

LESSON 21: TECHNOLOGY, INNOVATION AND SYSTEM CHANGE

DR KATE ERRICKER

ASSISTANT DIRECTOR CURRICULUM, NORD ANGLIA EDUCATION

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INTRODUCTION

KURT VONNEGUT

THE SHAPE OF STORIES

Man in Hole



The main character gets into trouble then gets out of it again and ends up better off for the experience.

- Arctic Monkeys - Arsenic and Old Lace
- Harold & Kumar Go To White Castle

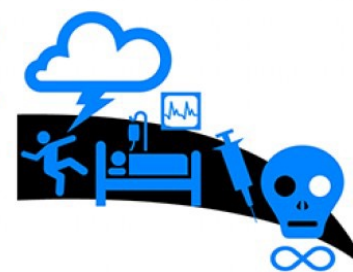
Boy Meets Girl



The main character comes across something wonderful, gets it, loses it, then gets it back forever.

- Jane Eyre
- Eternal Sunshine of the Spotless Mind

From Bad to Worse



The main character starts off poorly then gets continually worse with no hope for improvement.

- The Metamorphosis
- The Twilight Zone

Which Way Is Up?



The story has a lifelike ambiguity that keeps us from knowing if new developments are good or bad.

- Hamlet
- The Sopranos

Creation Story



In many cultures' creation stories, humankind receives incremental gifts from a deity. First major staples like the earth and sky, then smaller things like sparrows and cell phones. Not a common shape for Western stories, however.

Old Testament



Humankind receives incremental gifts from a deity, but is suddenly ousted from good standing in a fall of enormous proportions.

- Great Expectations

New Testament



Humankind receives incremental gifts from a deity, is suddenly ousted from good standing, but then receives off-the-charts bliss.

- Great Expectations with Dickens' alternate ending

Cinderella

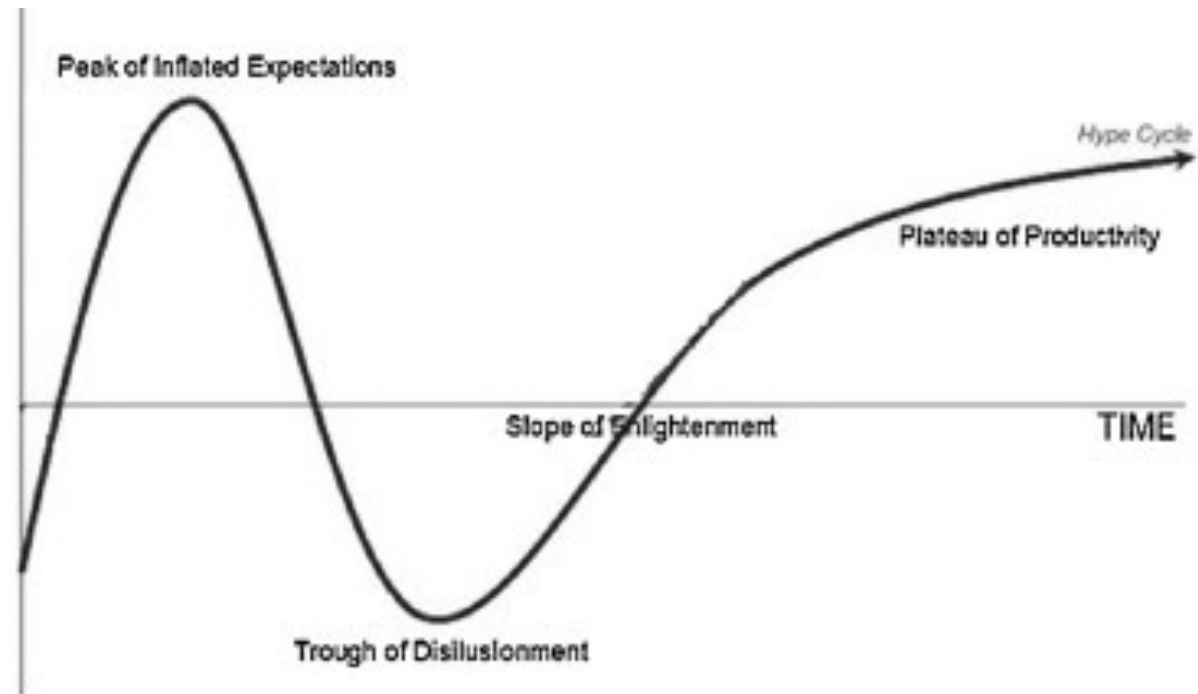


It was the similarity between the shapes of Cinderella and the New Testament that thrilled Vonnegut for the first time in 1947 and then over the course of his life as he continued to write essays and give lectures on the shapes of stories.

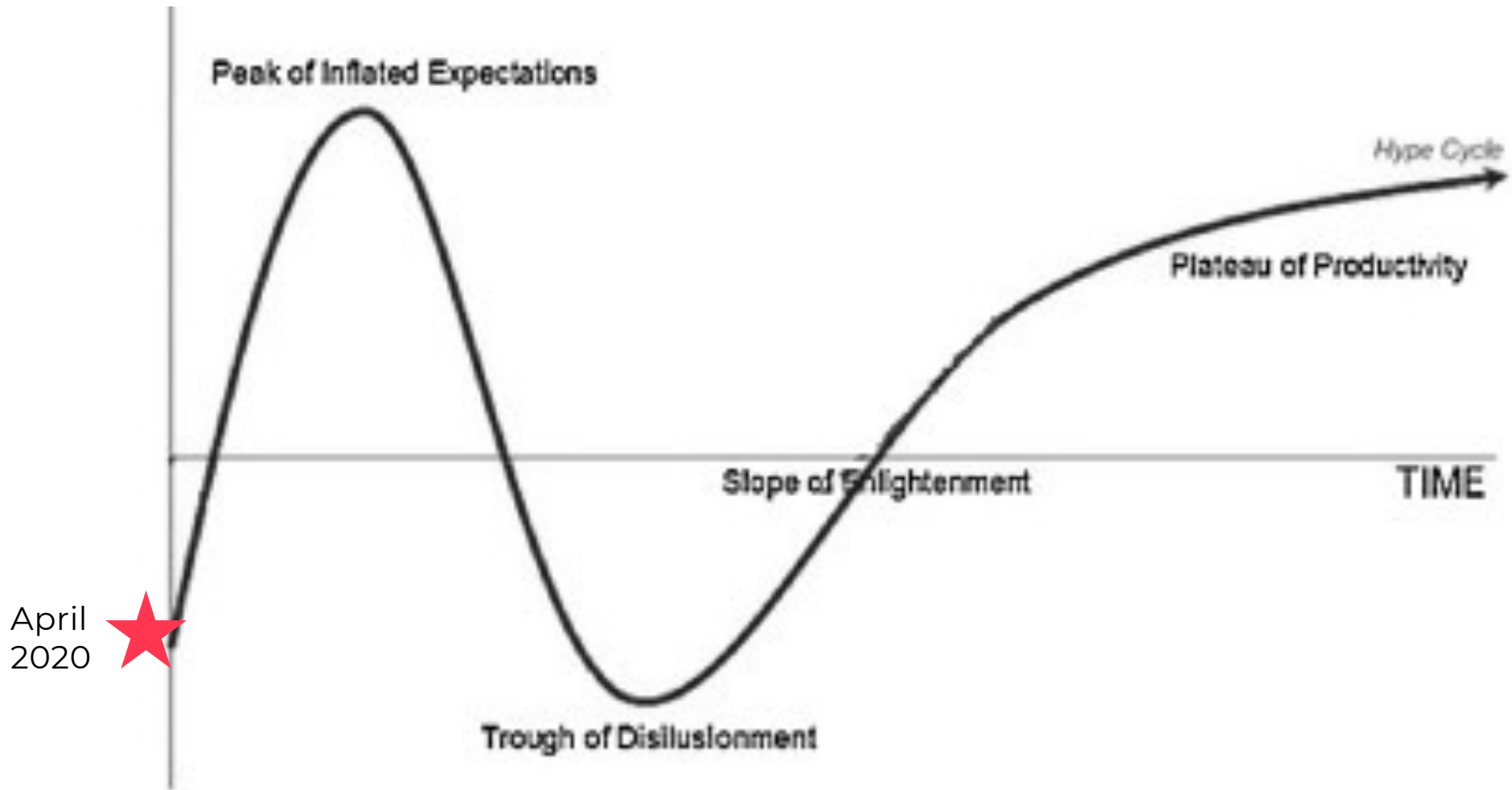
Man in Hole



The main character gets into trouble then gets out of it again and ends up better off for the experience.



Fenn & Raskino (2008) Technology Adoption Curve



Fenn & Raskino (2008) Technology Adoption C

DIGITAL NORD ANGLIA

VIDEO

PROJECT DIGITAL NORD ANGLIA (DNA) – YEAR 1

Aim: to explore how technology could enhance teaching and learning experiences

How: a lesson delivery platform that supported:

- interactive learning,
- ‘in-the-moment’ formative feedback,
- a library of lesson resources linked to a global curriculum framework

•  **9** SCHOOLS

•  **ENGLISH, MATHS, SCIENCE**
• FOR YEARS 3 & 7

OUR MISSION

Our mission is to accelerate **student growth** by using **technology** and **data** to unlock the power of our **global community of teachers** and **personalise** every student's learning





Resources

There are no resources for this Learning Sequence.

Y3 English Unit 1 Journey 2 Learning Sequence 2 Onomatopoeia

[See All Learning Sequences](#)

You can choose a slide to start from otherwise the Le



13 steps · 1 confidence check-in



Y3 English Unit 1 Journey 2 Learning Sequence 2 Onomatopoeia


Showing to students...

Onomatopoeia

Look at the picture. Can you add 4 sounds or action words.

Hint:

- Authors add sound and action words to graphic novels.
- Authors choose words which have onomatopoeia.
- They illustrate words with capital letters, exclamation marks, callouts, start bursts and bold colours.



Listen to the Teacher

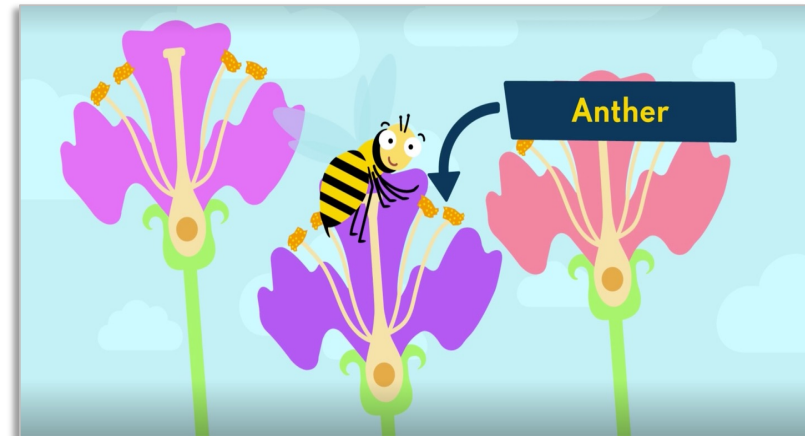
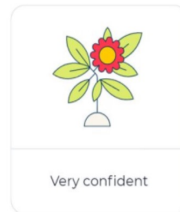
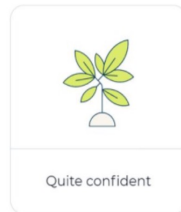
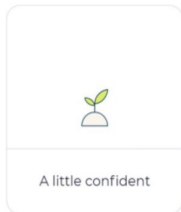
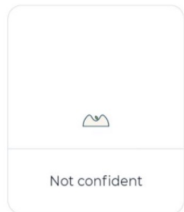
Step 11 of 13

[Go to next step](#)



THE DNA PLATFORM

How confident are you that you know that some materials dissolve to form solutions?



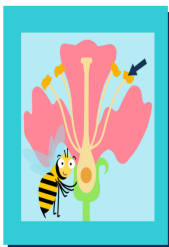
Which part of the flower is the arrow pointing to?

Multiple choice

Which part of the flower is the arrow pointing to?

- Stigma
- Anther
- Petal
- Ovary

Choose an answer on your device.



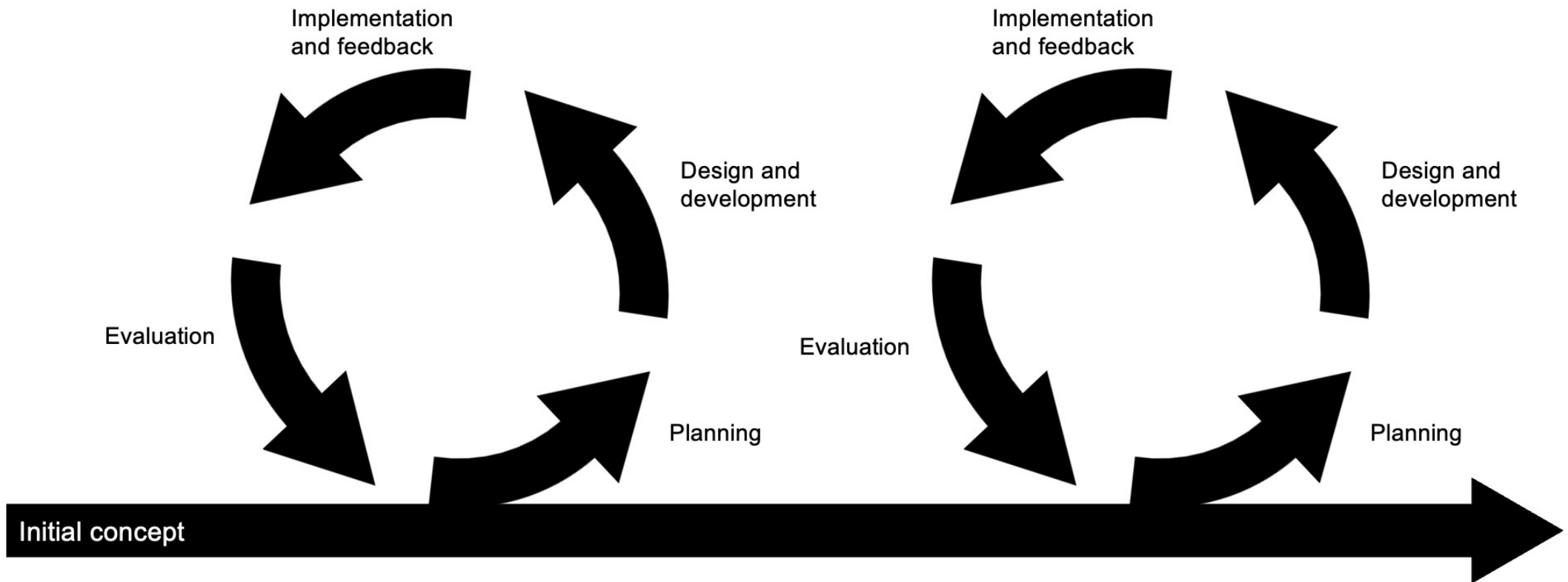
- Stigma
- Ovary
- Petal
- Anther

Pollination simulation

You are going to be a pollinator!



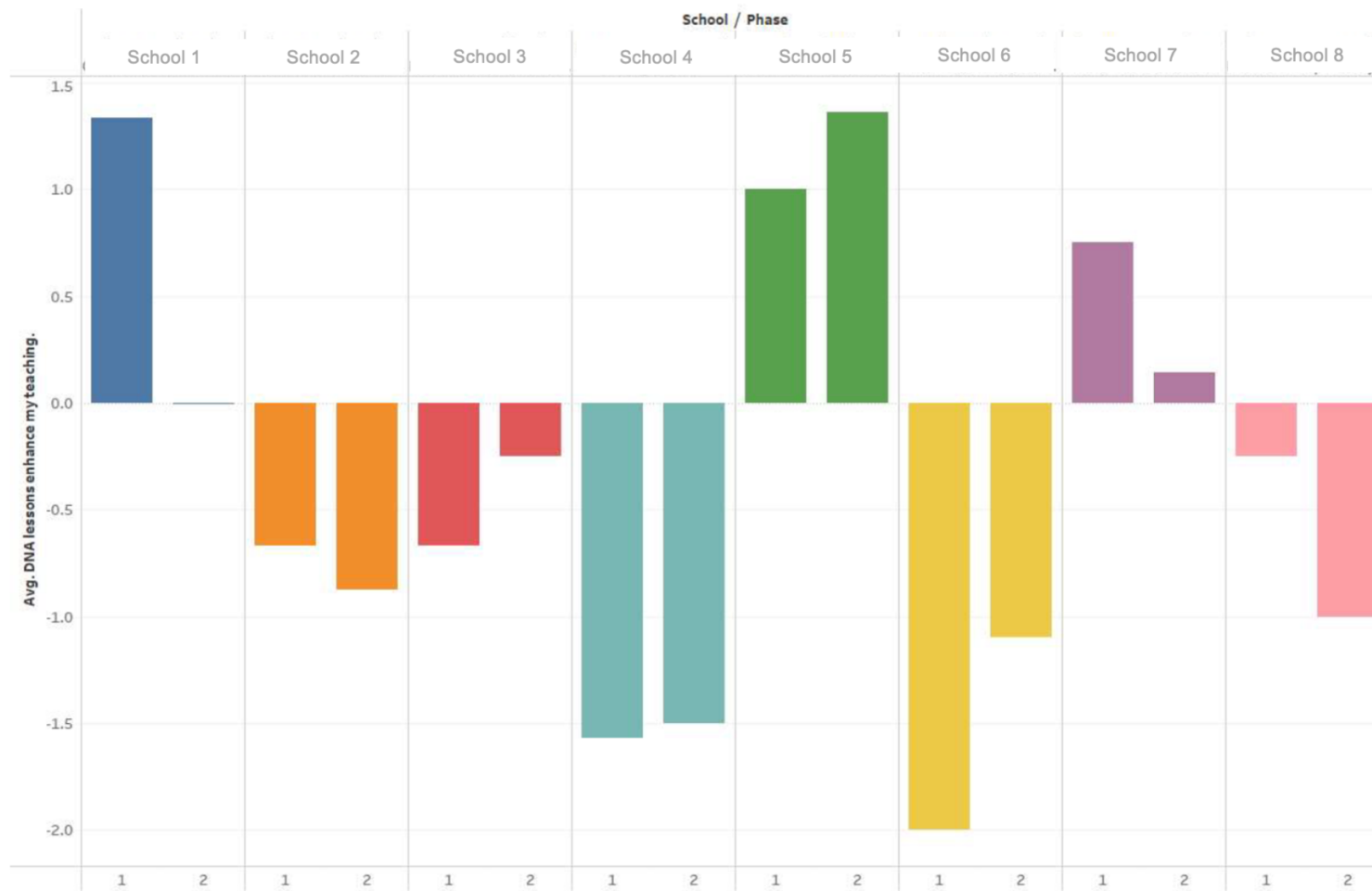
DESIGN THINKING PRINCIPLES



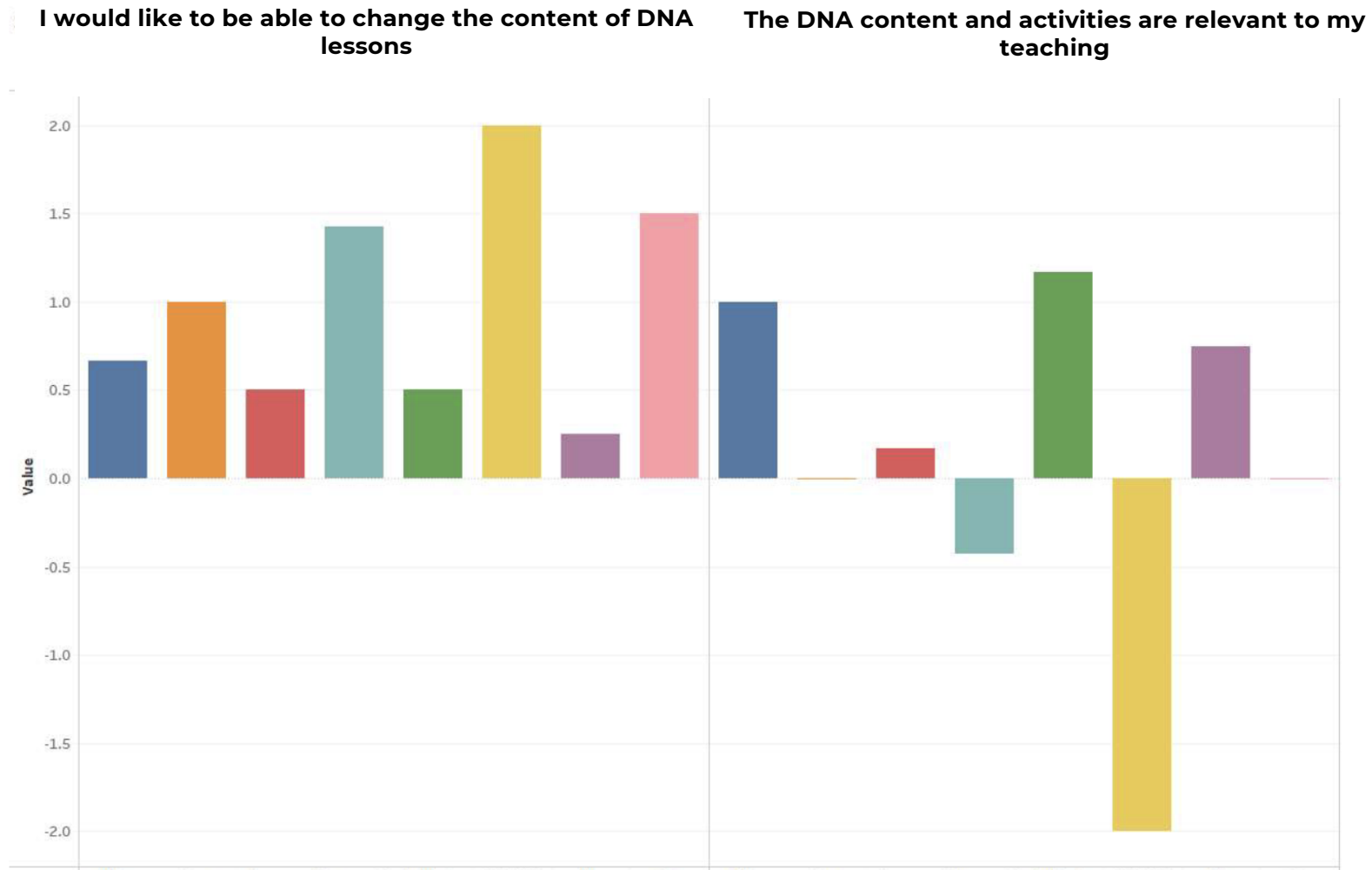
YEAR 1 EVALUATION

Technological adoption *"I think there may be a better way, that's a bit more user friendly."*

DNA Lessons enhance my teaching



Lesson Resources: *"I like the idea of being able to pull the content that you need to create your own lesson."*



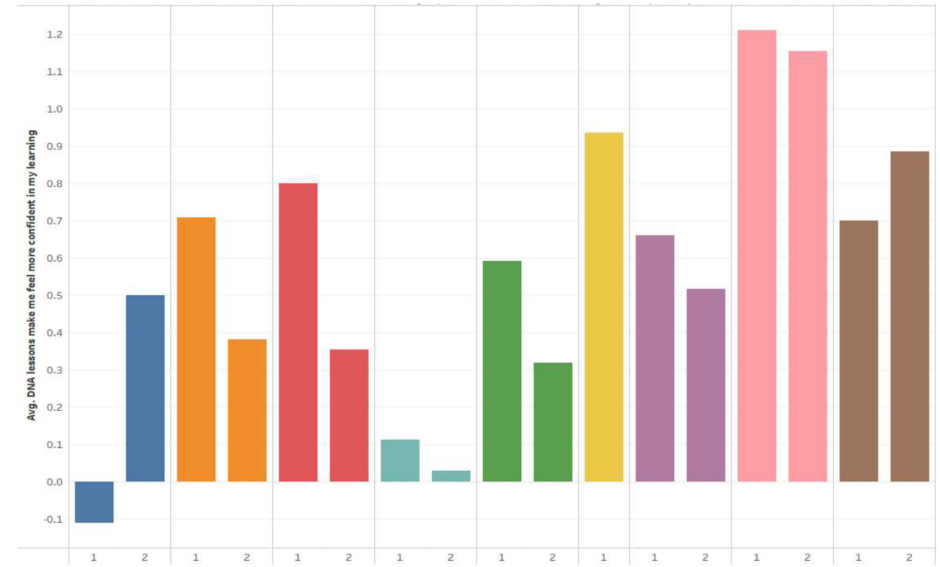
TEACHER

I find confidence check-ins useful



STUDENT

DNA lessons make me feel confident about my learning



YEAR 1 – KEY INSIGHTS

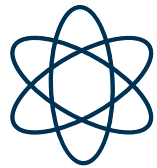
- The combination of an in-session school community and a ‘launch and iterate’ agile approach were not a natural fit.
- A lack of functionality limited teachers’ autonomy and ownership over the process of lesson delivery.
- Provision of resources can be interpreted as standardisation
- Consultation takes time and effort
- There are differences between how schools and technology development manage the strategic leadership of change.

DNA YEAR 2

YEAR 1



9 SCHOOLS



**ENGLISH, MATHS,
SCIENCE**

FOR YEARS 3 & 7

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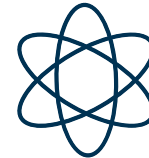
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YEAR 2



27 SCHOOLS



SCIENCE

FOR YEARS 3 to 6



**SKILLS &
METACOGNITION**

YEARS 3 to Y9

TECHNOLOGY



PEDAGOGY

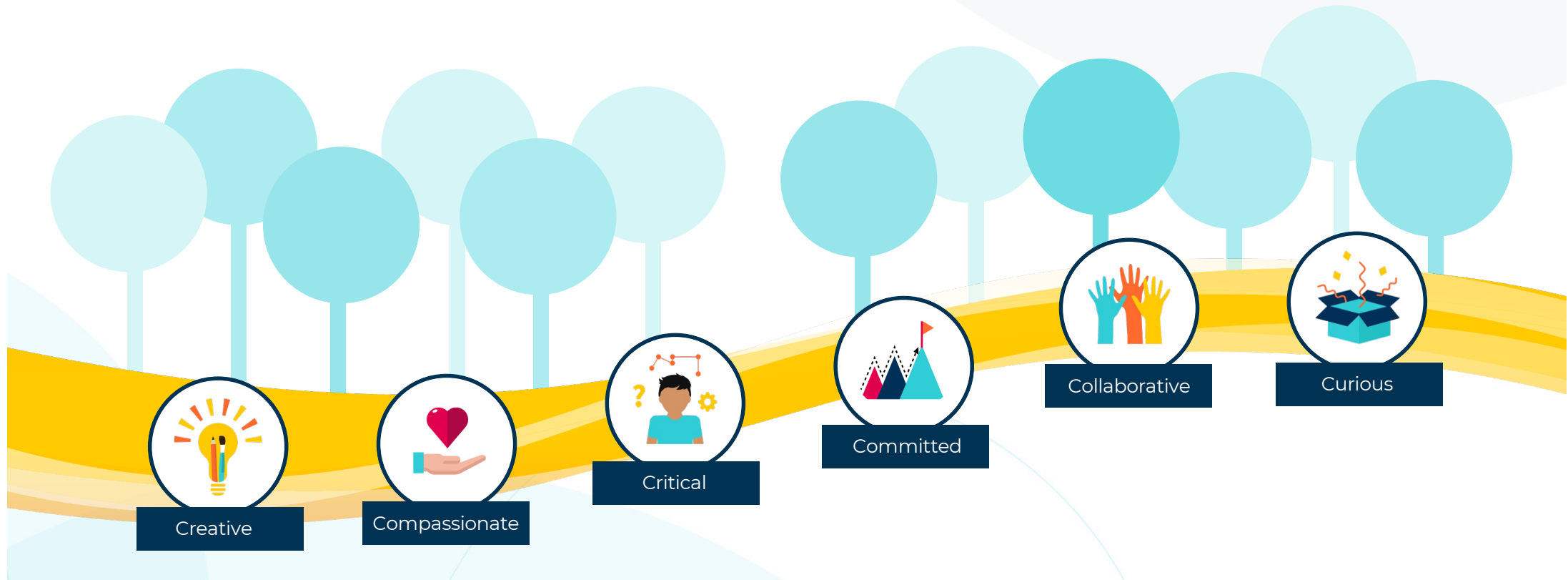


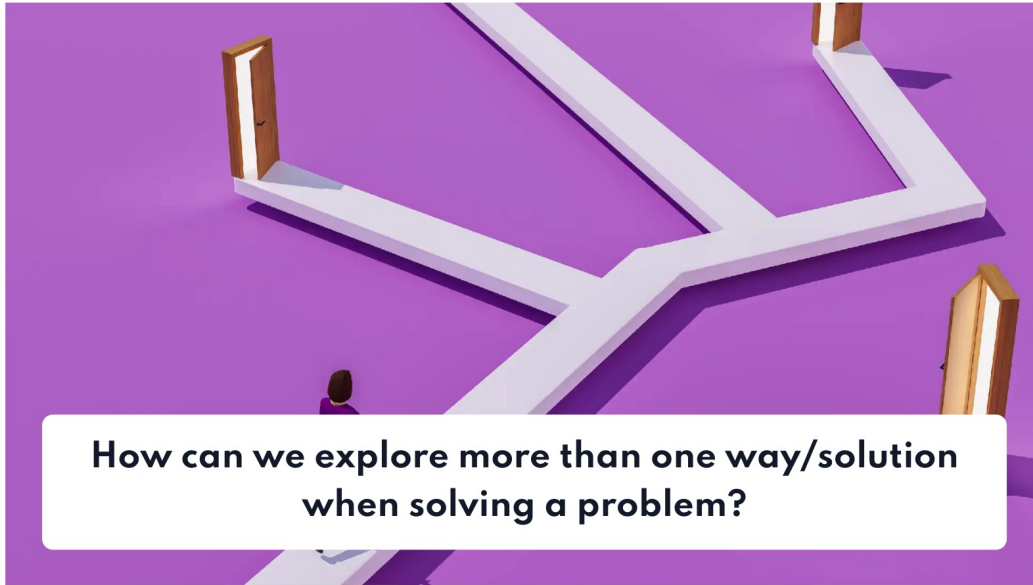
METACOGNITION AND LEARNER AMBITIONS

Flexible use of curriculum materials to build key skills in students

Use of metacognitive strategies modelled in the Science curriculum in Primary

Teachers could choose when and how to integrate in other subjects





How can we explore more than one way/solution when solving a problem?

← BACK TO LESSON PLAN

Notes

SAVE

VIEW RESOURCES

1 of 12 Slide | Year 5 Unit 2 LA - Creative 3 - Practise

← NEXT >



How can we explore more than one way/solution when solving a problem?

1 Step



Practise

2 Step



What could it be?

We are going to look at 2 unrelated objects and use our **creativity** to combine them to make a single object.

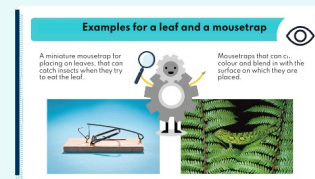
3 Step



What could it be?

- | | |
|--|---|
| <p>Leaf</p> <ul style="list-style-type: none"> • They change colour throughout the year. • Insects often eat them. • There are millions of them. | <p>Mousetrap</p> <ul style="list-style-type: none"> • They are made of wood and wire. • Catches mice. • They can be left in lots of different places. |
|--|---|

4 Step



Examples for a leaf and a mousetrap

A miniature mousetrap for placing on leaves, that can catch insects when they try to eat the leaf.

Mousetraps that can change colour and blend in with the surface on which they are placed.



5 Step



The road to success

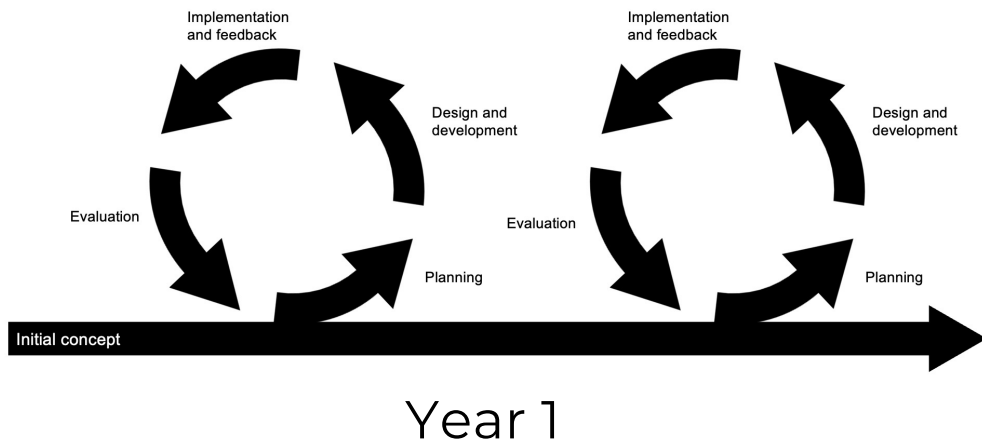
When faced with a problem, you can use the **'Which way?' signpost** to help you explore **more than one way** to a solution.

6 Step

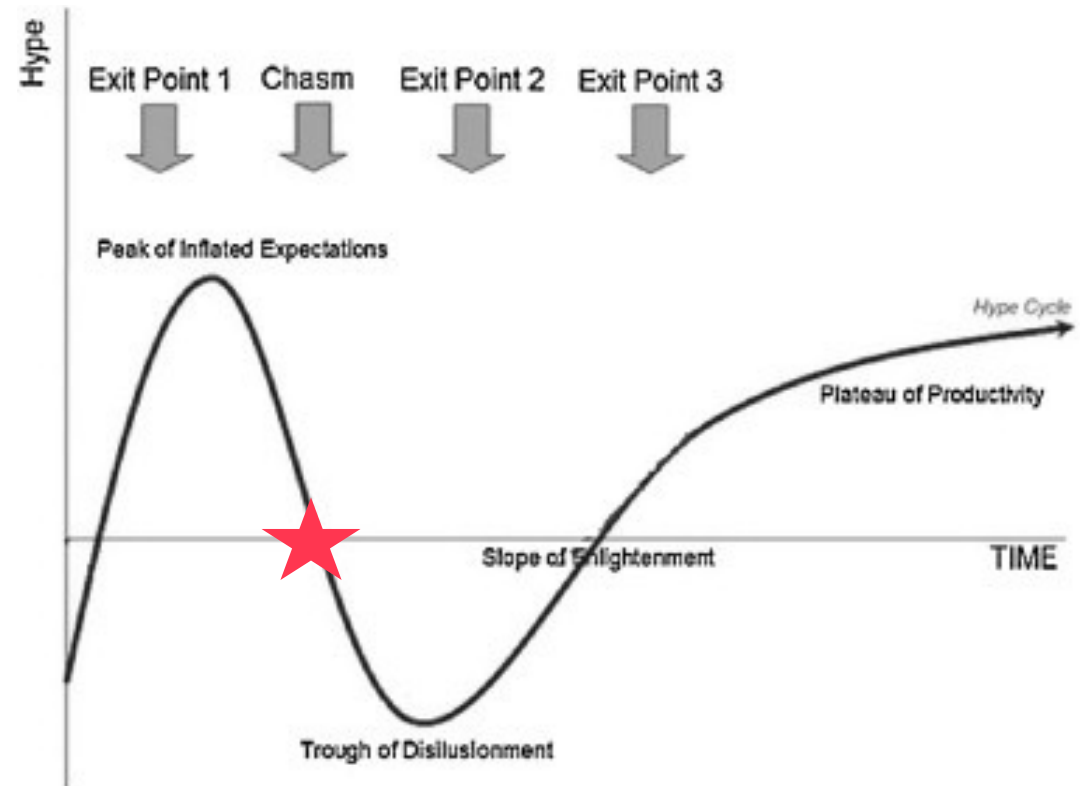
Follow 1 display



WE WERE HERE



OUR TEACHERS WERE HERE



Fenn & Raskino (2008) Technology Adoption Curve

YEAR 2 EVALUATION

Teacher understanding of learner ambitions (skills) and metacognition

- I understand how DNA lessons improve students' metacognition
- DNA lessons have improved my students' progress
- DNA lessons have improved my students' metacognition

No. of lessons

1-5

6-10

11-15

16-21

21 or more



Teachers' views about the value of DNA lessons

- DNA lesson content and activities are relevant to my teaching
- DNA lessons allow me to spend time on lesson preparation
- DNA lessons enhance my teaching

No. of lessons

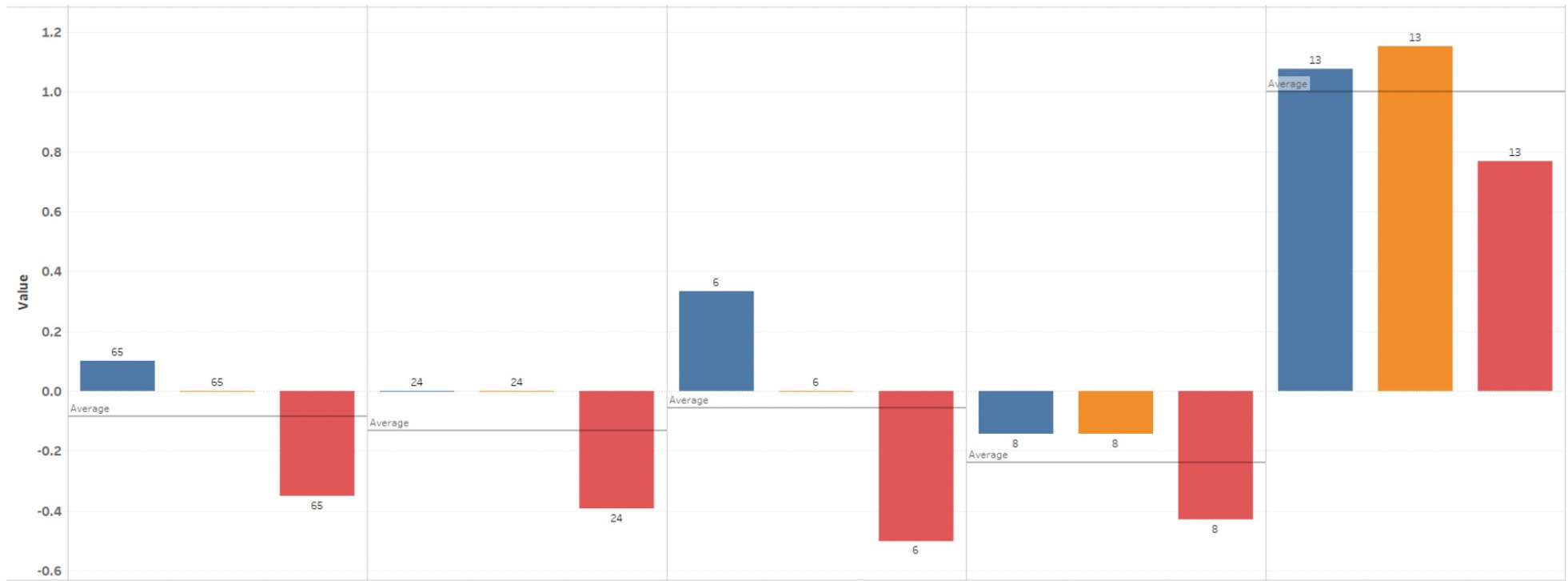
1-5

6-10

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16-21

21 or more



Teachers' views about the the usability of the DNA lesson tool and their confidence using it

- I am very confident using the DNA lesson tool
- The DNA lesson tool is intuitive and easy to use

No. of lessons

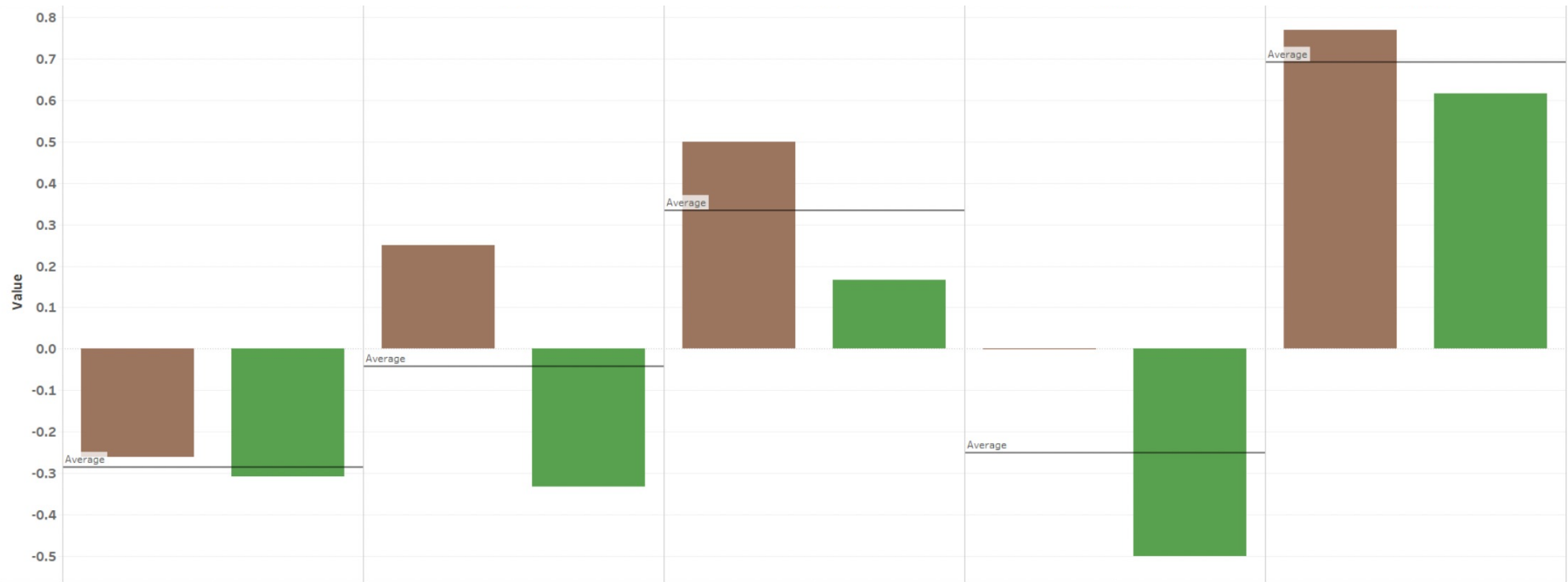
1-5

6-10

11-15

16-21

21 or more



WHAT DO YOU NOTICE?

LESSON 21



Normalized responses to questions about how DNA Lessons and Learner Ambitions have contributed to students' metacognition

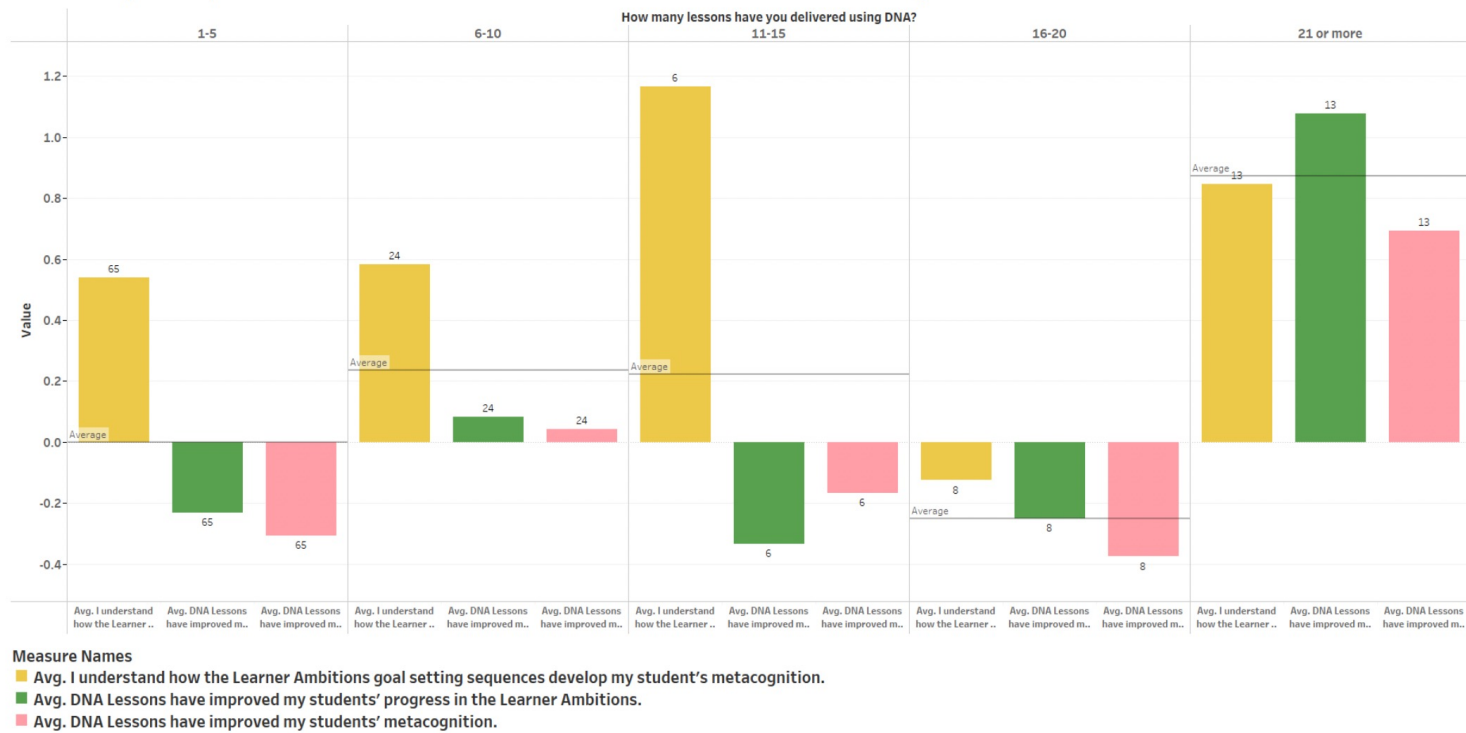
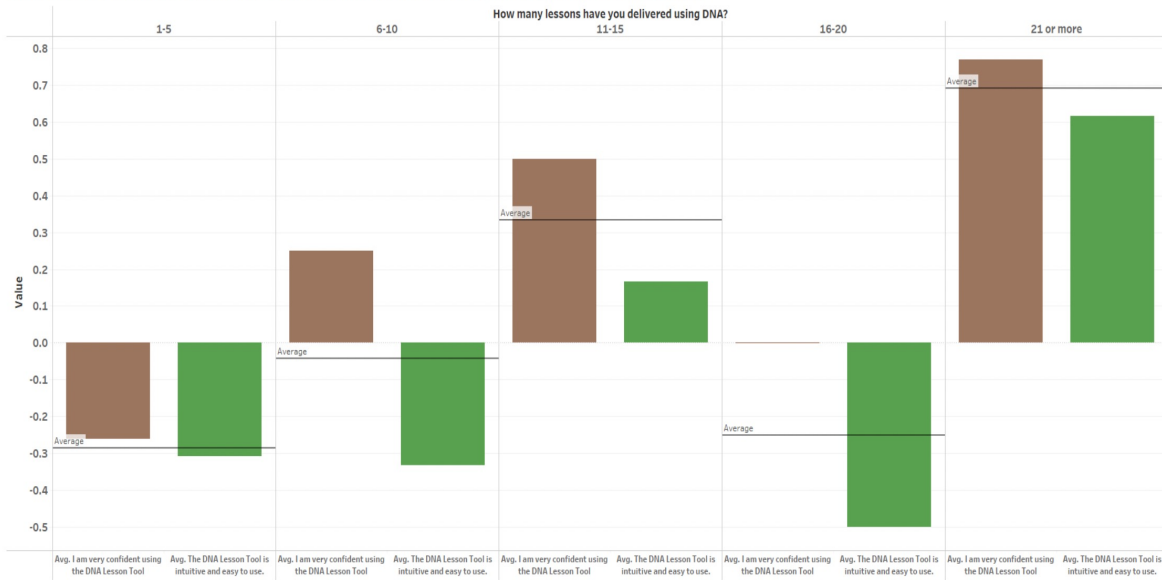


Figure 3 Teachers understanding of Learner Ambitions and their relationships to Metacognition

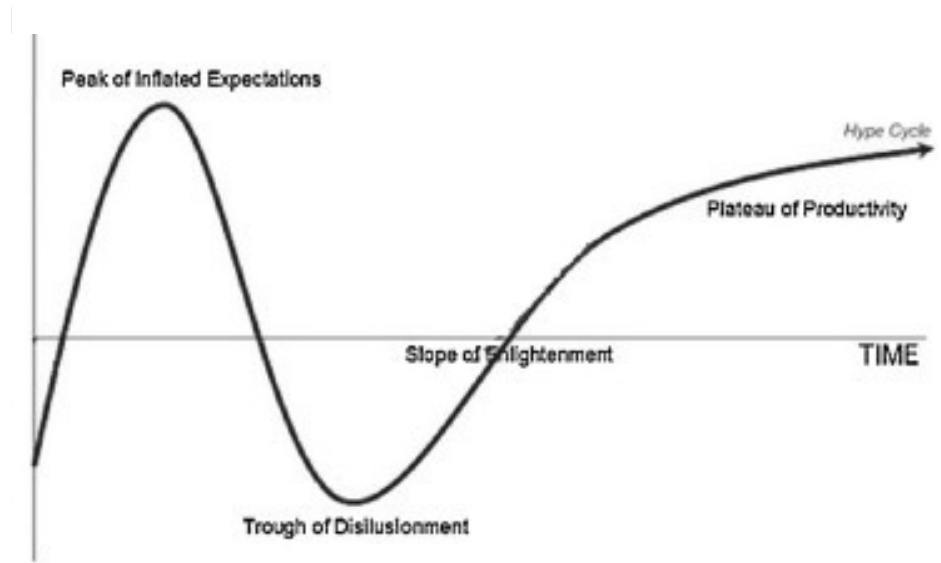
THE INNOVATION CURVE

Normalized responses to questions related to usability of the DNA Lessons tool, filtered by number of lessons taught.



Measure Names
 ■ Avg. I am very confident using the DNA Lesson Tool
 ■ Avg. The DNA Lesson Tool is intuitive and easy to use.

Figure 6 Teachers' Views about the Usability of the DNA Lesson tool and their Confidence using it



WHY?

Why do you think Lesson 21 is a turning point?

What reflections does this spark for you in your own experiences of leading or implementing change?



WHY LESSON 21?

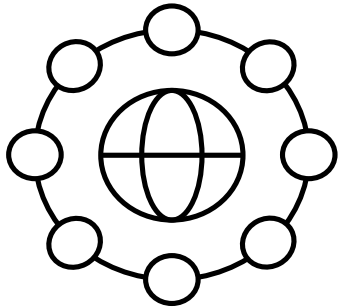
- Increased usage of technology results in a more positive response and recognition of impact.
- Faculties who committed more time to integration had a greater chance of success in adoption (Fexias & Zellweger, 2010)
- Technology adoption takes at least 6 months to embed in school practice



WHAT DID WE LEARN?

- Practice makes perfect
- Every school, every leader, every teacher has their own experience of change. And they are all in different places
- It takes time and commitment at every level to build positivity
- Community helps strengthen teacher motivation and sense of ownership

PROFESSIONAL DEVELOPMENT



A professional learning community

A shared experience

Webinars, group meetings, demonstrations and an online community of practice

Online resources

asynchronous access
Group events – webinars, demos

Communities of practice

forums, sharing of best practice in schools



Individual support

Local leadership

a DNA champion that drives the change in every school

Bespoke support

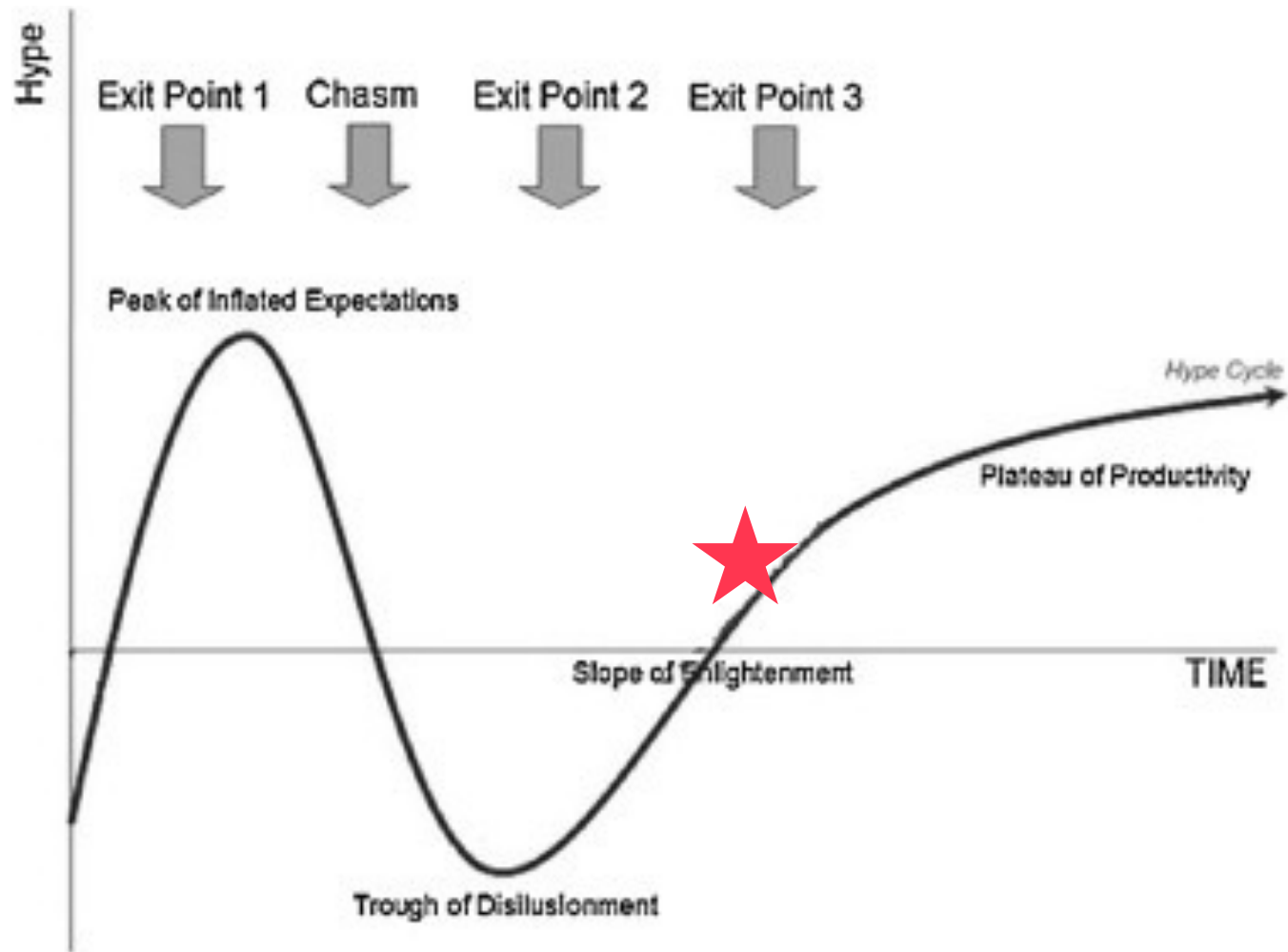
meeting schools where they are:
school meetings, grade level meetings

Individual and relationship-driven

conversations and meetings with each principal,
DNA Champion (and if possible) teachers.



QUESTIONS?



Fenn & Raskino (2008) Technology Adoption Curve

THE METACOGNITION PROJECT – YEAR 3



27
SCHOOLS



SCIENCE
FOR YEARS 3, 4, 5 & 6



SKILLS & METACOGNITION
YEARS 3, 4, 5 & 6
YEARS 7, 8 & 9



formative

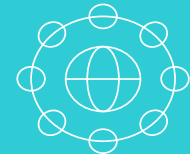
nearpod



Partnering with a
leading academic
institution



Mixed methods
methodology



Partnership
research approach
with schools

REFERENCES

Fenn, J. and Raskino, M., 2008. Mastering the hype cycle: how to choose the right innovation at the right time. Harvard Business Press.

Feixas, M. and Zellweger, F., 2010. Faculty development in context: changing learning cultures in higher education. *Changing cultures in higher education: Moving ahead to future learning*, pp.85-102

