

Fun, Active, Safe, Social

Bikes in Schools Evaluation 2019



MACKIE  **RESEARCH**
OPTIMISING HUMAN SYSTEMS

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WHAT IS BIKES IN SCHOOLS?

A class set of bikes



Helmets



Perimeter track



Skills track

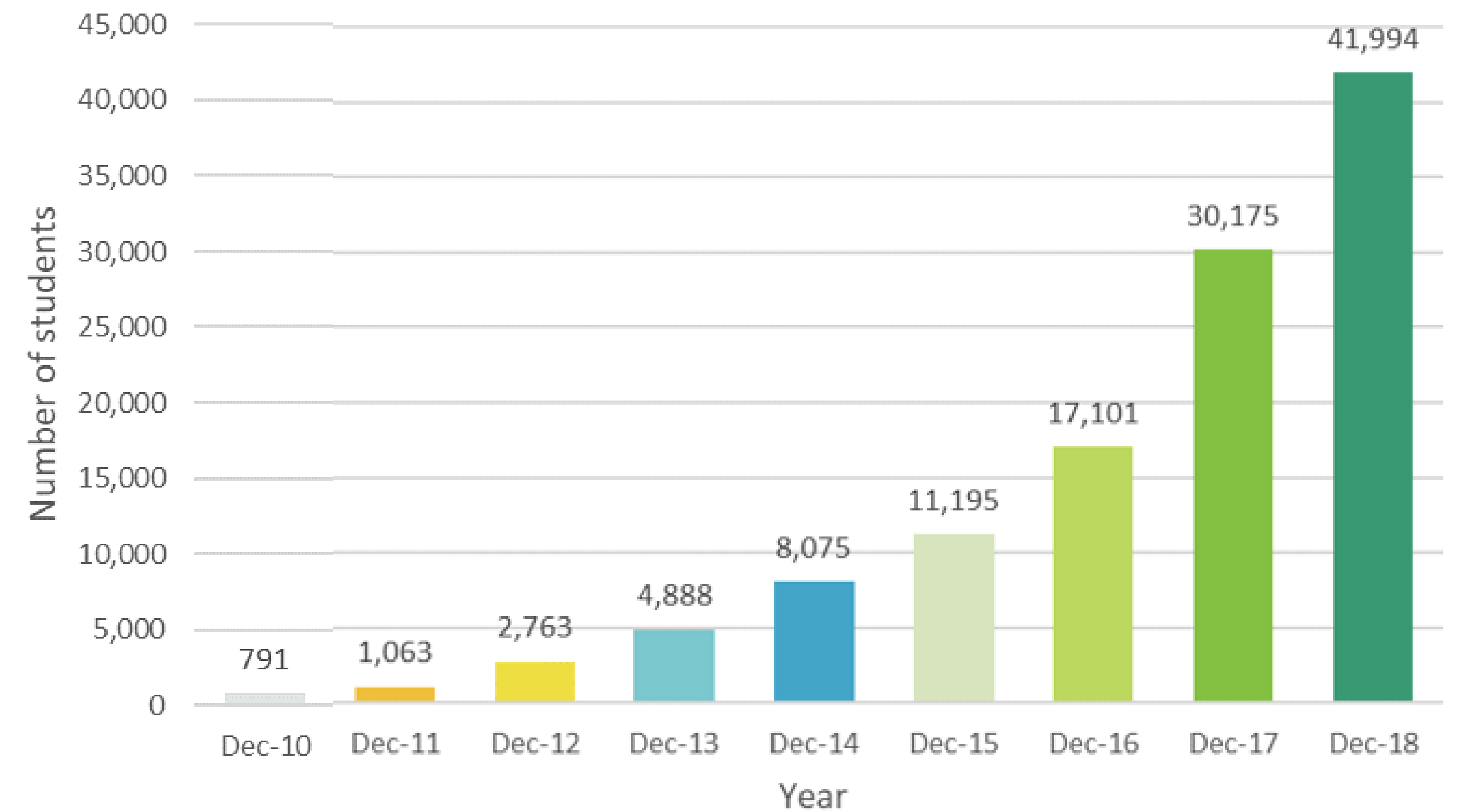


Pump track





The number of students with access to Bikes in Schools (BIS) has substantially increased in the last 9 years



THE EVALUATION...

PART I: THE PROCESS...

How is BIS being used?

How is BIS perceived?

What are the challenges?

What's critical for success and sustainability?

PART II: THE PRIMARY OUTCOMES

To what extent does BIS impact on...

Cycle safety knowledge & skills

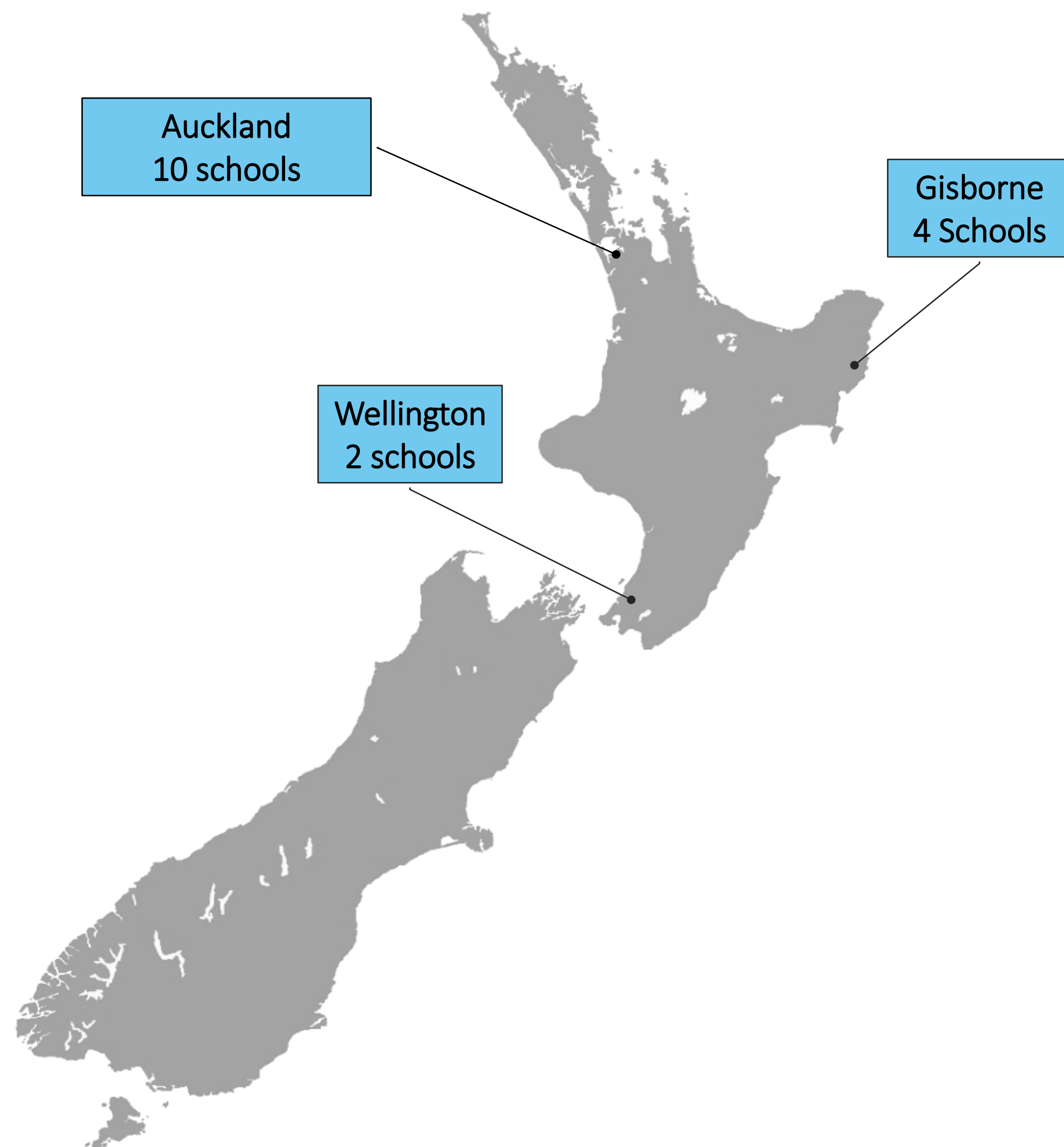
Cycling participation

Physical activity



THE...SO WHAT?

EVALUATION METHODOLOGY

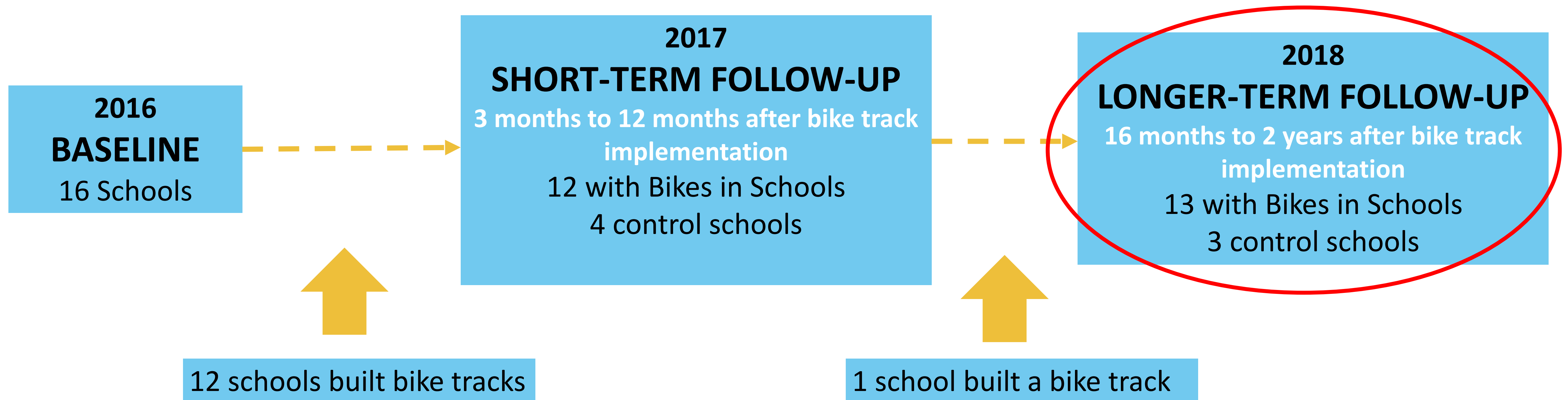


- ❑ 16 schools in the North Island
- ❑ A wait-list control design to compare schools with BIS to those without
- ❑ This evaluation was informed by:
 - Utilisation-focused evaluation*; and
 - Realist evaluation** – ‘what works for whom, in what context, and why?’

*Patton, M.Q. (2008). *Utilization-focused evaluation*, 4th edition. Thousand Oaks, CA: Sage

**Pawson, R. & Tilley, N. (1997). *Realistic Evaluation*. London: Sage.

EVALUATION METHODOLOGY



PRIMARY DATA COLLECTION METHODS



Self-report surveys

- Students (aged 7-13)
- Teachers



Principal/school rep
interviews

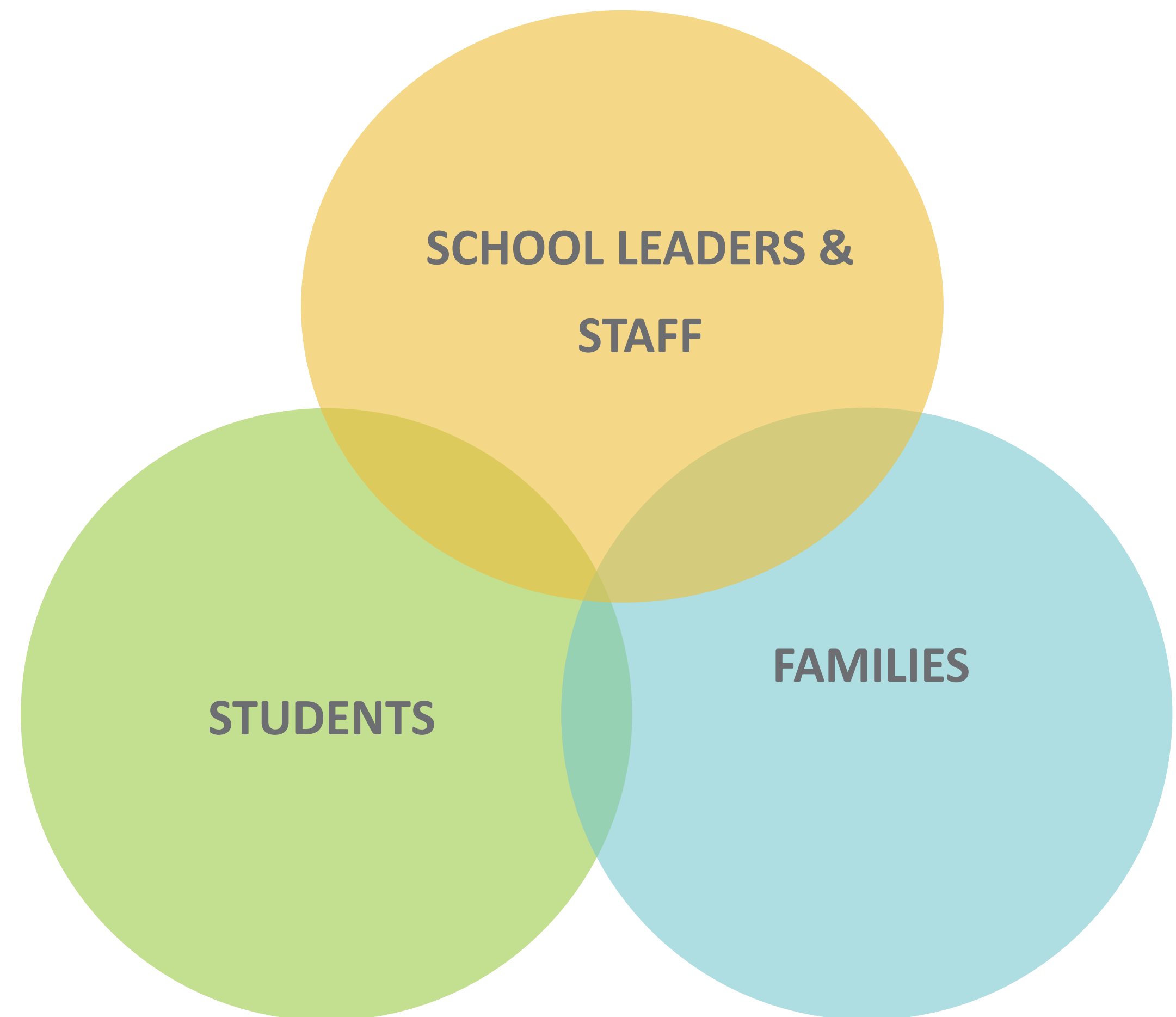


School bike rack counts



Focus groups (two schools)

- Students
- Parents



SAMPLE CHARACTERISTICS - SCHOOLS

School Characteristics		BIS	Control
		13 schools	3 schools
Decile	1-3	5	1
	4-6	4	Nil
	7-10	3	2
School size	<300	4	
	>300	10	3
Location	Urban/suburban	11	3
	Semi-rural	2	
School type	Contributing School (Y1-6)	10	3
	Intermediate School (Y7-8)	1	
	Full Primary School (Y1-8)	2	

- ❑ A mixture of schools across deciles.
- ❑ The majority of schools were large contributing schools (Years 1-6), in urban/suburban settings.

SAMPLE CHARACTERISTICS - STUDENTS

Sample Characteristics		BIS		Control	
		Baseline (12 schools, 2104 students)	Longer-term follow-up (12 schools, 1,542 students)	Baseline (3 schools, 975 students)	Longer-term follow-up (3 schools, 1005 students)
Gender	Male	51%	51%	50%	51%
	Female	49%	49%	50%	49%
Year level	Year 3	21%	14%	25%	22%
	Year 4	19%	17%	23%	24%
	Year 5	23%	24%	28%	24%
	Year 6	21%	25%	24%	24%
	Year 7	8%	7%	0%	0%
	Year 8	7%	7%	0%	0%
Mean age (Standard Deviation)		8.93 (1.6)	9.27 (1.99)	8.91(1.22)	8.99 (1.94)

- ❑ Proportions of boys and girls were similar.
- ❑ The sample of BIS students at the longer-term follow-up was slightly older than the baseline sample and the control schools sample.

SAMPLE CHARACTERISTICS - TEACHERS

Teachers	Baseline	Short-term Follow-up	Longer-term Follow-up
	<i>BIS</i>		
Responses	160 (13 schools)	96 (10 schools)	102 (12 schools)
Response rate (based on Teacher Head Count)	50%	30%	35%
	<i>Control Schools</i>		
Responses	58 (3 schools)	N/A	30 (3 schools)
Response rate (based on Teacher Head Count)	54%	N/A	28%

□ A similar average response rate was seen in the BIS sample and the control sample at the longer-term follow-up.

PART I: THE PROCESS

HOW IS BIKES IN SCHOOLS USED?

Schools use BIS in a way that works for them. Use of the bikes and tracks fell into three main ‘times’ – class time, lunchtime, and after hours. Some schools utilised the track in all three ways – whereas others had more focus on one or two.

12 of 13 schools used the bike tracks in...

CLASS TIME

Variation across schools:

- Timetabled slots weekly/biweekly
- Timetabled slots in a particular term
- Teacher discretion when to use the track (i.e. booking system)
- Use during ‘Fitness time’ at the start of the day
- Special school activities, such as Triathlons

10 of 13 schools used the bike tracks at..

LUNCHTIME

Variation across schools:

- Scheduled lunchtime use for certain year levels
- Lunch time use as reward
- Lunchtime use on special occasions

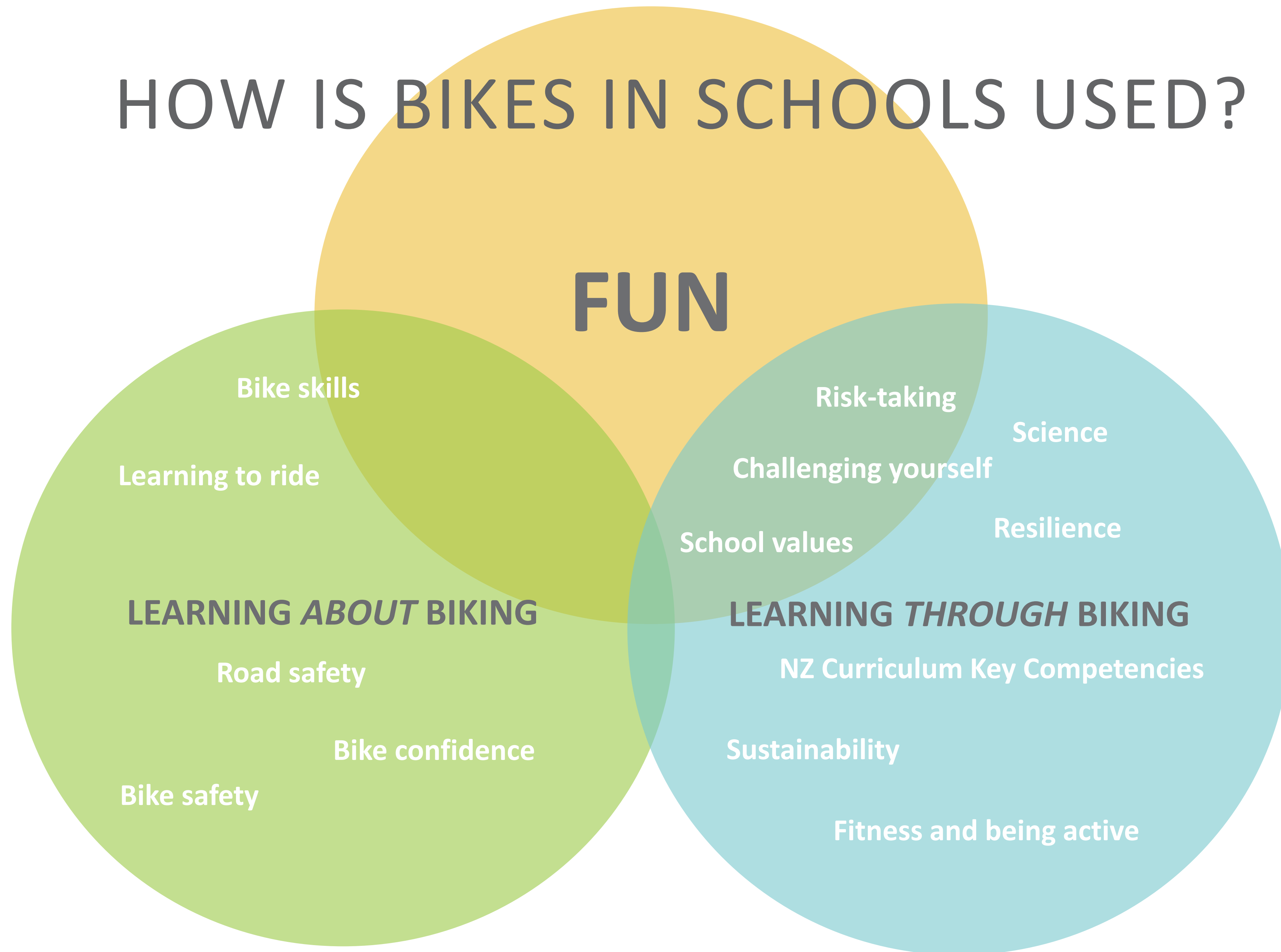
In 9 of 13 schools the bike tracks were used...

AFTER HOURS

Variation across schools:

- Some reported high levels of community use, whereas for some schools it was only occasional.
- Some schools locked their premises after hours, which prevented any after hours use.

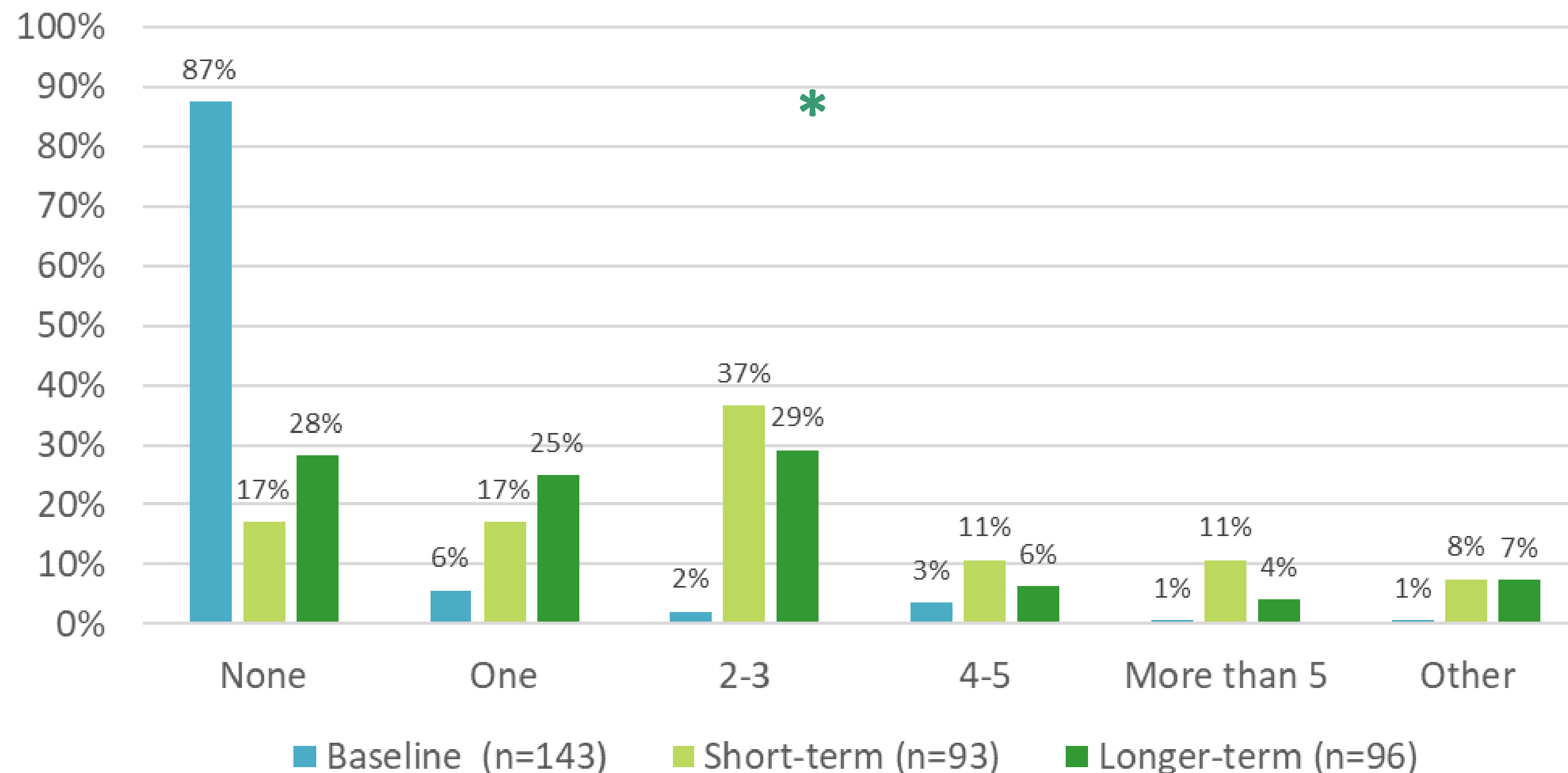
HOW IS BIKES IN SCHOOLS USED?



BIKE TRACK LESSONS

“In the last three weeks of teaching time, how many PRACTICAL LESSONS have you taught related to biking or bike safety?”

Schools with BIS



* $\chi^2 = 140.7, p < 0.001$, the increase in practical bike lessons is unlikely to have occurred by chance.

Data Source: Teachers online survey

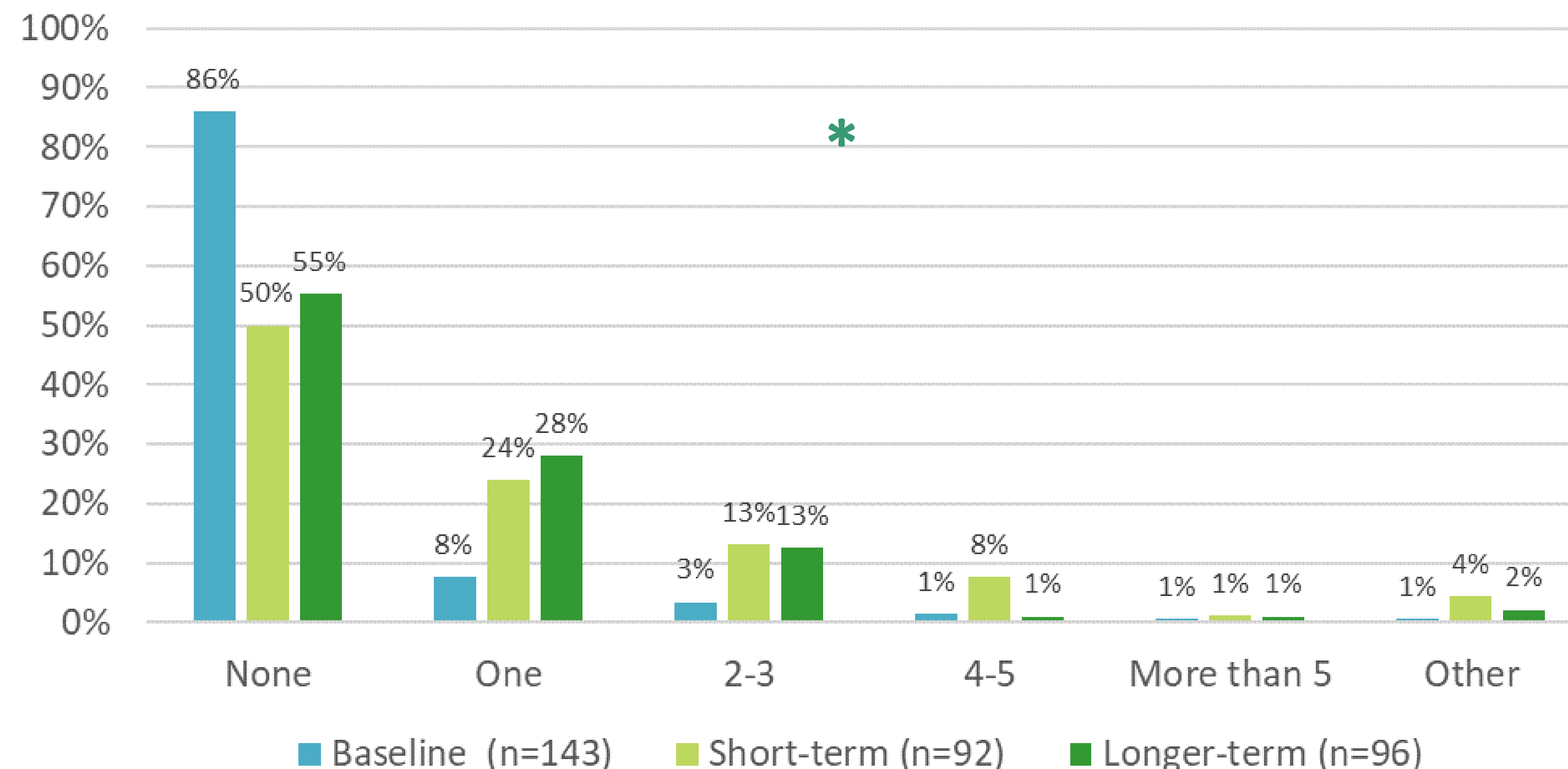
KEY POINTS

- ❖ At the short-term follow-up, 76% of teachers had taught one or more practical bike lessons in the last 3 weeks – compared to 13% at baseline.
- ❖ This dropped slightly to 64% at the longer-term follow-up.
- ❖ By comparison, only 14% of teachers in control schools had taught a practical bike lesson in the last 3 weeks at the long-term follow-up ($\chi^2 = 28.8, p < 0.001$), with no change from baseline.

CLASSROOM LEARNING

“In the last three weeks of teaching time, how many CLASSROOM LESSONS have you taught related to biking or bike safety?”

Schools with BIS



* $\chi^2 = 46.8, p < 0.001$, the increase in classroom learning related to biking is unlikely to have occurred by chance.

KEY POINTS

- ❖ At the short-term follow-up, 46% of teachers had taught one or more classroom lesson with bike content in the last 3 weeks – compared to 13% at baseline.
- ❖ This increase was maintained at the longer-term follow-up – 43%.
- ❖ By comparison, only 13% of teachers in control schools had taught a classroom lesson with bike content in the last 3 weeks ($\chi^2 = 9.0, p < 0.05$).
- ❖ Bike-related learning is substantially more frequent in schools with BIS.

In some schools with BIS, biking is being used as a context for a range of learning outcomes. Not just for P.E., but for other learning areas too...this is because it has become relevant and visible to students.

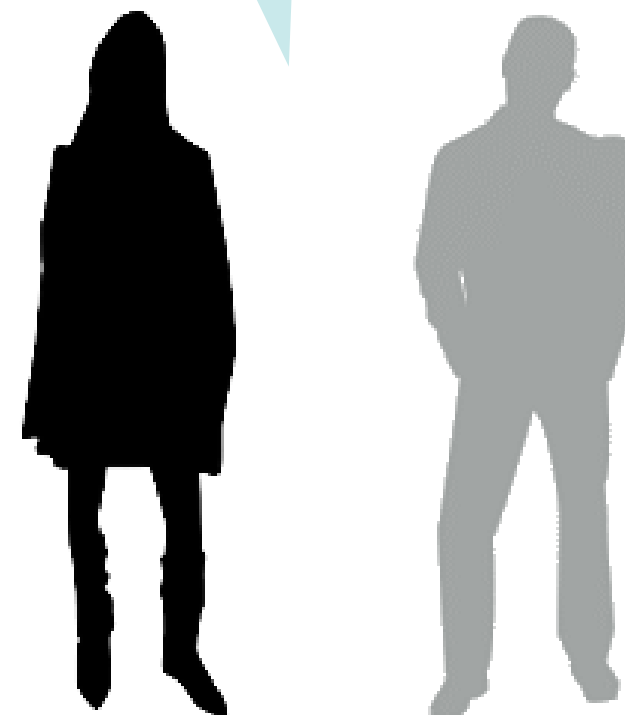
"Transportation Unit- How technology has evolved through time"

"I always include sessions around biking as part of the Junior reading programme..."

"Reading text related to bikes that ranged from explanations to stories involving bikes. Writing allowed students to write explanations around how to be safe."

"Road safety/Science - braking and friction"

"Health - Keeping Ourselves Safe - looking at biking around the neighbourhood and using the bike track after school when the public might also be around."



AFTER HOURS USE

- ❑ Nine (of 13) schools with BIS had students, families, or community members use the bike tracks after hours.
- ❑ This ‘after-hours’ use was occasional in some schools, to almost daily in others.
- ❑ Many schools spoke very positively about the community use, and this was an area some wanted to develop further.
- ❑ Some schools locked their premises after hours, which prevented any after hours use.
- ❑ Asphalt tracks, and those with challenging elements (i.e. jumps), may attract more community use. Lack of a similar facility nearby also appeared to foster more community use.

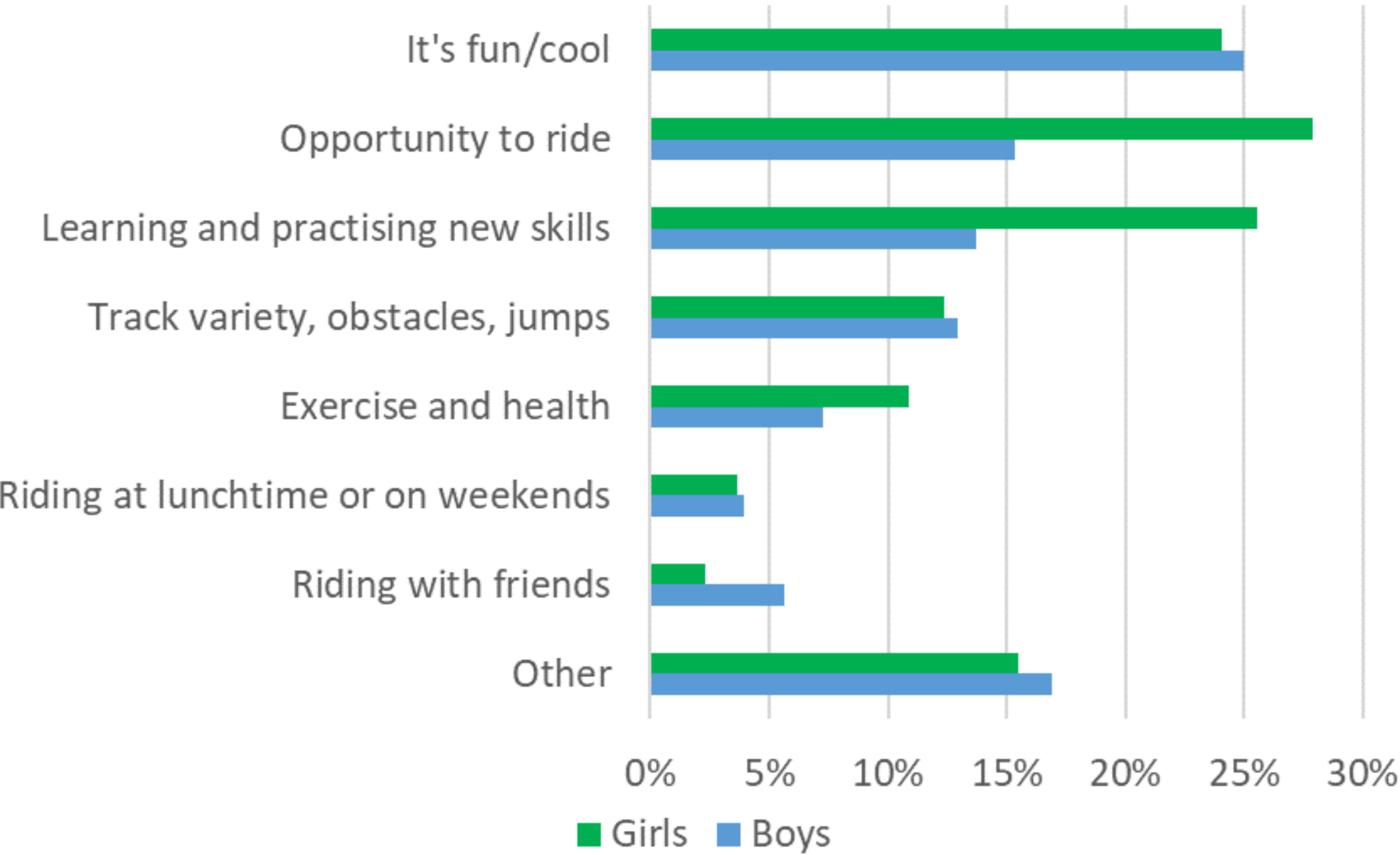
“Awesome to see so many people using the track when I drive past or am at school in the weekends, I've seen it used often as a walking track by older community members, safe environment for children, lack of any similar facility in the area”. (Teacher)

“I love taking my family down on the weekends! ” (Teacher)

“It's a pity our tracks weren't accessible to the roads. Because of location being a fair way into school grounds, our community would not be able to use outside of school hours” (Teacher)

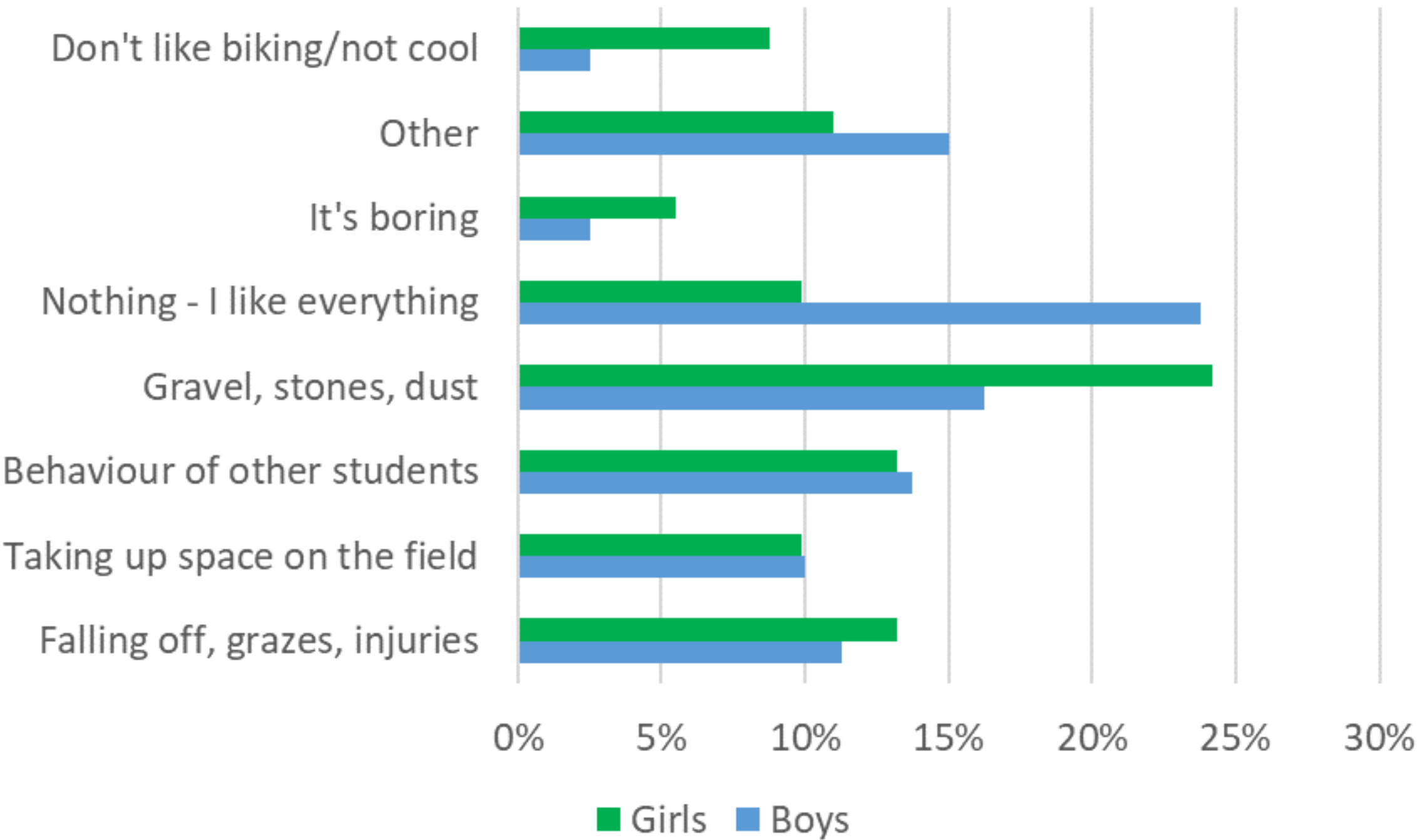
WHAT DO STUDENTS THINK?

What **do you like** about having a bike track at your school?



253 student responses, 4 schools, 2018

What **don't you like** about having a bike track at your school?



253 student responses, 4 schools, 2018

What **do you like** about having a bike track at your school?

"I like biking in schools because everyone gets a bike and there are different sizes and shapes of bikes even the teachers ride sometimes."

"We can use the bike at lunch on weekend and learning time."



"Its good if you need something to do during lunch and morning tea"

"That we get to ride at school if we don't have a big garden"

"Also we've learnt how to um, we know if it's safe to go on a bike or not, like if it's ready to ride or not"

"Just like safety on bikes as well, knowing if someone's around you, you should like stick to the left or whatever so they can pass if they want"

What **don't you like** about having a bike track at your school?

"We always do the same type of learning and it gets annoying."

"It takes up some room that me and my friends liked walking on and the boys are going really fast and making it dangerous for others"



"That it is dangerous when crossing and you might get lice when putting on the helmets that are provided"

"It gets in the way of the field"

"It's gravel. It shreds you up if you fall off."

"Sometimes doing the bikes gets a bit repetitive,... just kind of ride around doing the same thing"

WHAT DO PARENTS/WHĀNAU
THINK?

A background image showing several red bicycles parked outdoors on a paved surface. The bicycles are mostly red with black tires and handlebars. Some have white accents. They are parked in a row, with some overlapping. The background is slightly out of focus, showing some green foliage on the left.

Parents value...

- Inclusive opportunity to develop bike skills.
- Children having fun and enjoying school!
- Children more active - reinforces physical activity messages.
- Children learn safety skills, spatial awareness, and risk assessment.
- Community spirit, children helping each other, shared learning.

Parents' concerns or challenges ...

- The cost initially and ongoing.
- Bike track can be intimidating for less confident kids.
- Limited opportunity to apply bike skills outside of school groups – traffic safety concerns.

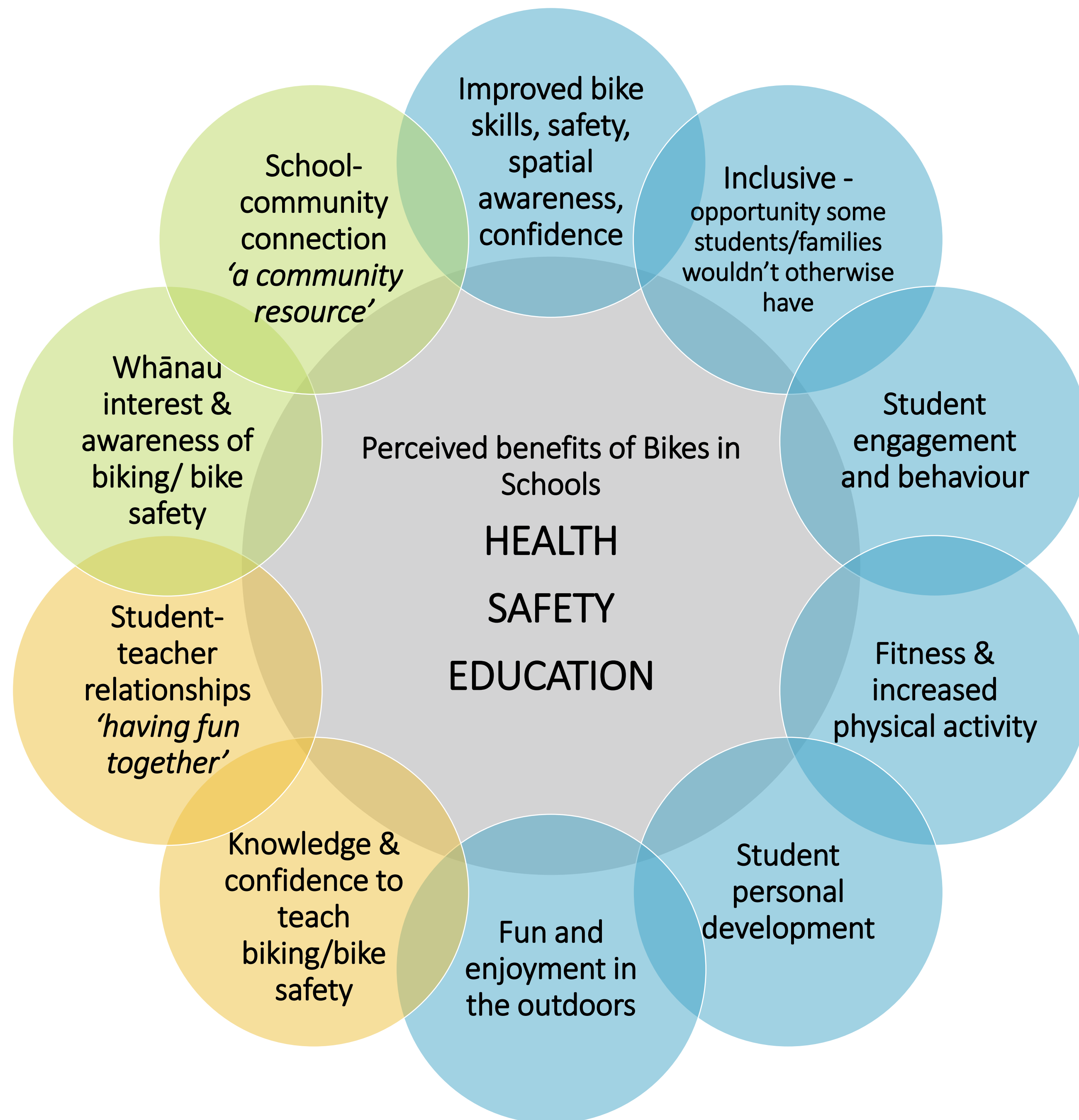
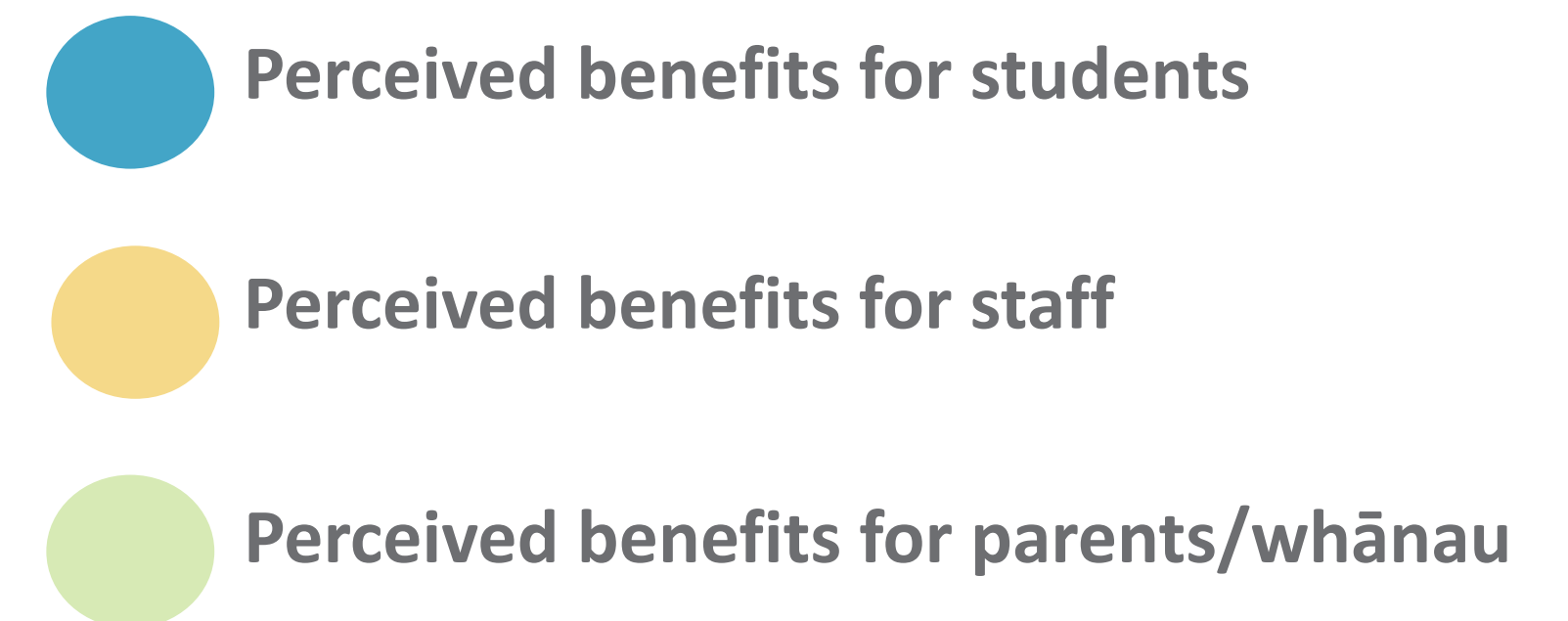
Parents' suggestions ...

- Track variety is important to maintain the 'challenge' - initial enthusiasm can wane slightly, especially for older kids.
- Safety education focussing on biking outside of school grounds.

WHAT DO SCHOOLS THINK?

WHAT DO SCHOOLS THINK?

93% of teachers who responded rated BIS as a 'valuable' or 'highly valuable' resource.



Data Source: Teachers online survey & interviews with school representatives

For some students, BIS has had a big impact...especially those with limited previous exposure to biking and some with special needs.

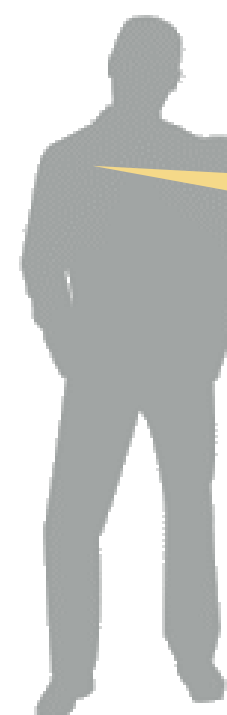
"Some students with special needs have really felt a huge sense of success of being able to learn to ride when they and their parents might never have considered this"

"I have a child in my class who did not know what a bike was, and now knows what a bike is. Can wear a helmet and was able to have a go at biking. She was very nervous but is now keen to get on the bike and use it. This is also helping her oral language too, boosting her confidence in other areas of the curriculum."

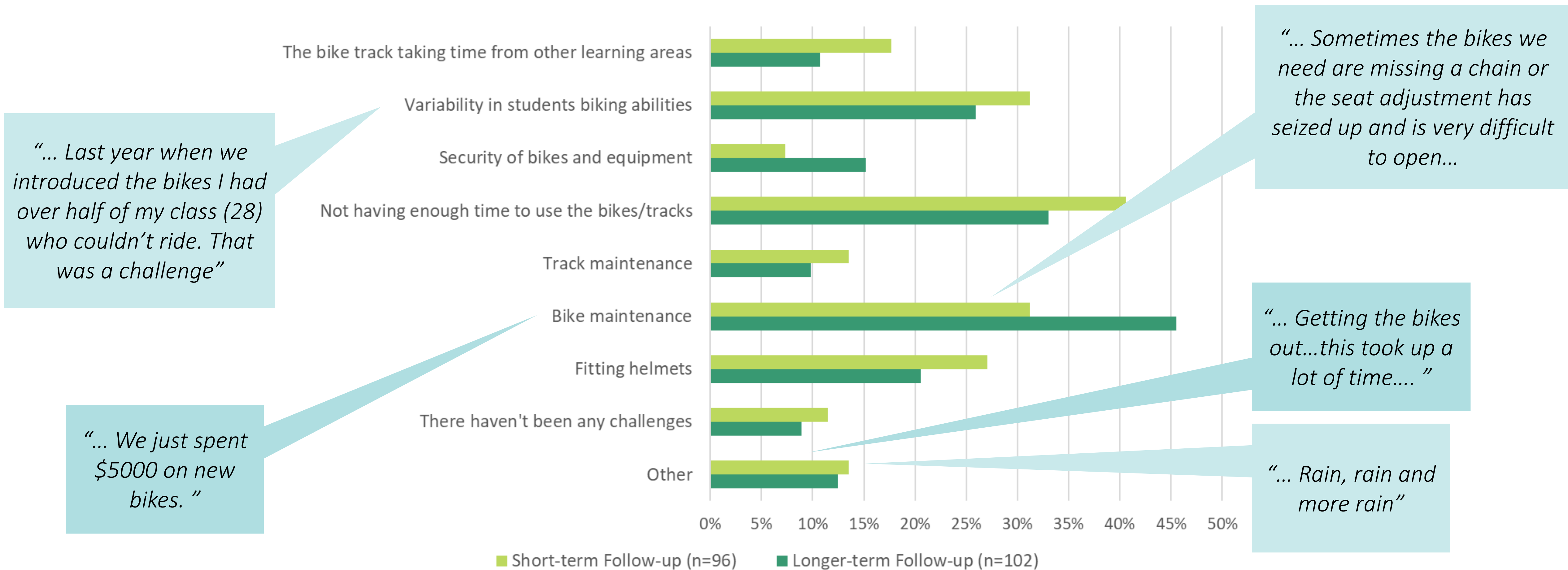
"Those who don't have access to bikes, confidence, parents getting inspired by their kids talking about it. Problem around families not being able to afford a bike and helmet"

"Angry students have calmed down by riding and enjoyed fixing bikes"

"Children with high needs or don't have as many friends are using the bike track as a way to keep themselves busy at lunch..."



THE CHALLENGES OF BIKES IN SCHOOLS



PARTICULAR LONG-TERM CHALLENGES

- ❑ Bike and track maintenance is an ongoing cost – which is taking more effort and money than some schools expected. For one school, this ongoing cost evoked concern about the longevity and long-term value of BIS.
- ❑ Logistics of a ‘bike lesson’ can make it hard for staff and create a barrier to use (i.e. getting bikes off racks, flat tyres, fitting helmets, managing a class with a range of biking abilities) – these factors can reduce enthusiasm from staff.
- ❑ Timetabling and fitting bike lessons into an already busy school schedule.
- ❑ Keeping the bike tracks ‘challenging’ for students.
- ❑ The bikes need to be robust otherwise they break easily and can’t be used - it takes time to develop sustainable processes for bike maintenance.
- ❑ Some schools are forced to close their tracks in winter due to maintenance issues and mud.

Data source: Teachers online survey & insights from school representatives.

WHAT FURTHER RESOURCES DO SCHOOLS NEED?

- ☐ More user-friendly storage to make it 'easy'.
- ☐ Support with bike track lessons with Year 1-2 children.
- ☐ Support with bike and/or track maintenance (funding and expertise)
- ☐ More classroom based learning resources to complement practical learning.
- ☐ Professional trainers coming in to teach children and/or staff.
- ☐ More or a bigger range of bikes to suit different sizes and abilities.



Built-in jumps on an asphalt track (Whangaparaoa School)

CRITICAL FACTORS FOR SUCCESS & SUSTAINABILITY

PEOPLE

- ☐ Principal & BOT support.
- ☐ Lead staff member for day-day responsibility that is enthusiastic about BIS.
- ☐ Professional development for staff (annual or bi-annual)
- ☐ Professional support for bike maintenance 1-2 times a year.
- ☐ Connections to other schools with BIS for ideas and collaboration.



THINGS

- ☐ One helmet per child.
- ☐ Secure and user-friendly bike shed.
- ☐ High-quality track(s) from the outset.
- ☐ Challenging elements in the track design.
- ☐ Annual budget for bike and track maintenance
- ☐ Sturdy/robust bikes.
- ☐ Wide range of bike sizes.



PROCESSES

- ☐ Staff member/students who can get the bikes out each morning/afternoon & do basic maintenance.
- ☐ Lesson plans, guidance, and support from specialist teachers.
- ☐ Timetabled sessions for track use.
- ☐ Process for identifying and maintaining broken bikes & issues with the track(s).
- ☐ Opportunities for 'free play' on the bikes.
- ☐ Opportunities for families/wider community to use the tracks.



Success and ongoing sustainability of Bikes in Schools

SUMMARY PROCESS EVALUATION

Use
Perceptions
Challenges
Sustainability

1. BIS is increasing exposure to practical and theoretical learning related to biking and bike safety.

2. Biking is being used as a context to teach a range of other learning outcomes.

3. There is variation across schools in how the bikes/tracks are used, and how often.

4. Staff, students, and parents/whānau perceive Bikes in Schools to have a range of positive benefits.

5. The logistics of a 'bike lesson' (i.e. helmets, flat tyres, students' with different abilities) can create a barrier to bike track use.

6. After two years, some schools use BIS as an occasional activity, while others have it embedded into school processes and culture.

7. Community use of the bike tracks is occurring at most schools – although this varies from occasional to almost daily.

8. Bike and track maintenance can disrupt regular use, and is an ongoing challenge and cost for schools.

PART II: THE PRIMARY OUTCOMES

TO WHAT EXTENT HAS BIKES IN SCHOOLS
IMPACTED...

CYCLING KNOWLEDGE & SKILLS?

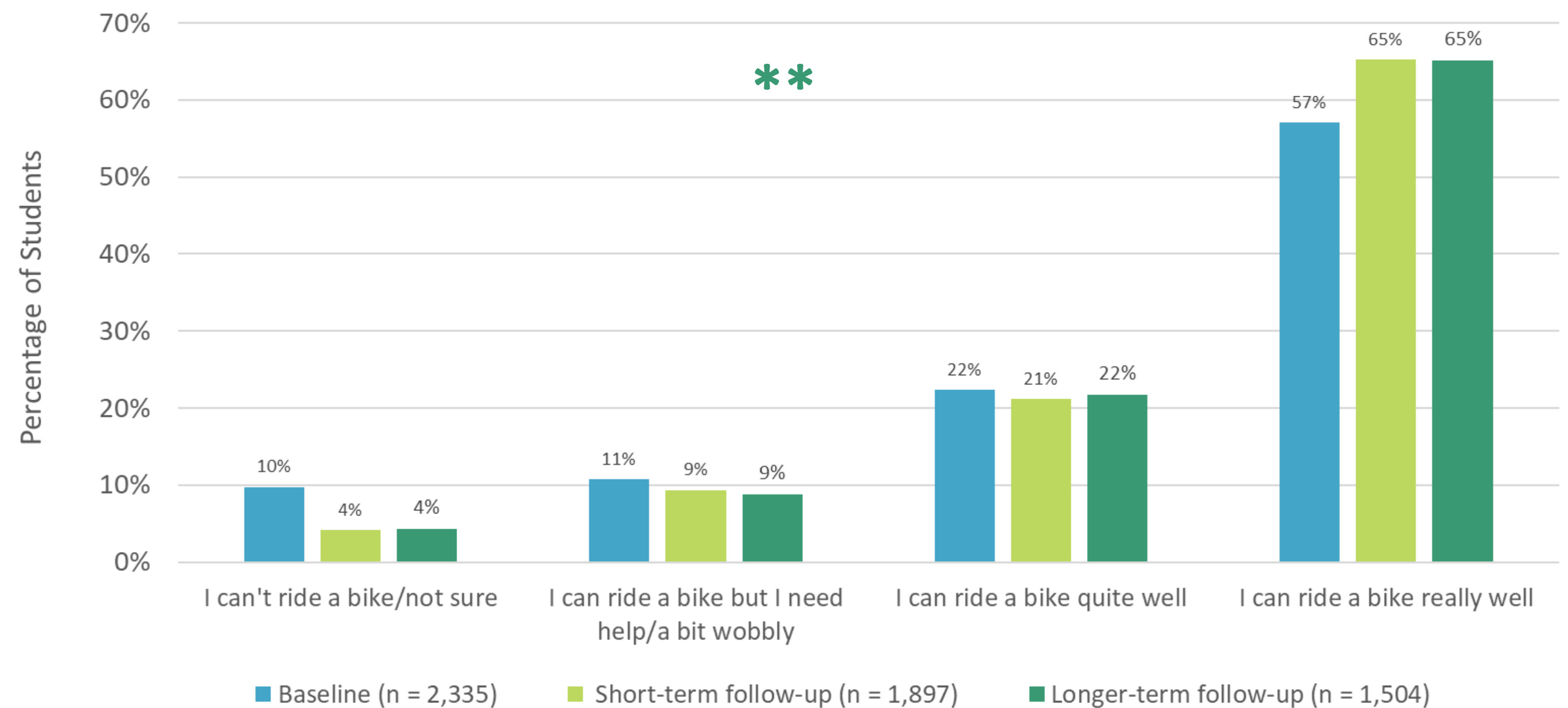
KEY POINTS

- ❖ 87% of students in BIS schools report they can ride a bike quite well or really well – a 9% increase from baseline.
- ❖ Changes in self-reported skill level were similar at the short and longer-term follow-ups.
- ❖ Increases in student confidence and skills were commonly reported by school staff, and parents in the focus groups.

STUDENTS' BIKE SKILLS

Which statement best matches you?

Students in schools with BIS



****** $\chi^2 = 70.2, p < 0.0001$, the increase in students' self-reported skill level are unlikely to have occurred by chance.

Data Source: Student survey Years 3-8

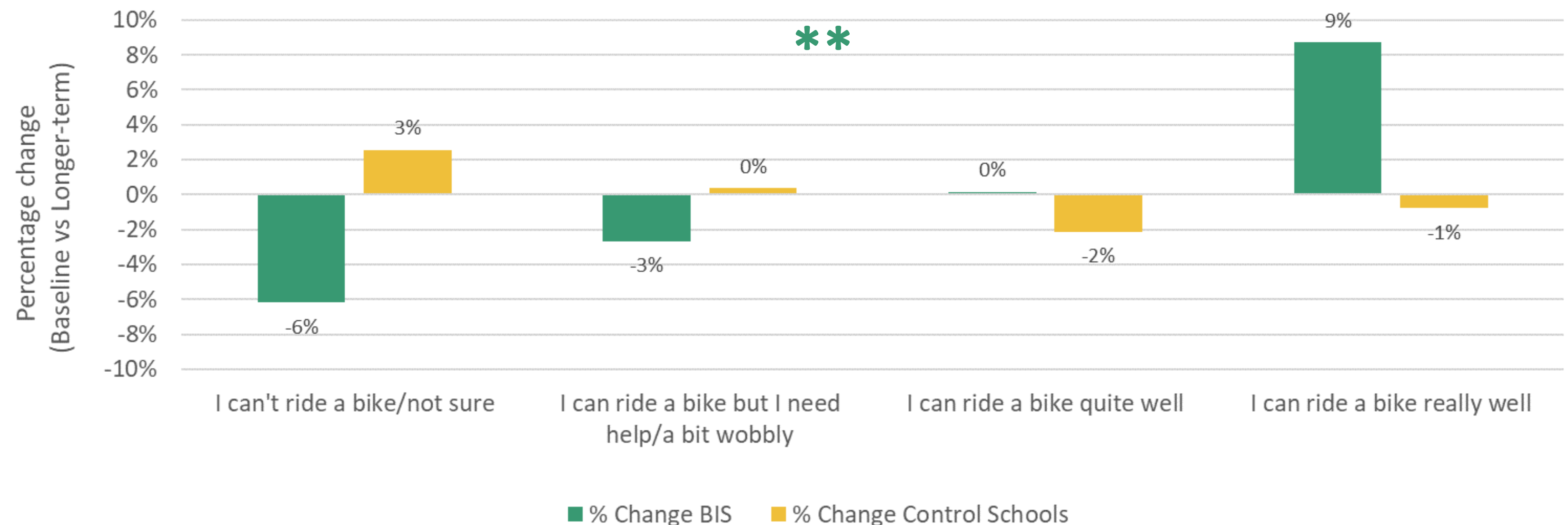
KEY POINTS

- ❖ No improvement in self-reported bike skills was seen in control schools overtime.
- ❖ At the longer-term follow-up, a higher proportion of students in schools with BIS were confident on a bike (87%), compared to control schools (74%) ($\chi^2 = 103.4, p < 0.0001$).

STUDENTS' BIKE SKILLS

Which statement best matches you?

BIS vs Control



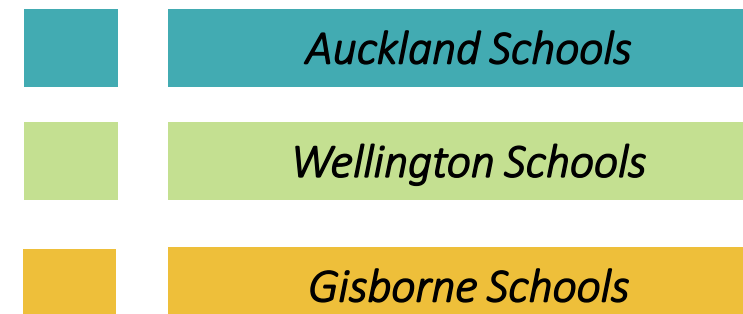
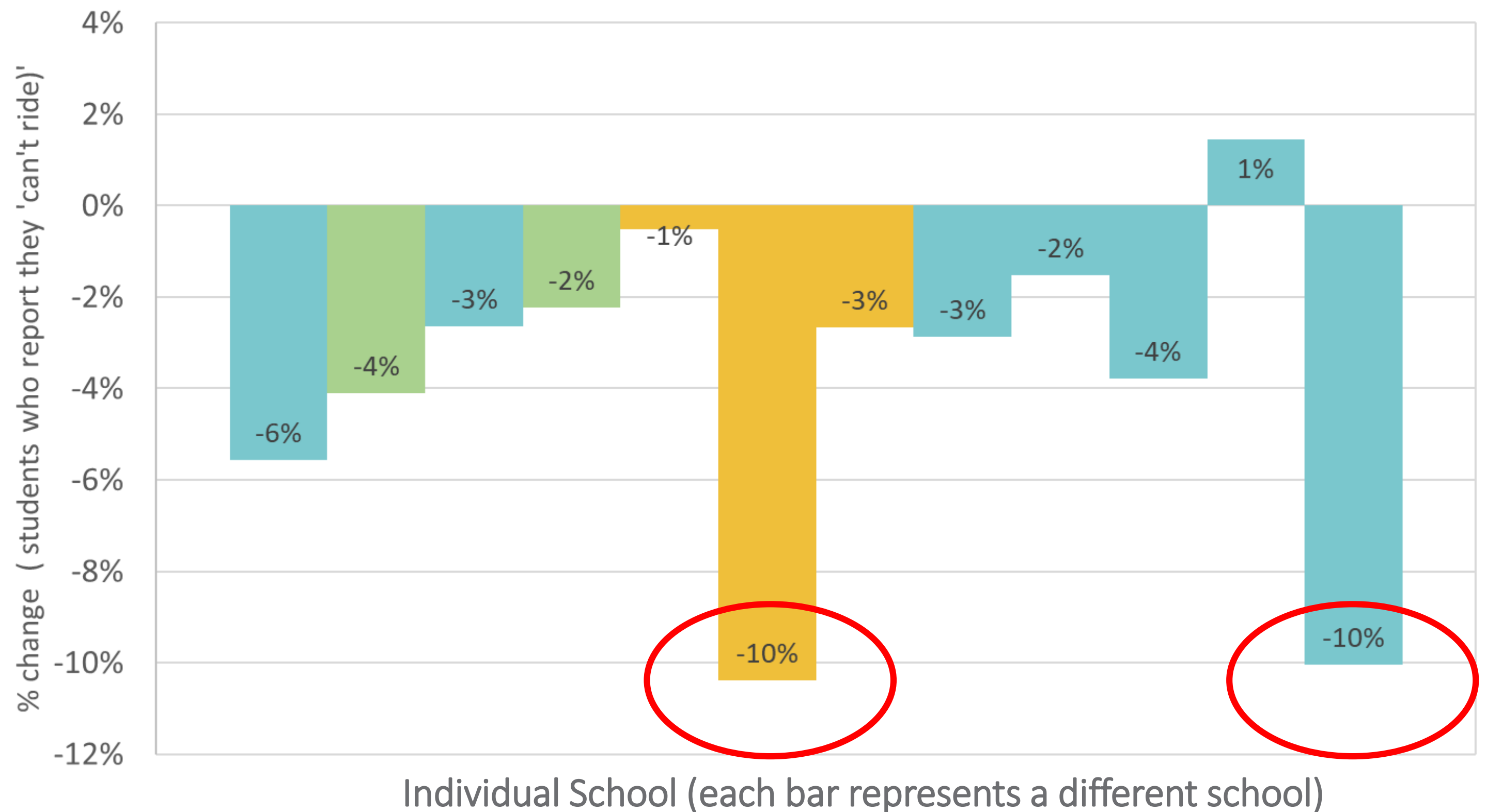
****** $\chi^2 = 103.4, p < 0.0001$, differences in bike confidence at BIS schools compared to control schools is unlikely to have occurred by chance

KEY POINT

- ❖ The biggest reduction in students who 'couldn't ride' was in two low-decile primary schools (one in Auckland and one in Gisborne).

STUDENTS' BIKE SKILLS

Proportion of students who report they 'can't ride a bike'
Baseline vs longer-term follow-up - Schools with BIS



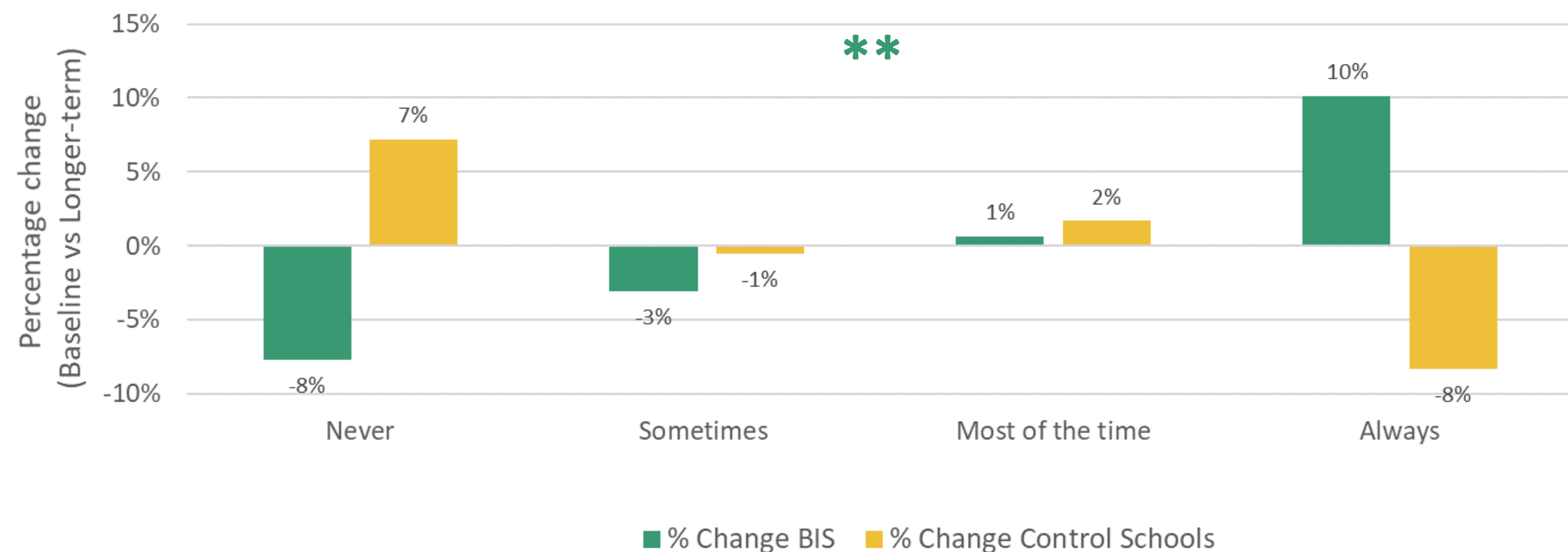
Data Source: Student survey Years 3-8

KEY POINT

- ❖ The proportion of students who ‘always’ wear a helmet increased in BIS schools (45% to 58%), and decreased in control schools (55% to 47%).
- ❖ The biggest increases in reported helmet wearing were seen in four low-decile schools (3 primary and 1 full primary) – increases of 16-25% of students who wore a helmet ‘most of the time’ or ‘always’.
- ❖ Some parents and teachers felt BIS had normalised helmet-wearing whereas in other schools, representatives felt it hadn’t improved helmet-wearing outside of school.
- ❖ Helmet-fitting was a commonly-reported challenge for teachers because of the time it took.

HELMETS

Self-reported frequency of ‘helmet-wearing’¹ *BIS vs Control*



¹ This question did not differentiate between helmet-wearing at school vs outside of school

****** $\chi^2 = 58.8, p < 0.0001$, more frequent helmet-wearing in students with BIS, compared to control students, is unlikely to have occurred by chance.

Data Source: Student survey Years 3-8

“I remember before my son started school he was like ‘no I don’t wanna wear it [helmet]’,...but [now] it just is automatic, he just puts it on, so it’s obviously drummed into them” (Parent)

“[She says] ‘Mummy doesn’t do it right’ and she has to take over and she knows about, you know, how much gap there needs to be” (Parent)

TEACHERS' BIKE SKILLS

There were positive shifts in the bike safety skills of teachers at BIS schools, and in their confidence to teach basic bike skills, whereas limited changes were seen in control school teachers.

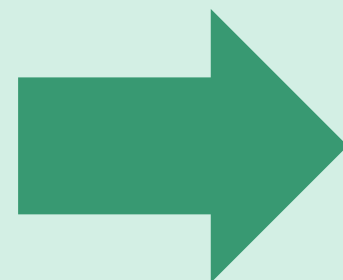
“I am confident I can fit a helmet properly”

Staff with BIS

% who ‘agree’ or ‘strongly agree’

Baseline

79%



Longer-term

97%

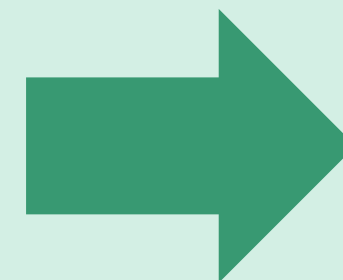
“I am confident I can do a bike safety check”

Staff with BIS

% who ‘agree’ or ‘strongly agree’

Baseline

34%



Longer-term

76%

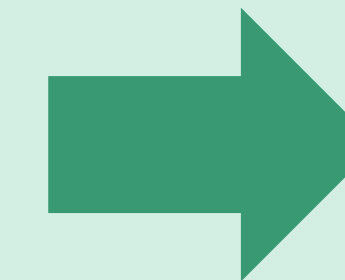
“I am confident I can teach students basic bike skills”

Staff with BIS

% who ‘agree’ or ‘strongly agree’

Baseline

61%



Longer-term

90%

Control school staff

Baseline

91%



Longer-term

93%

Control school staff

Baseline

49%



Longer-term

54%

Control school staff

Baseline

69%



Longer-term

68%

TO WHAT EXTENT HAS
BIKES IN SCHOOLS IMPACTED
CYCLING KNOWLEDGE &
SKILLS?

After 1.3 to 2 years

Results suggest a...



Moderate positive impact

1. BIS improves students' bike confidence

"I can ride quite well or really well"

61%
Baseline



87%
Longer-term

2. More teachers in BIS schools are confident with:

- helmet checks (+18%);
- bike checks (+42%);
- teaching basic bike skills (+29%).

3. More students are wearing a helmet more frequently in schools with BIS

45% to 58%

of students' 'always' wearing a helmet.



4. Positive shifts in the bike skills and confidence of students and teachers were seen in BIS schools – *whilst limited change or decreases were seen in control schools.*

5. Qualitative data suggests BIS may be encouraging bike safety behaviours and skills outside of school in some contexts – whereas in other contexts it appears to be having no effect.

6. There is **variation across schools** in how much BIS has impacted cycling knowledge and skills – the largest effect was seen in lower decile primary schools.

7. This variation is likely to be underpinned by how much the bikes and tracks are used, as well as cycling experience/exposure at baseline.

TO WHAT EXTENT HAS BIKES IN SCHOOLS
IMPACTED...

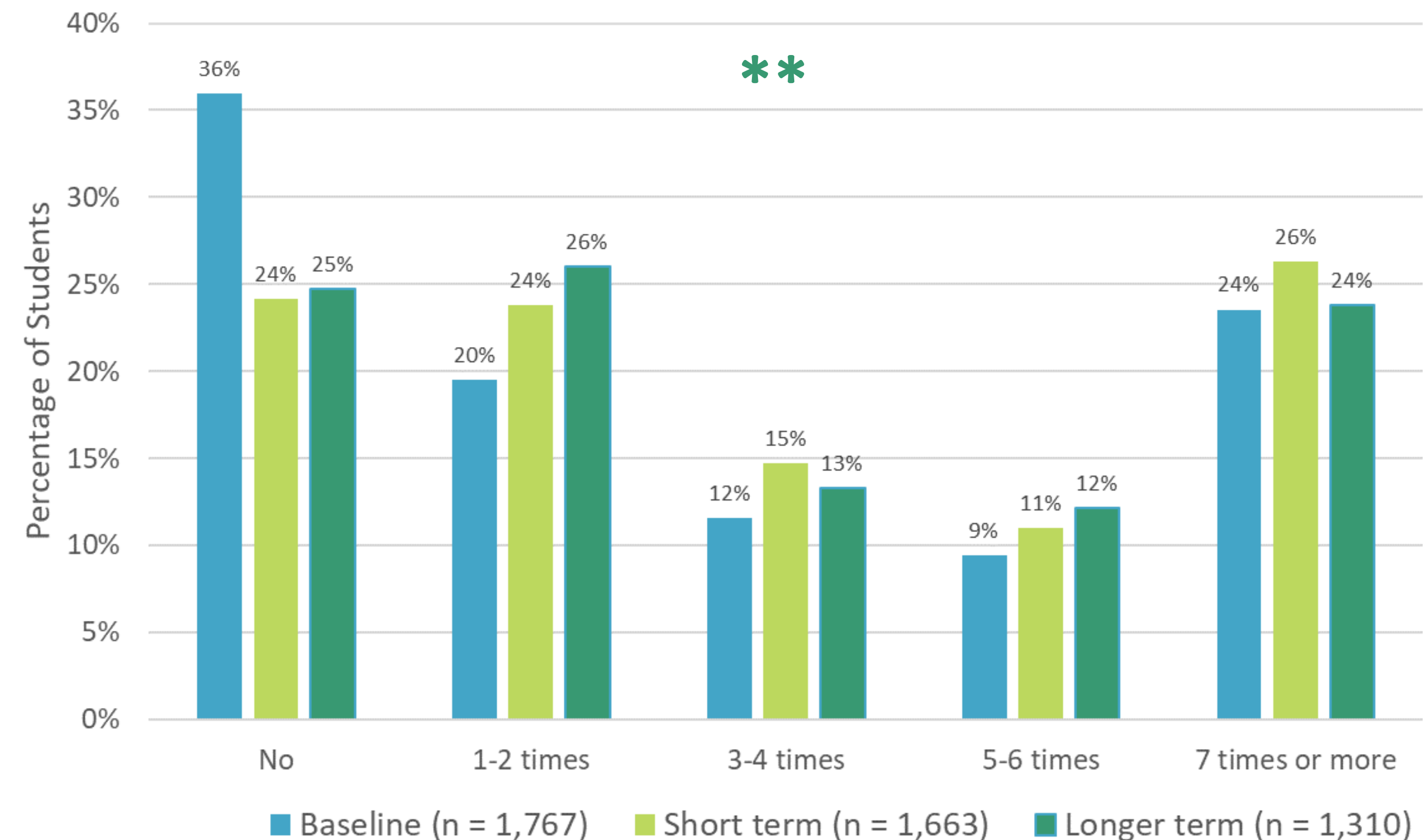
CYCLING PARTICIPATION?

KEY POINTS

- ❖ Increases in cycling participation seen at the short-term follow-up were maintained in the longer-term.
- ❖ 75% of students in schools with BIS had ridden a bike at least once in the last 7 days at the longer-term follow-up.

STUDENTS' CYCLING PARTICIPATION

How many times have you ridden a bike in the last 7 days?
Students in schools with BIS



****** $\chi^2 = 81.2$ $p < 0.0001$, increases in biking overtime are unlikely to have occurred by chance.

Data Source: Student survey Years 3-8

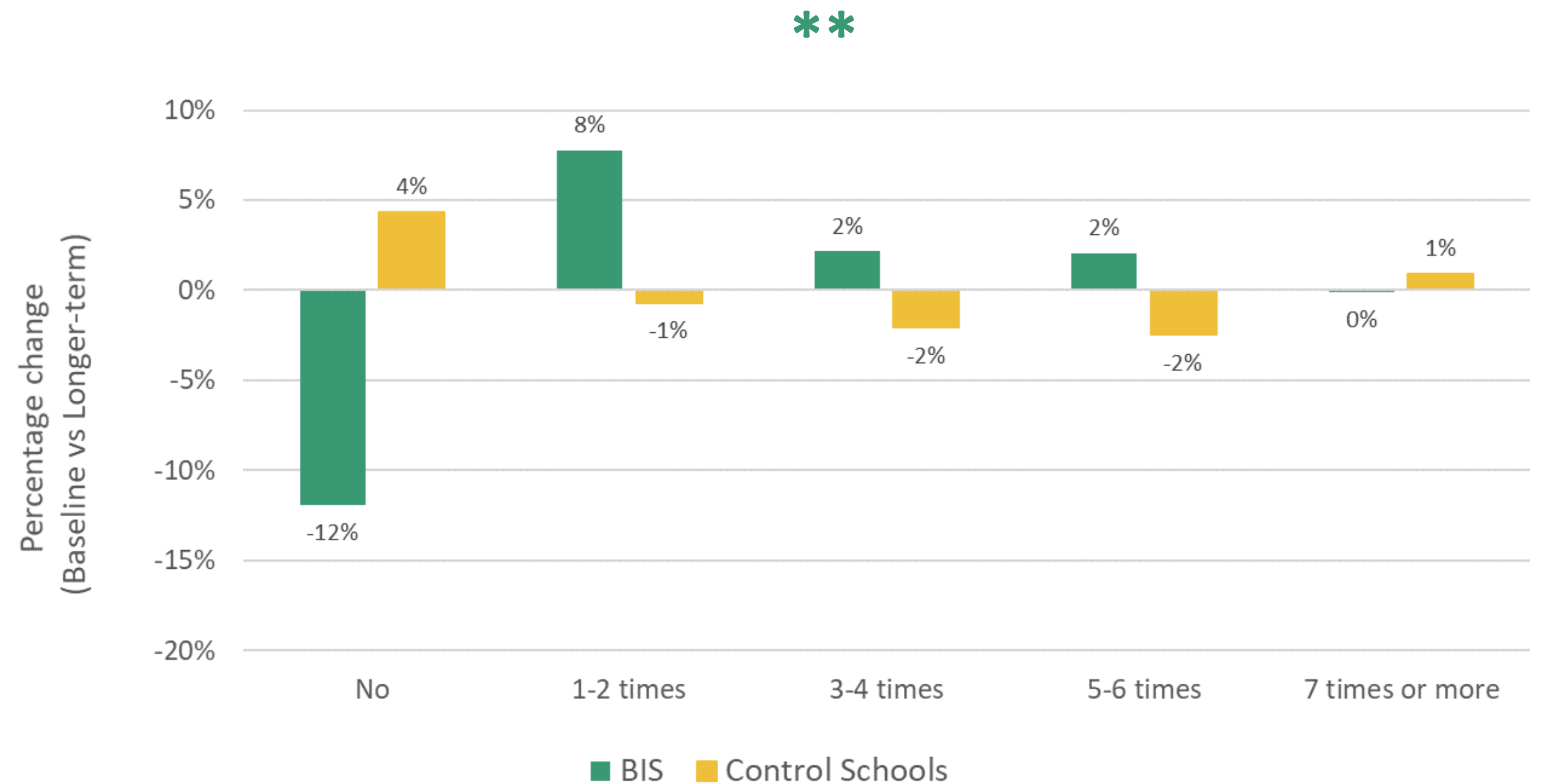
KEY POINTS

- ❖ Compared to baseline, there was a 12% increase in the proportion of students who had ridden a bike in the last 7 days in intervention schools at the longer-term follow-up (63% to 75%) – compared to a 4% decrease (67% to 63%) in control schools.
- ❖ However, there was a large range in change across intervention schools from - 8% to + 36%. 7 schools had increases of more than 10% (and up to 36%) whereas others saw no change or slight decreases.
- ❖ 13% of students in control schools didn't ride a bike in the last year, compared to 5% in intervention schools.

STUDENTS' CYCLING PARTICIPATION

How many times have you ridden a bike in the last 7 days?

BIS vs Control Schools

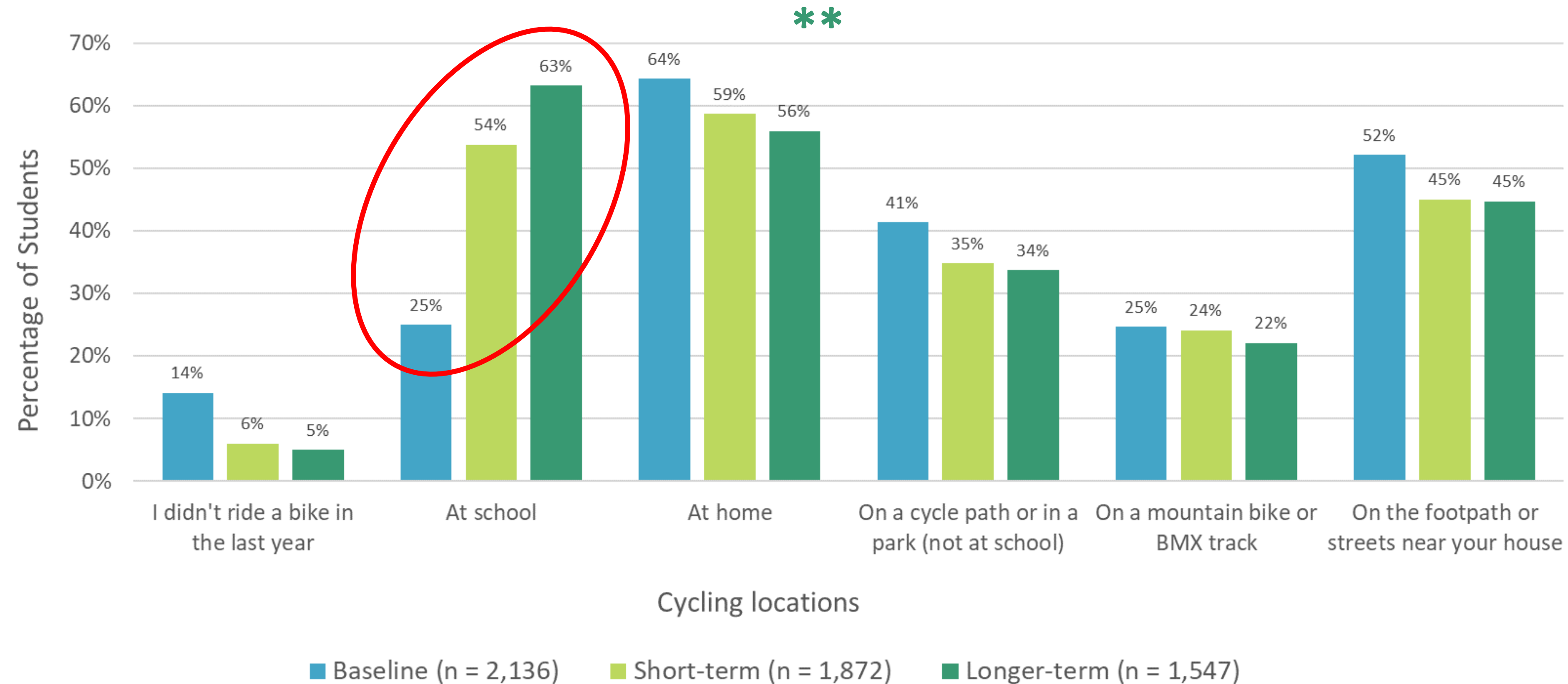


*** $\chi^2 = 51.8$ $p < 0.0001$, more biking in students with BIS, compared to control students, are unlikely to have occurred by chance.

Data Source: Student survey Years 3-8

STUDENTS' CYCLING PARTICIPATION

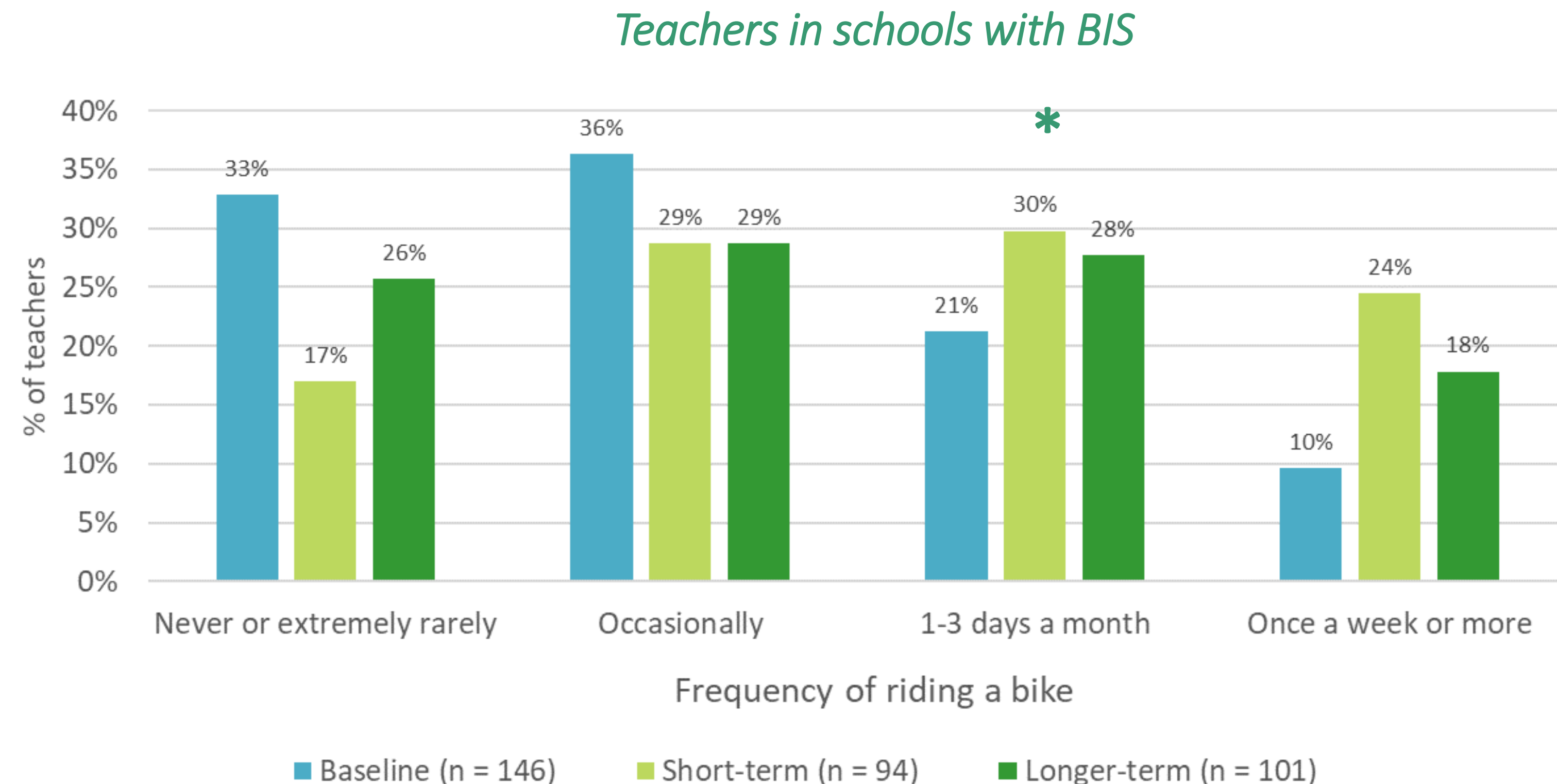
Students in schools with BIS – Cycling Location



Students in schools with BIS are cycling *more* in school grounds, and slightly less outside of school. In students from control schools, no changes were seen in where students bike.

* $\chi^2 = 384.8, p < 0.0001$, changes in where students are biking are unlikely to have occurred by chance.

TEACHERS' CYCLING PARTICIPATION



Teachers who rode a bike mostly did so on the school bike track with students or on off-road/shared paths.

* $\chi^2 = 18.5$, $p < 0.05$, increases in staff cycling overtime are unlikely to have occurred by chance.

At the longer-term follow-up, teachers in schools with BIS are riding more compared to baseline (31% vs 46% riding 'once a month' or more) and more compared to teachers in control schools (46% vs 8% 'once a month' or more) ($\chi^2 = 12.1$, $p < 0.05$). However, large increases in staff cycling seen at the short-term follow-up regressed at the longer-term follow-up.

CYCLING TO SCHOOL

School bike rack count (3-day average)

	BASELINE	2017 (SHORT-TERM)	2018 (LONGER-TERM)
SCHOOLS WITH BIS (13)	6	13	12
CONTROL SCHOOLS (3)	7	6	7

Grouping all BIS schools together, there were double the amount of bikes in school bike racks at the short and longer term follow-ups, with no change seen in control schools. However this change in BIS schools was largely caused by the results of two Auckland schools. Traffic safety and/or personal safety concerns were described as barriers to cycling to school in other schools.

CYCLING TO SCHOOL

Increases in cycling to school (indicated by increasing bike rack counts & self-reported travel mode data) were seen in two high- decile schools in Auckland.

SCHOOL TAHI



2016	2017	2018
10	51	59

- ☐ Decile 10 school
- ☐ High quality asphalt track with links to a community walkway
- ☐ Some quieter streets in the area
- ☐ Students say they like bringing their own bikes to use on the track at lunchtime.
- ☐ Increases in biking to school may have displaced walking trips, rather than decrease car use.

SCHOOL RUA

2016	2017	2018
16	53	25



- ☐ Decile 10 school
- ☐ Initial increases in cycling to school regressed in the longer-term.
- ☐ No school bike fleet, and students having to bring their own bikes, may have contributed to increases in cycling to school initially.
- ☐ Some quieter streets in the area

TO WHAT EXTENT HAS BIKES IN SCHOOLS IMPACTED CYCLING PARTICIPATION?

After 1.3 to 2 years

Results suggest a...



Moderate positive impact

1. BIS results in more students riding more frequently.

Based on a decline in cycling participation seen in control schools - BIS may also prevent further decline in cycling participation.

2. Teachers in schools with BIS are riding a bike more frequently, and more than teachers in control schools.

31% to 46%
riding 'once a month' or
more

3. The increase in cycling seen by students and teachers in BIS schools occurred mainly **within school grounds** – but this does not appear to have translated into more riding outside of school.

4. In some cases, the bike tracks may be attracting people to ride *at school* (as opposed to at home or other places in the community).

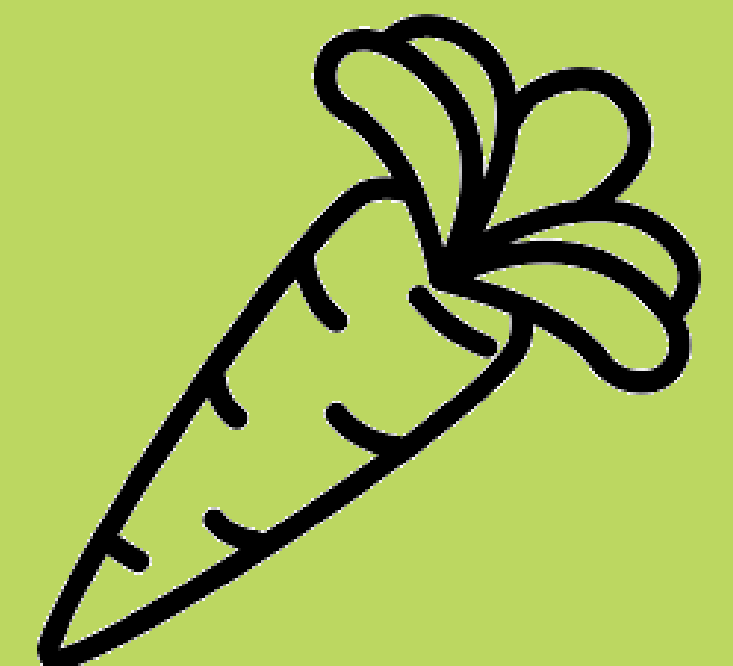
5. There is **variation** across schools in how much cycling participation has changed as a result of BIS.

This variation is probably a reflection of some of the challenges experienced over time that impact bike track use.



6. Overall, on its own BIS **does not** increase biking to school after two years... and increasing biking to school is not always a goal for schools.

7. BIS may act as a **catalyst** for activating cycling to school in specific contexts. Students bringing their own bikes (if they have them) to use at lunchtime may be a 'biking to school' carrot.



TO WHAT EXTENT HAS BIKES IN SCHOOLS
IMPACTED...

PHYSICAL ACTIVITY?

BIKES IN SCHOOLS AND PHYSICAL ACTIVITY

Physical Activity Questionnaire (PAQ-C) Scores* (Children)

	Baseline	Longer-term follow-up
BIS Students	2.85 (0.78)	2.83 (0.77)
Control Students	3.00 (0.76)	2.83 (0.81)

PAQ-C Scores in BIS schools stayed the same, and decreased in control schools.

**The PAQ-C is a measure of overall physical activity in the last 7-days.
Higher PAQ-C scores indicate higher self-reported physical activity levels.*

12% of teachers thought fitness, activity, and the opportunity to teach about healthy lifestyles was a key outcome of BIS.

Some parents also valued the bike track as a way to reinforce physical activity messages.
“it’s part of a fabric of being physically active”

9% of students liked the fitness, activity, and health benefits of the bike tracks.

Accelerometry and cycle computers (used in a small number of students/schools at the short-term follow-up) suggest that students are ‘moderately active’ during bike track use.

TO WHAT EXTENT HAS
BIKES IN SCHOOLS IMPACTED
PHYSICAL ACTIVITY?

After 1.3 to 2 years



Inconclusive impact

1. There is no quantitative evidence for an increase in student overall physical activity as a result of BIS...

BUT

results suggest BIS may prevent further decline in physical activity (as seen in control schools).

2. Staff and parents valued BIS as a tool to:

- teach life-long enjoyment of physical activity;
- develop children's bike skills so cycling for sport or transport is an option later in life; and
- expose children to different activities (i.e. triathlons).

3. A long-term (5-10 years) or 'generational view' is a more realistic physical activity outcome for BIS - given the time constraints of the school day and the many other priorities of schools.

4. Students who travel actively to school (walk, cycle, scooter) are more likely to meet physical activity guidelines..

SO

combining BIS with safe and connected routes to school may have a greater impact on overall physical activity levels.

5. A study solely focussing on physical activity is needed to truly understand the effect of BIS. The primary reliance on self-reported physical activity is a limitation of this evaluation

6. This evaluation did not measure student fitness – the effect of BIS on student fitness still needs to be examined.

SO WHAT?
WHAT DOES IT ALL MEAN?

Overall, schools, parents, and students value BIS

and... it's FUN



BIS is being used to meet a range of objectives and is adaptable to school goals, values, and capacity.

It is this **flexibility** that underpins its success.

BIS provides an **inclusive platform** for enhancing and reinforcing bike skills and safety behaviours.... providing a strong foundation for future biking.



However, after 1.3 to 2 years - there is **variation** in how schools use BIS and how often – a continuum from an 'occasional activity' to highly integrated into school **CULTURE**. It is this variation that leads to variation in outcomes.

SO WHAT?
What does
it all
mean?

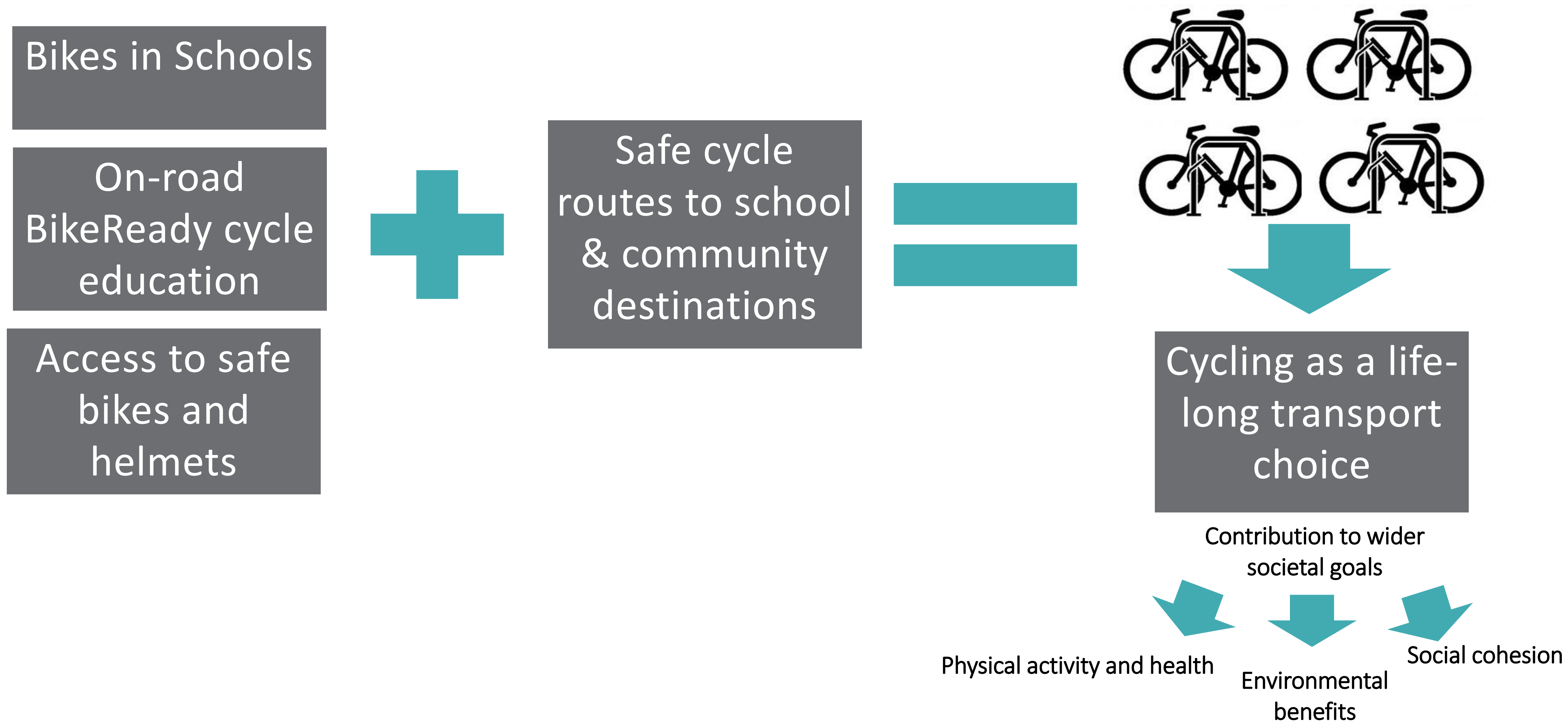
BIS can increase **parent/whānau interest** in biking however, this does not occur in every school – contingent upon the level of track use and community access.

Overall, BIS is a **worthwhile** model that should continue to receive support and funding, working collaboratively with schools to make it work for them.

However, overcoming the **longer-term challenges** is important for maximising and sustaining the benefits.

When coupled with **safer surrounding environments** for cycling, benefits could be further maximised.

WHAT'S NEXT...THE THEORY



RECOMMENDATIONS



RECOMMENDATIONS...

for Schools

BEFORE

1. Get professional advice for bike track design & build.
2. Make it as easy as possible for staff and students to use the bikes.
3. Consider a sealed asphalt track to reduce maintenance costs.
4. Build in 'challenge' for your students in the track(s) design.
5. Consider how it can be a 'community resource' – including creating a link to walkways or school entrances.
6. Understand the commitment required, ongoing costs and resources needed.

ONGOING

1. Identify 2-3 people in your school that are enthusiastic about biking and support them to drive the model.
2. Identify and overcome any 'barriers to use' (i.e. getting bikes off hooks).
3. Think about how students can continue to be challenged on the bikes/tracks (including teacher PD, and extending learning outside of school grounds).
4. Think about how your school bike track can be (or continue to be) a community resource.
5. Establish processes for bike and track maintenance, including involving students, parents/whānau.



RECOMMENDATIONS...

for Stakeholders/Councils/Funders

1. Combine BIS with more **user-friendly cycling environments** outside schools, and BikeReady cycle skills training on local streets and pathways.
2. Any school can benefit from BIS; however, it is paramount there is **school ownership** and commitment from the outset, and the school's goals for BIS match those of funders.
3. Consider **targeted BIS investment** in communities with poor bike access, which are near planned or existing cycling infrastructure.
4. Support schools with BIS to overcome **longer-term challenges**, whilst maintaining school autonomy.
5. Examine ways to support schools to facilitate **community use** of the bikes and tracks.
6. Investigate the **feasibility** of national/regional annual support for bike and/or track maintenance.
7. Continue to research the most robust and **user-friendly** bikes, helmets, and storage facilities to provide recommendations to schools.
8. Connect schools with **professional advice** for track design and build.
9. Continue to offer **Professional Development** for school staff, and identify a way for BIS schools to connect and learn from each other.

Thank you

ACC

Bike On Charitable Trust

The schools involved this study

www.bikeon.org.nz

greer@mackieresearch.co.nz

www.mackieresearch.co.nz

*"it will help our
world if we can get
children on bikes
from a young age"*

(Principal)



SCHOOL CASE STUDIES



ROYAL ROAD SCHOOL...

Bikes in Schools fostering an inclusive sense of community

STAFF

- Improvements in student bike skills and knowledge of bike safety.
- General confidence, perseverance, and motivation to try new things.
- Physical activity and fitness.
- Challenges: weather, bike maintenance, security of equipment, and time constraints.

"It is thrilling to see students' confidence and sheer delight as they master skills"



"...bike safety, [and] children can challenge themselves to try new things, an added part of the P.E. and Health Curriculum..."

PARENTS/WHĀNAU

- Kids learn community spirit, shared learning and to encourage each other.
- Overcomes issues of biking or wearing helmets not being cool.
- Kids learn awareness of other users.
- Reinforces promotion of physical activity at school and makes school more fun.
- Limited opportunity to apply learning outside of school because of busy roads.

"we're all doing it together, this is a community thing, so we encourage each other"



"my kids were like 'I ain't wearing a helmet, it's not cool', but now they know the repercussions of what happens if you don't have a helmet...they will wear them now"

STUDENTS

- Fun and exercise.
- Enjoy helping others.
- Value that everyone can learn to ride.
- Enjoy the bikes/track for different reasons (going fast, obstacles, racing, relaxing, learning bike maintenance).

"My family never rode bikes, so I never rode a bike, and I didn't know how to ride a bike and over the course of the year I learnt how to like, just do the basics"

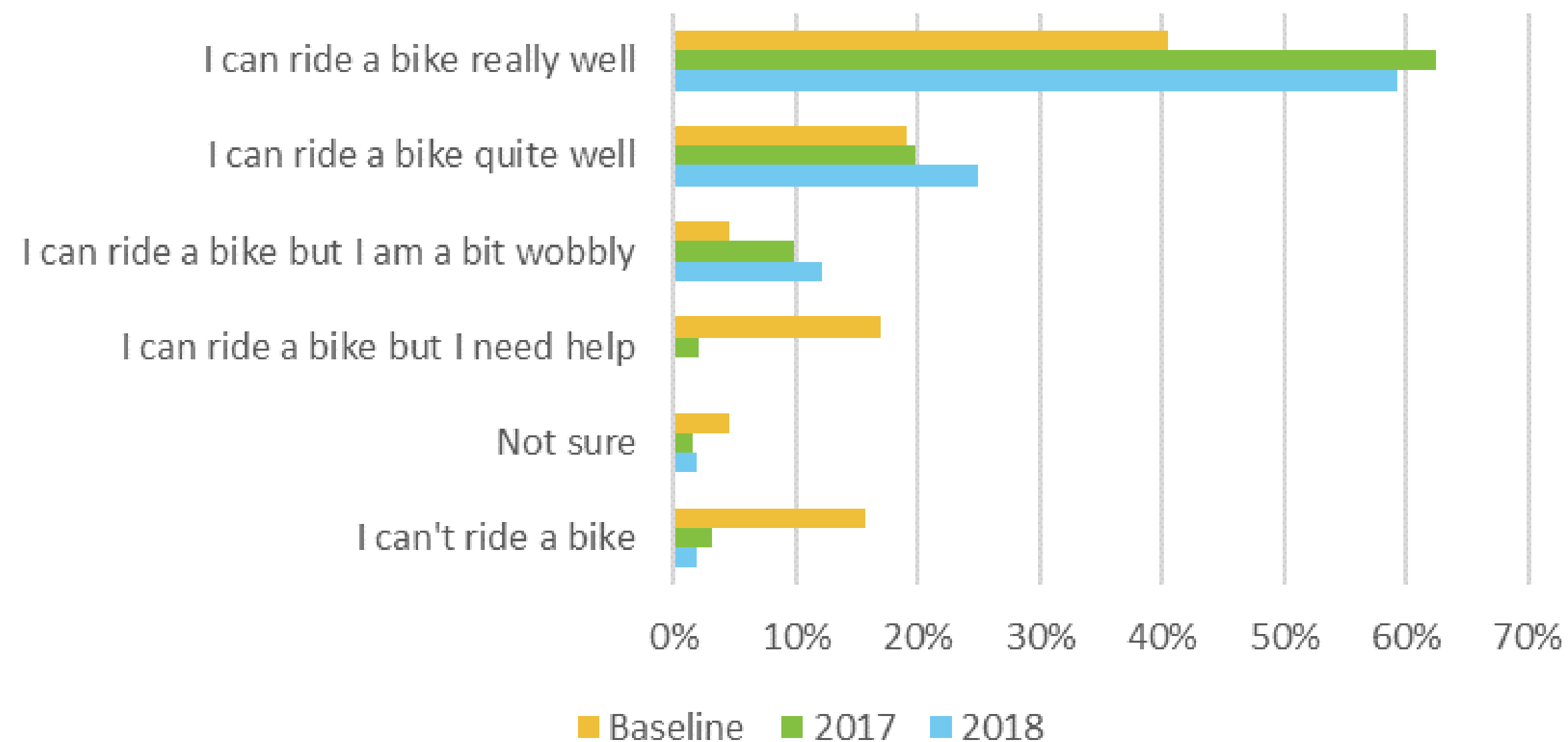


"...just like riding for pleasure"
"It's good because the seniors are able to help the juniors"

ROYAL ROAD SCHOOL

- ❖ Bike track use is timetabled approximately once a week for each class
- ❖ 90% of Royal Road students like or love riding a bike
- ❖ Large improvement in students' self-reported bike skills
- ❖ Increases in helmet-wearing and bike safety checks

Which statement best matches you?



*% of students who wear a helmet 'mostly' or 'always'**

Baseline

46%

Longer-term

71%

% of students who 'mostly' or 'always' do a bike safety check

Baseline

40%

Longer-term

67%

Whangaparaoa School

Creating a culture of 'wheeling'

From a student-led inquiry project... to an asphalt track around the perimeter of the field, a skills track, a pump track, and a well-used community resource.

Highlights

- ❖ Jumps and obstacles incorporated into the asphalt perimeter track to maximise enjoyment and challenge.
- ❖ Local walkway entrances connect with the bike track.
- ❖ Online booking system for teachers.
- ❖ Students bring their own bikes to use on the track at lunchtime.
- ❖ Large amount of community use after school and in weekends.
- ❖ More students biking and scooting to school.

"I think we've got enough here...that kids can challenge themselves...there's enough hard stuff for those kids that are confident, to be working at and trying new skills, and those kids that are not so confident can just slowly build up" (Principal)

Three -day school bike rack count

2016



2018



+





Whangaparaoa School

Creating a culture of 'wheeling'

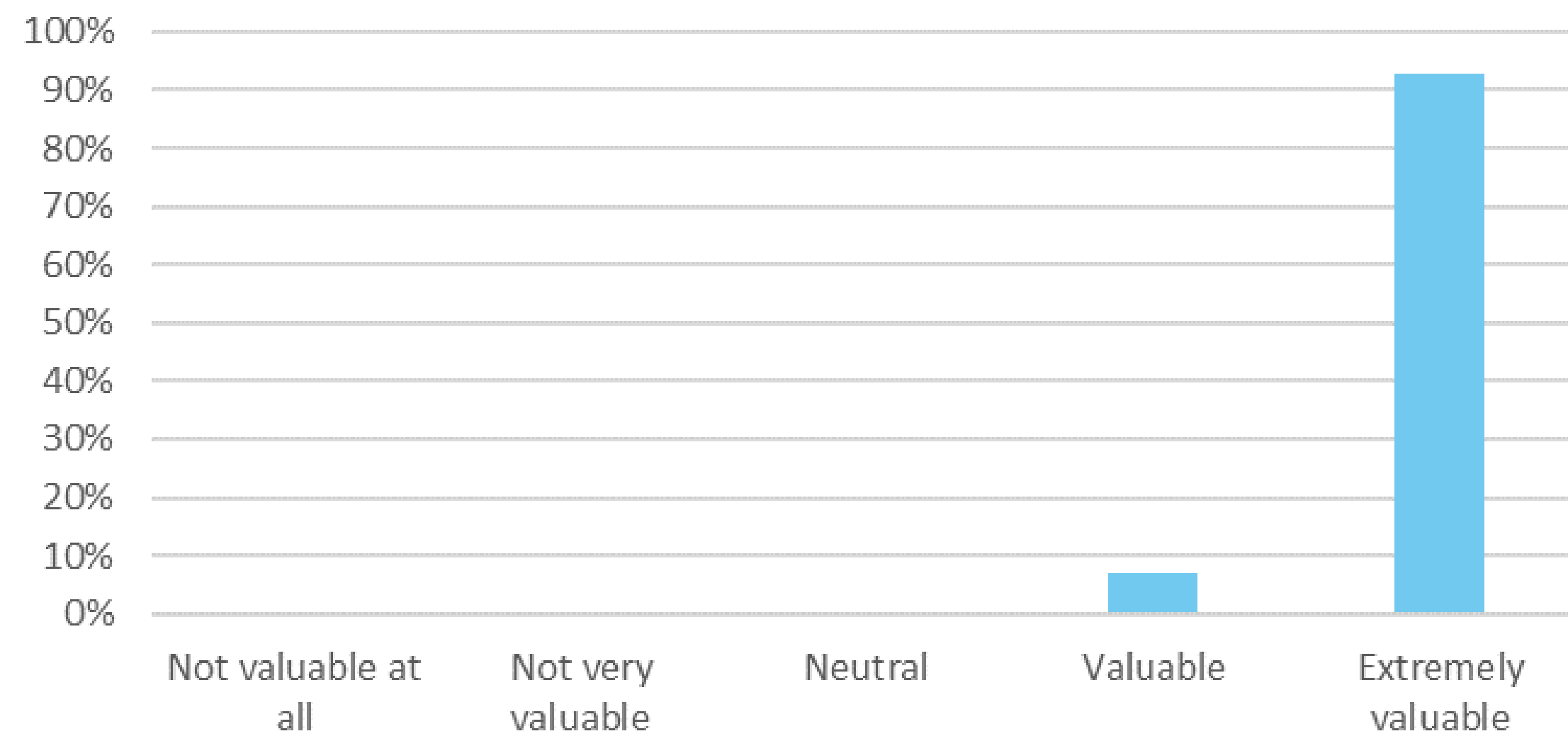
STAFF

- 93% of staff who responded enjoy teaching basic bike skills.

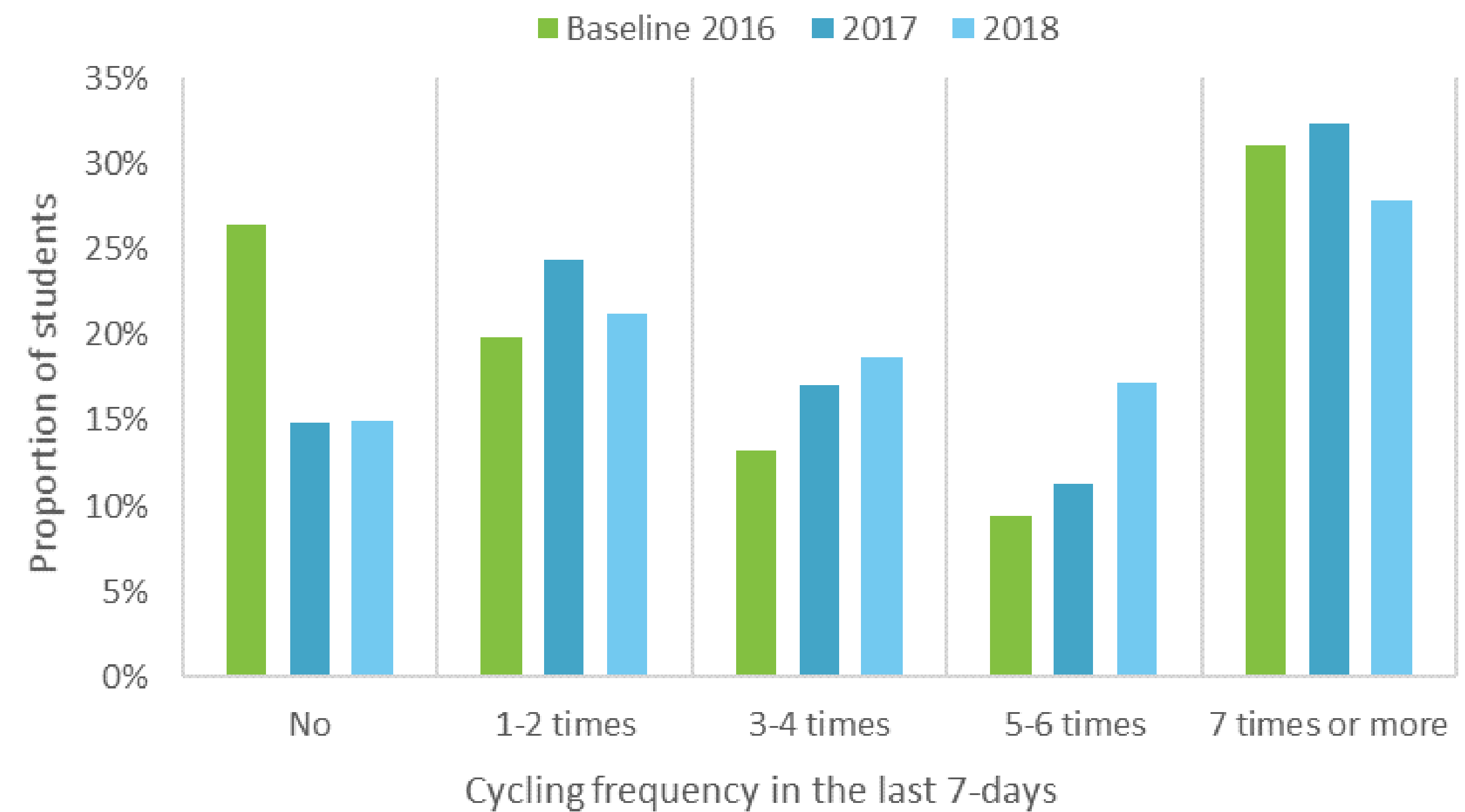
STUDENTS

- 82% of Whangaparaoa students like or love riding a bike.
- Students are riding more.

How valuable is the bike track as a resource for your school community?



Staff Survey 2018 (n=16)



Student surveys Years 3-6 (n=303)



WHANGAPARAOA SCHOOL

Creating a culture of 'wheeling'

STAFF

- Student confidence and skill acquisition.
- Teaching the core competencies.
- Equal access to biking.
- Active students.
- Fun and challenge!
- Improved behaviour at lunchtime.
- Parent/whānau involvement in the school.
- Challenges: bike maintenance and time constraints.

“the simple joy of being outdoors”

“There's lots of parents come after school, and I've heard of people having birthday parties down here, have a picnic under the trees, bring the bikes”



PARENTS/WHĀNAU

- Encourages physical activity – especially for those who don't like other sports.
- Teaches respect and awareness of others.
- Encourages everyone to learn to ride.
- Supports students to socialise – creates a shared interest and culture of helping others.
- Creates a safe environment for skill development – would like more safety education for riding in the community.
- Track was so popular initially it can be intimidating for younger students.

“There are some kids that don't like running or don't like playing sports, but they love the bike...it encourages different kids”

“They can get that ten minutes to themselves, and it's that, they experience that freedom feeling”



STUDENTS

- Fun!
- Students enjoy helping others.
- Helps younger students learn to ride.
- Makes the school special.
- Students have learnt a range of skills: basic skills, hand-signals, jumps, bike maintenance.

“It just makes you want to ride to school more when you can go on the bike track and do stuff”

“The best thing is the whole thing”



