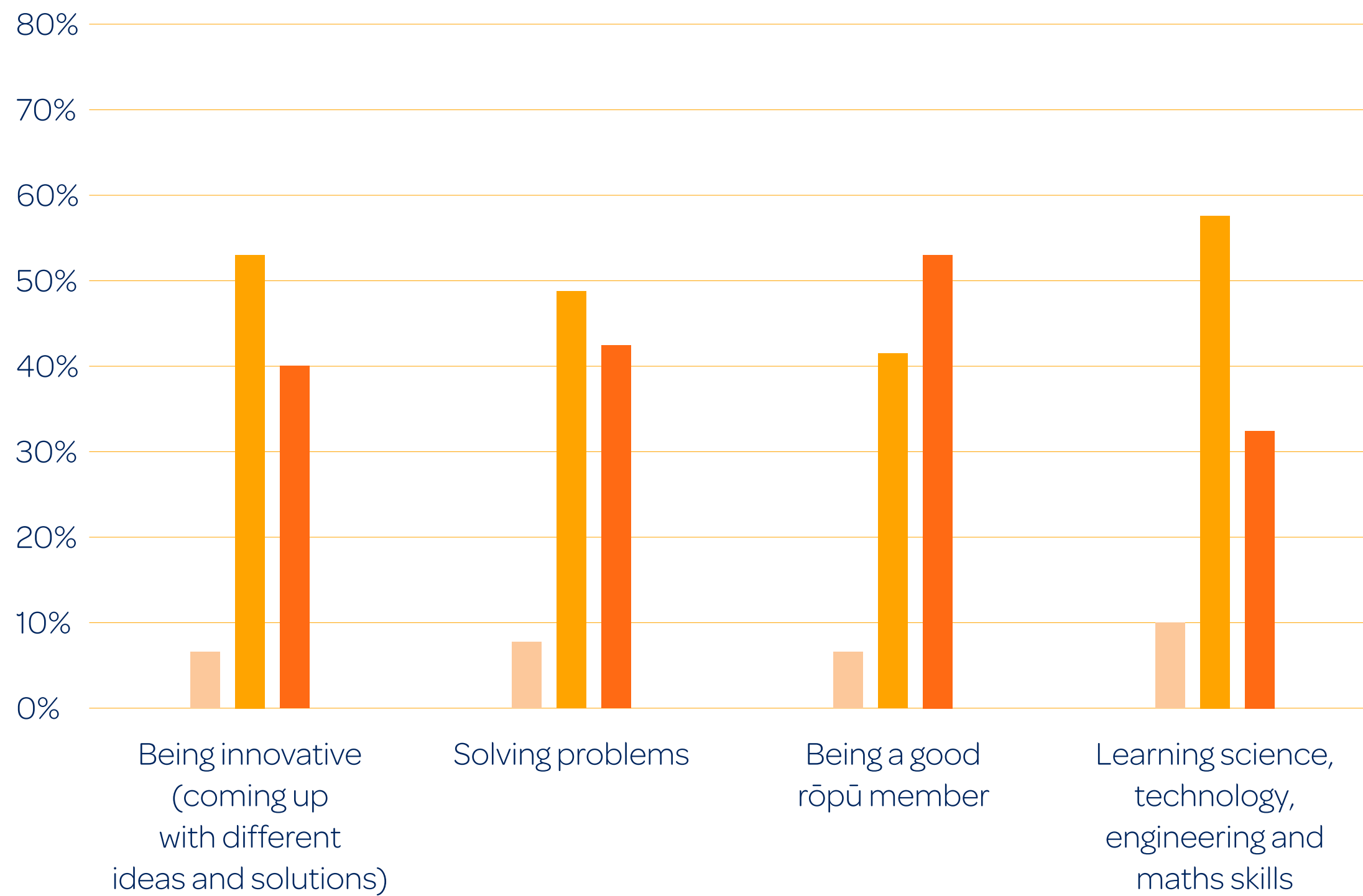
### Renewable energy

Before the challenge, 72% of ākonga could correctly identify renewable energy as a source of energy that comes from natural resources that won't run out, such as the wind, water or sun. After the challenge this rose to 89% of ākonga, a 24% increase.



## STEM skills practiced

During the challenge, we expect ākonga will learn about and practice four key STEM skills. The majority of ākonga were exposed to these and could identify that they'd been able to practice them. Teamwork was a stand-out, with 52% of ākonga saying they practiced this skill a lot. 99% of kaiako also said there were lots of opportunities for ākonga to discover and develop STEM skills.

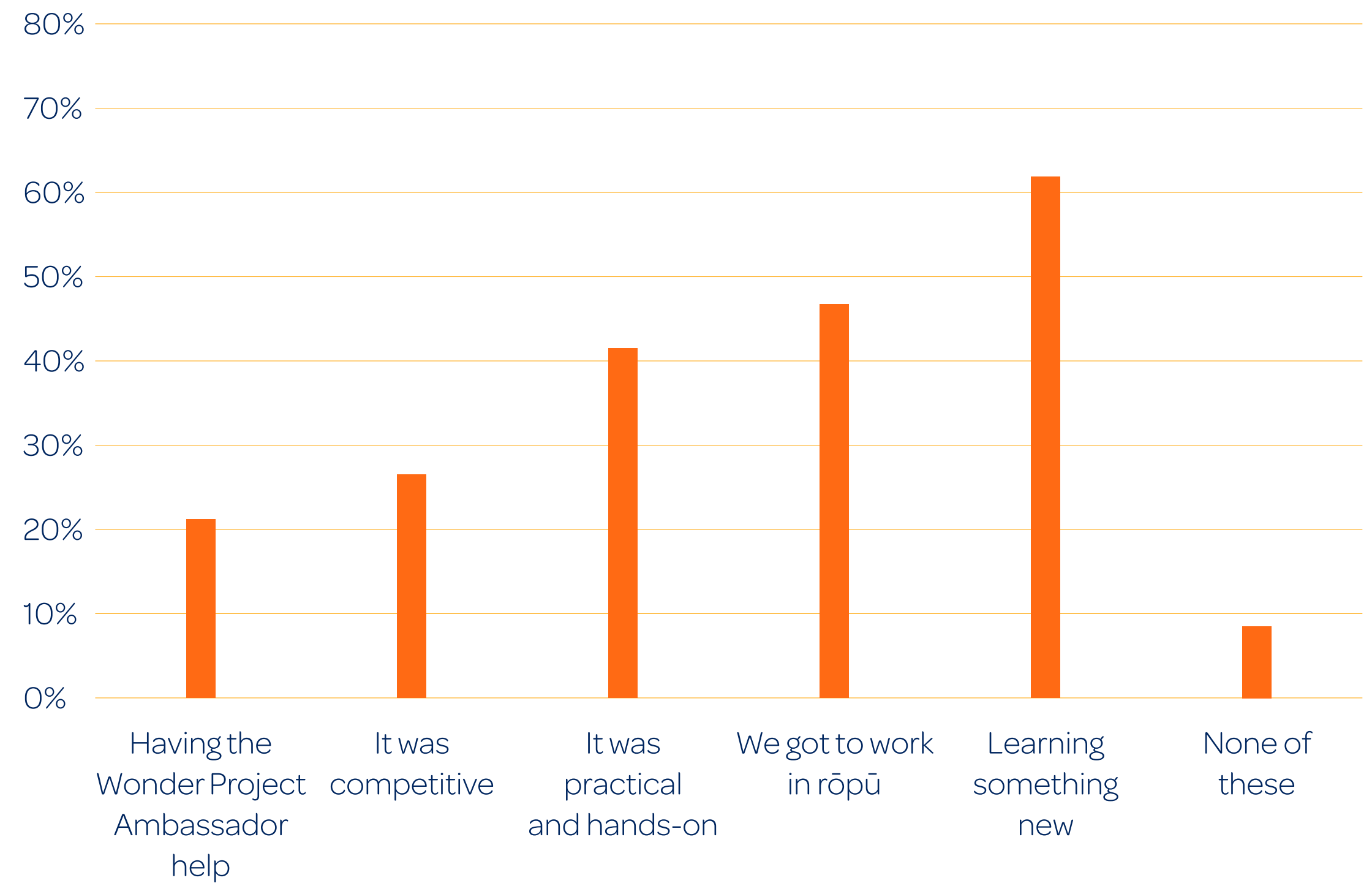


- Not at all
- Just a little
- A lot

## Enjoyment

### What they liked

From their Wonder Project experience, ākonga mostly valued learning something new and working in rōpū, when asked what they enjoyed about the challenge.



### Take part again

67% of ākonga said they would like to take part in another Wonder Project challenge as part of their school work.

**67%** ākonga said they **would do it again**



STAR

DIGITAL CITIZENSHIP

SAFETY

TRUST

ATTITUDE

RESPECT



PAPATOETOE INTERMEDIATE

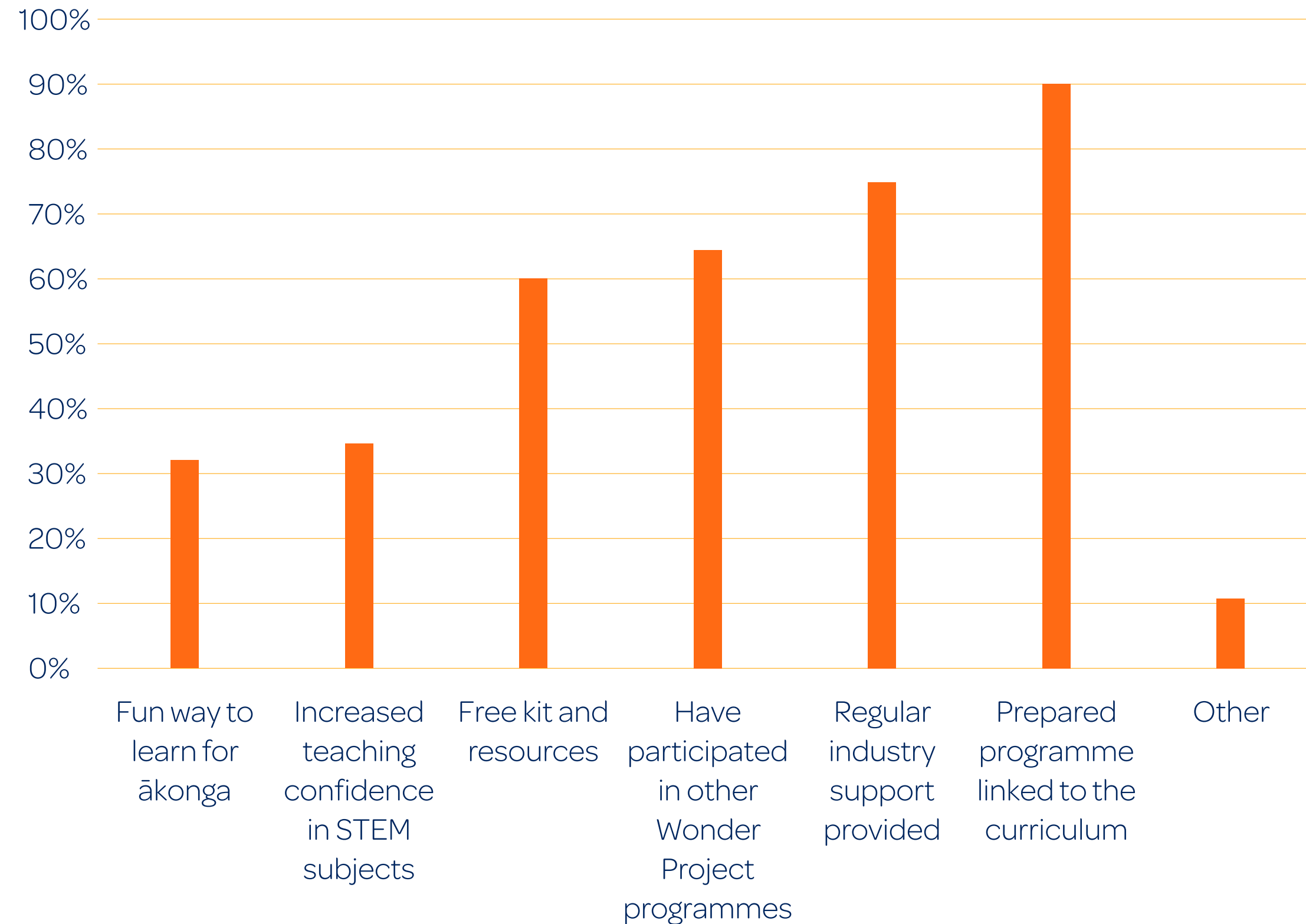
WHAKA POKAI TARA  
PAPATOETOE INTERMEDIATE

Kaiako  
experience

## Registering

### Motivation to sign up

Kaiako primarily registered for the Power Challenge because it's a prepared programme linked to the curriculum. Having regular industry support was also a key reason for kaiako to sign up.

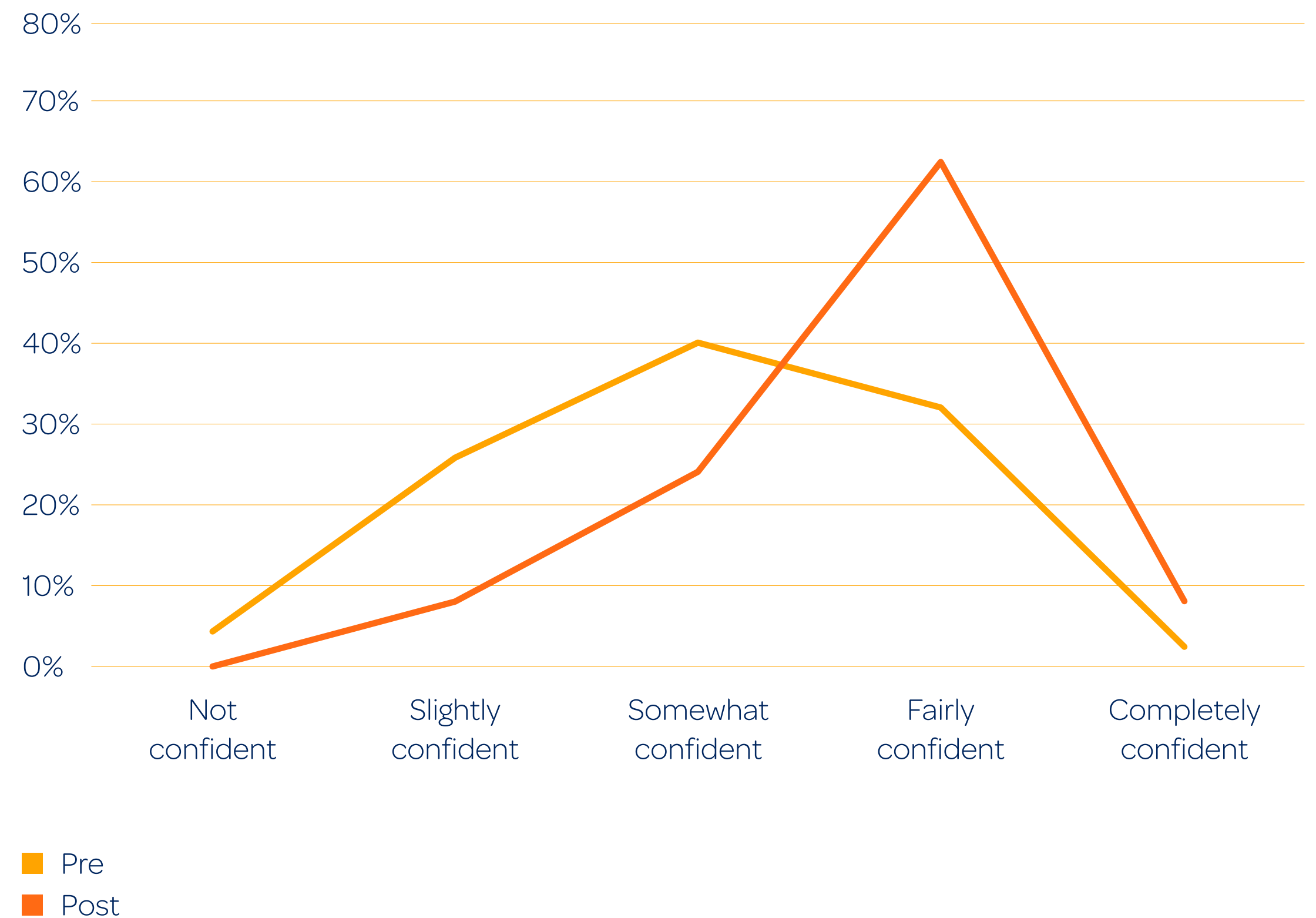


## Confidence

### Teaching STEM subjects

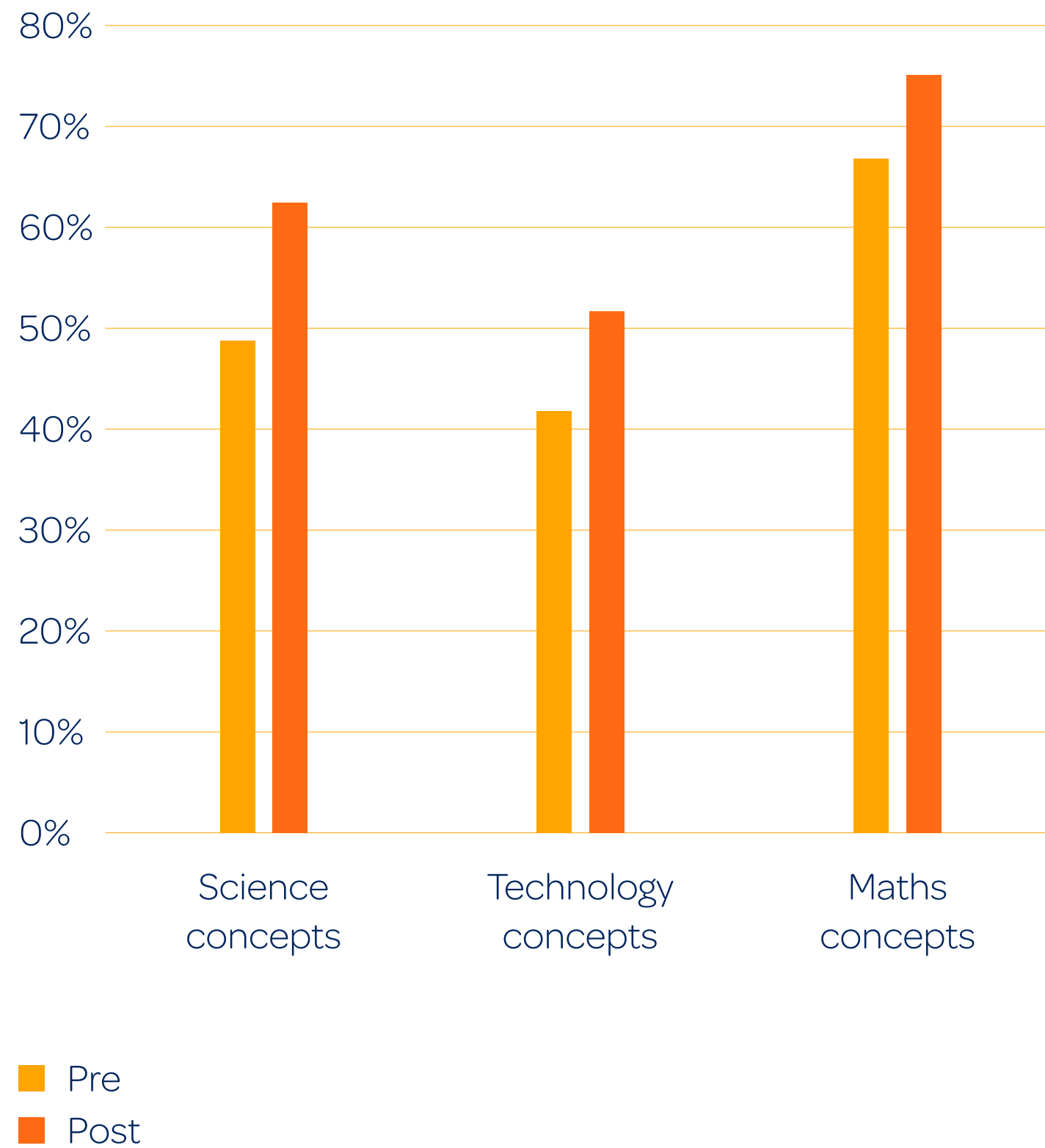
When asked if they felt participating in the challenge has increased their confidence in teaching STEM, 98% of kaiako agreed.

We had a 53% increase in kaiako feeling fairly or completely confident teaching STEM subjects.



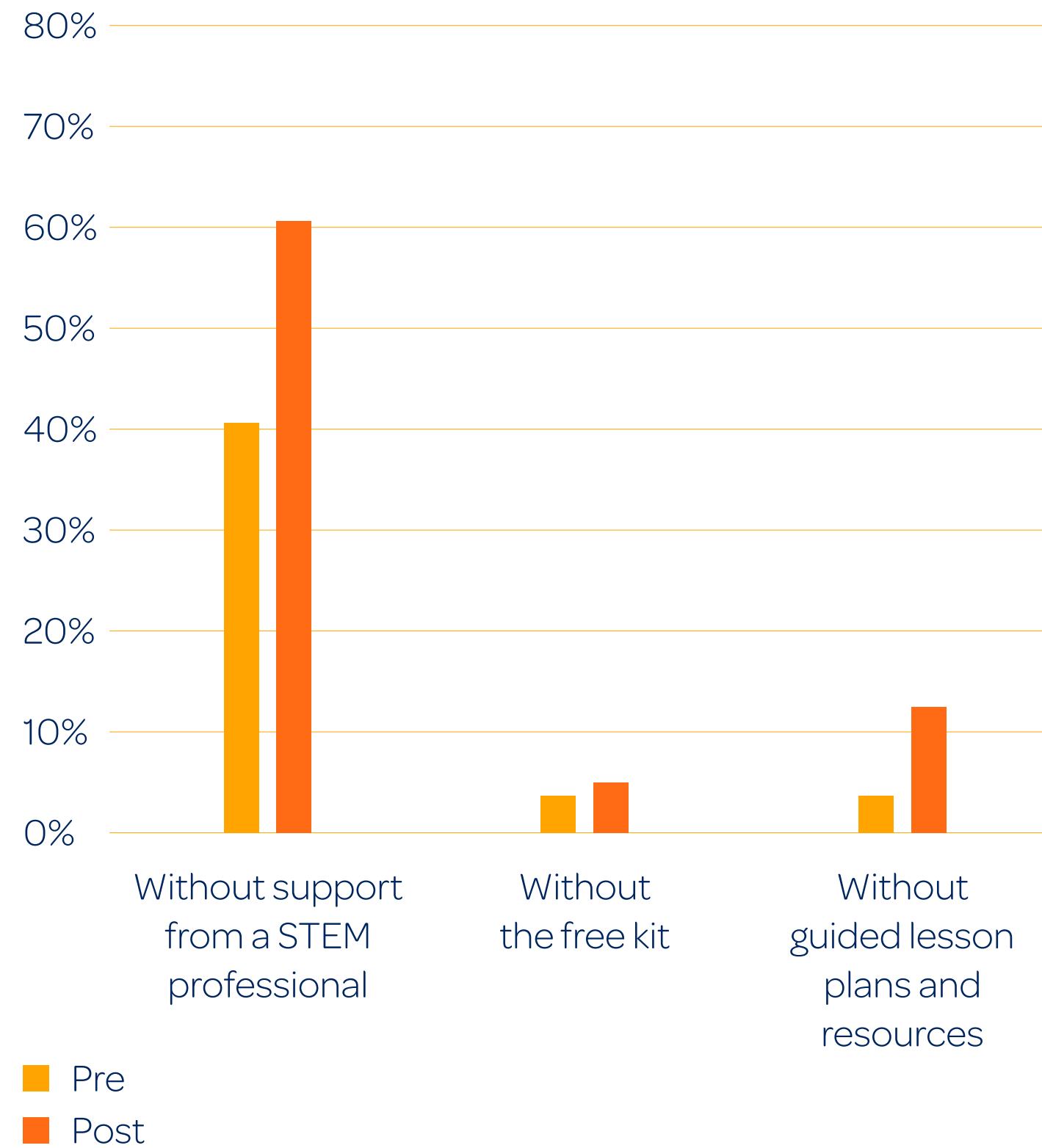
### Demonstrating STEM concepts

There was a 21% increase in kaiako feeling fairly or completely confident demonstrating STEM concepts overall. The largest increase was for science concept demonstration.



### Wonder Project support

When asked how confident kaiako would feel running the challenge on their own and without various aspects of support provided by the Wonder Project, we notice that kaiako still value the free kit and lesson plans post the challenge. They do feel more able to run the challenge without support from a STEM professional, which aligns to their increase in confidence teaching STEM subjects and demonstrating concepts.



**The Wonder Project has reinvigorated me into thinking of more tangible and practical ways to teach STEAM, as well as integrate it across the curriculum rather than just having 'inquiry time' – tū meke!**

**Andy Swan**  
Kaiako – Waikowhai Intermediate

Challenge  
content

---

**94%**  
kaiako

said the  
challenge was  
**well structured  
and paced  
to support  
ākonga  
learning and  
agency**

---

**Structure  
and pace**

**90%**  
kaiako

said the online  
Learning Hub  
**was helpful,  
easy to use and  
navigate**

---

**Online  
Learning Hub**

**94%**  
kaiako

were fairly or  
completely  
**satisfied with  
the teaching  
content**

---

**Teaching  
content**

**98%**  
kaiako

were fairly or  
completely  
**satisfied with  
the ākonga  
module  
content**

---

**Ākonga  
module content**



## Enjoyment

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**92%**  
kaiako

said they had a  
**great experience**  
**teaching** the  
Power Challenge

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**Experience teaching  
the challenge**

**100%**  
kaiako

**would recommend**  
the Wonder Project  
to other kaiako

---

**Recommendation**

**93%**  
kaiako

said they'd  
**take part in**  
**another Wonder**  
**Project challenge**  
based on their  
experience

---

**Take part again**



**Ambassador  
experience**

## Challenge content

### Teaching content

**93%**  
ambassadors

were **fairly or completely satisfied** with the teaching content

### Enjoyment

### Recommendation

**96%**  
ambassadors

would **recommend** others become Wonder Project Ambassadors

### Ākonga module

**94%**  
ambassadors

were **fairly or completely satisfied** with the ākonga module content

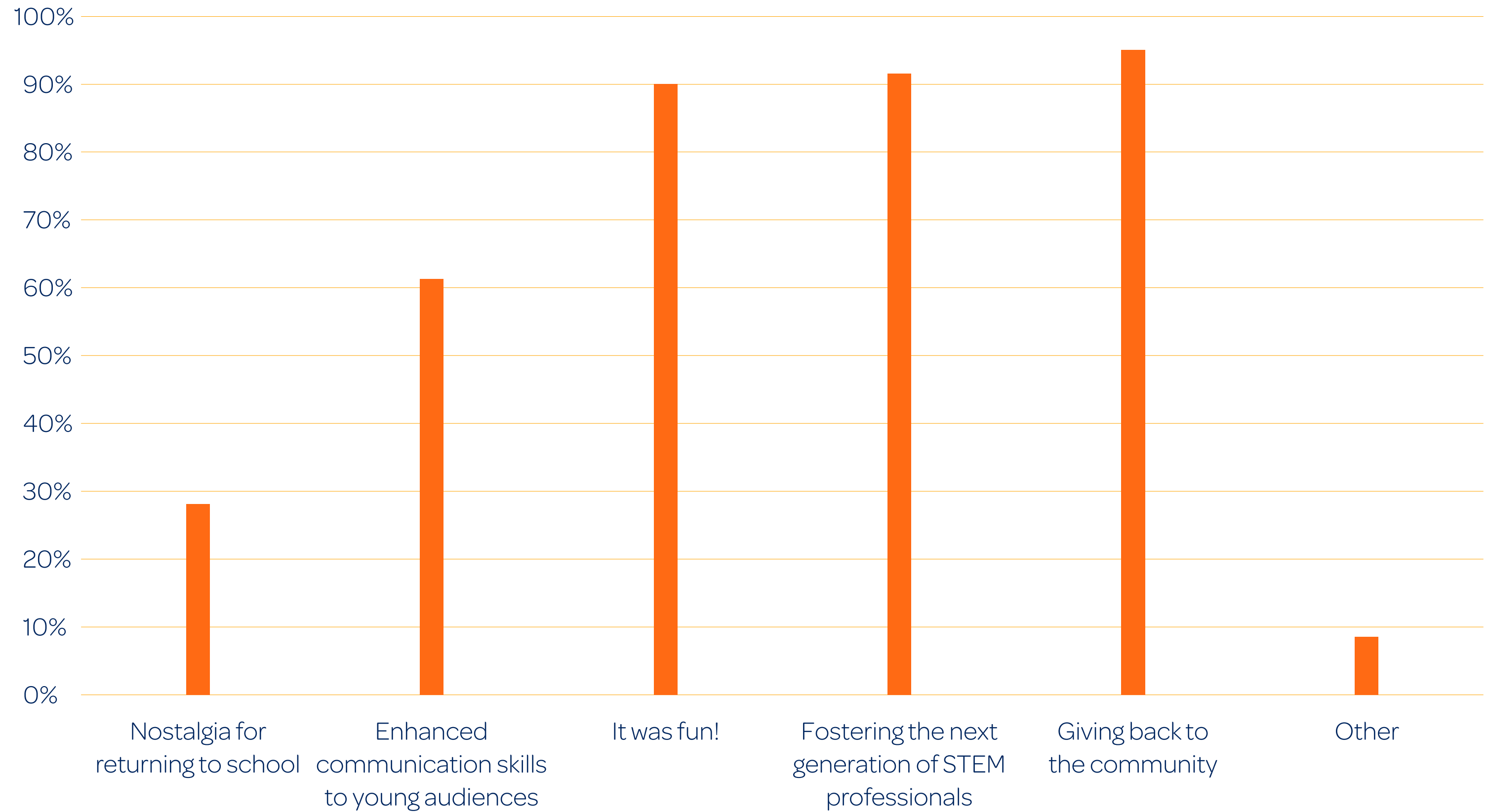
### Take part again

**95%**  
ambassadors

said they'd **like to be involved again**

## Benefits

Ambassadors rated giving back to their community, having fun and fostering the next generation of STEM professionals as the top things they gained from being part of the Wonder Project.





**Wonder**  
Project

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