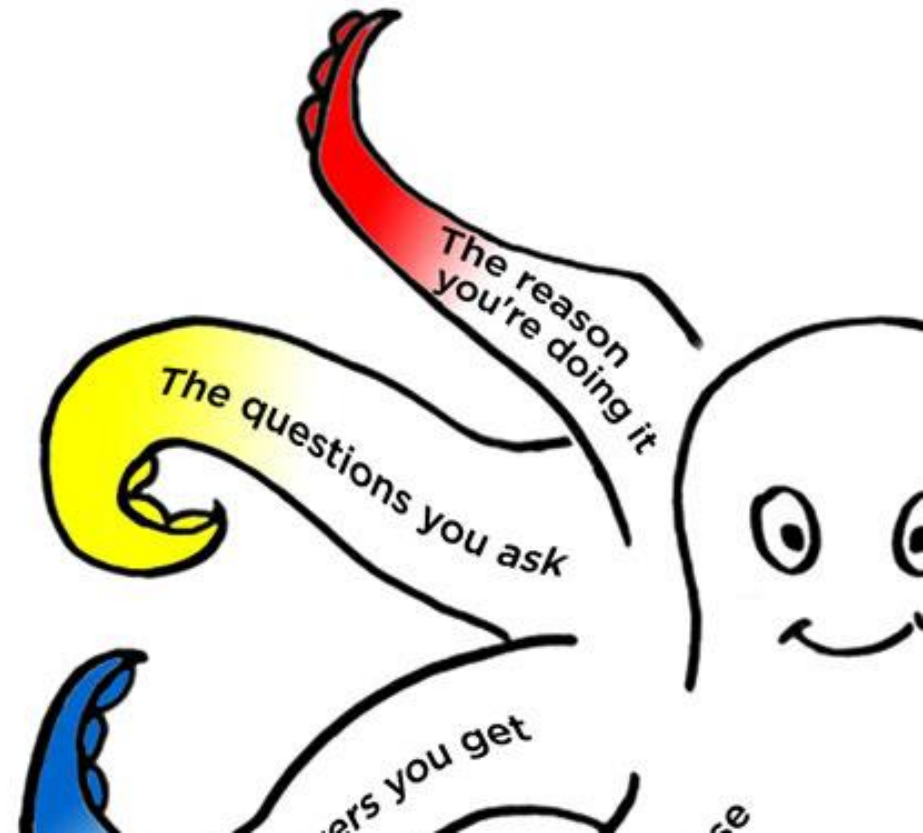


# Surveys that work

## Session 1 of 3

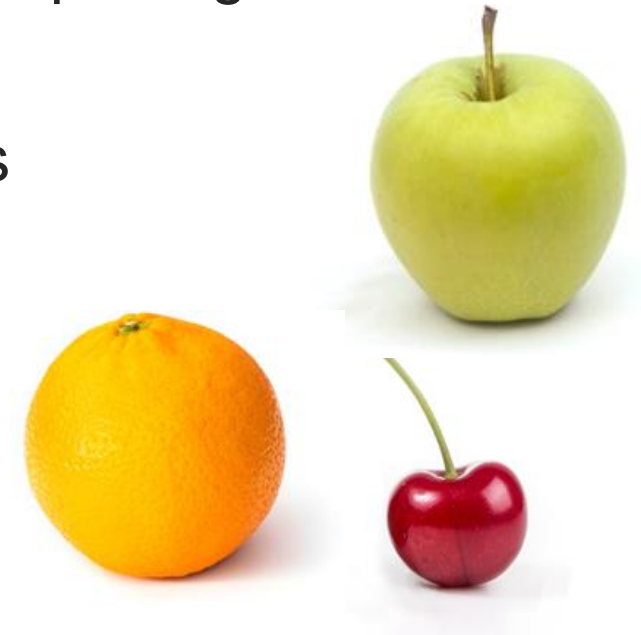
An introduction to  
the Survey Octopus  
and Total Survey Error

Caroline Jarrett  
@cjforms  
#surveysthatwork2022



# Welcome to three sessions of surveys

- I'll aim to cover all the steps in doing a survey
  - Today will focus on why we're doing the survey and who to ask
  - Tomorrow will be mostly about questions and questionnaires
  - Wednesday will be about dealing with responses and reporting
- You will join in – I hope
  - Your experiences, thoughts, comments, and questions
  - Some things to try individually, others in groups
- We'll use an example survey



# Introductions (I'm Caroline Jarrett)

I'm going to start

- My name and role
- A random thing about me



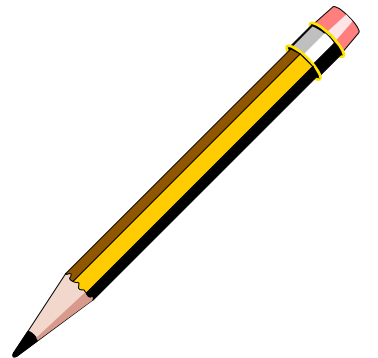
# Get into your groups for introductions

We have three groups

- You are in Apple, Orange, or Cherry
- Our Rosenfeld Media support person, Elle, is here to help us

Introduce yourselves

- Your name and role
- A random thing about yourself
- 5 minutes



# Let's find out about our experiences

# Keep a note of your answers to these questions

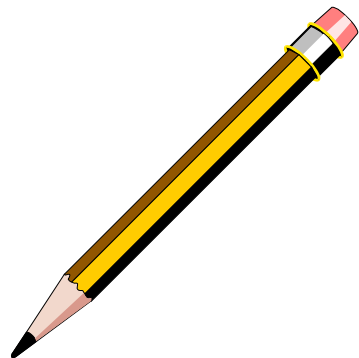
1. How many surveys have you run?

NONE      1 to 5      6 to 10      more than 10

2. What is your top tip for a better survey, based on experience of writing or answering?

---

---



# Two volunteers, please

# Try it as an interview

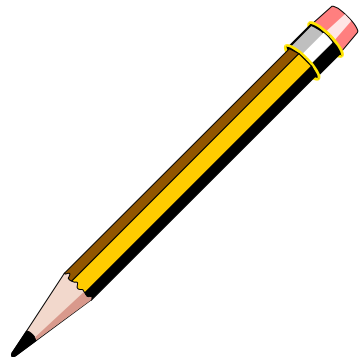
1. How many surveys have you run?

NONE      1 to 5      6 to 10      more than 10

2. What is your top tip for a better survey, based on experience of writing or answering?

---

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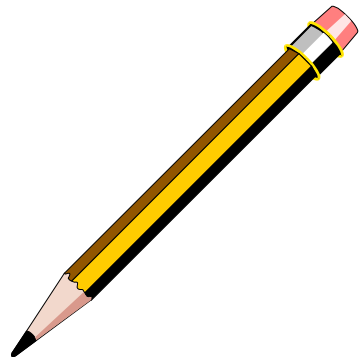


# Let's practice with the retro board

Please share

- your number of surveys (none is fine!)
- your tips (none yet is fine!)

5 minutes



# Overview of surveys and process

# I found this survey methodology definition

The survey is a  
systematic method  
for gathering information from  
(a sample of) entities  
for the purpose of  
constructing quantitative descriptors  
of the attributes of the larger population  
of which the entities are members.

# I change the definition a bit

systematic method	becomes	process
gathering information	becomes	asking questions
entities	become	people
quantitative descriptors	become	numbers about
attributes of the larger population	become	make decisions

# My definition focuses on a survey as a process

The survey is a  
process  
of asking questions that are answered  
by (a sample of) a defined group of  
people  
to get numbers  
that you can use to make decisions

# Let's rearrange the definition, survey in the middle

To make decisions

Why you want ask

People

Who you want to ask

The survey is a  
process for getting  
answers to questions

The number

getting numbers

The aim of a survey is to get the number that helps you to make a decision

Why you want ask

Who you want to ask

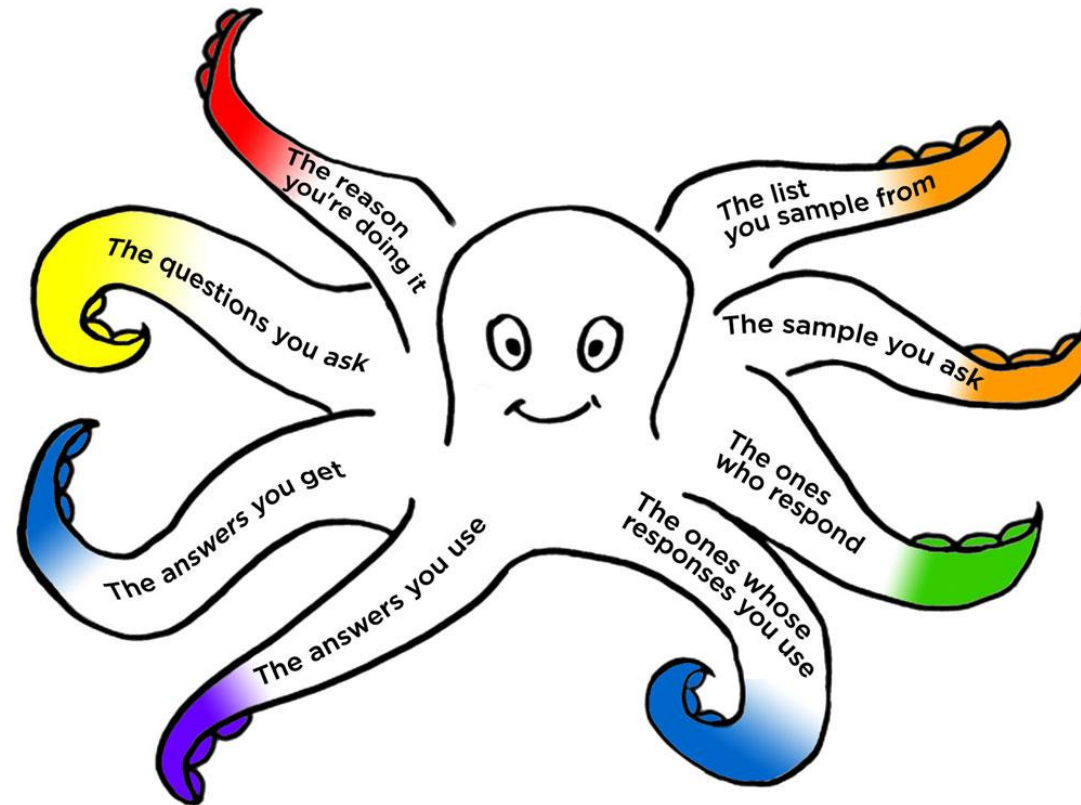
# The Survey

The number

# The Survey Octopus has things to think about

Why you want ask

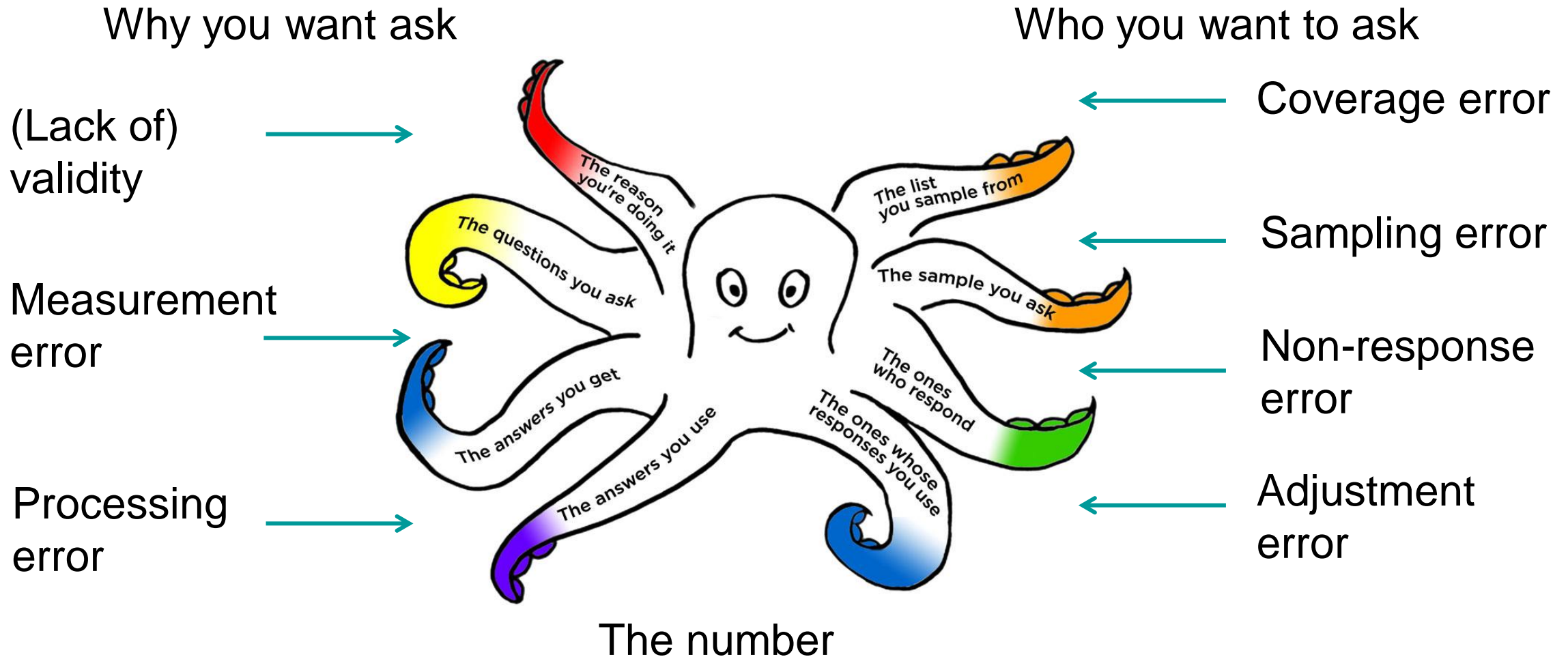
Who you want to ask



The number



# There are errors all around the Survey Octopus



# There are steps in the process for each area

Goals

Questions

Questionnaire

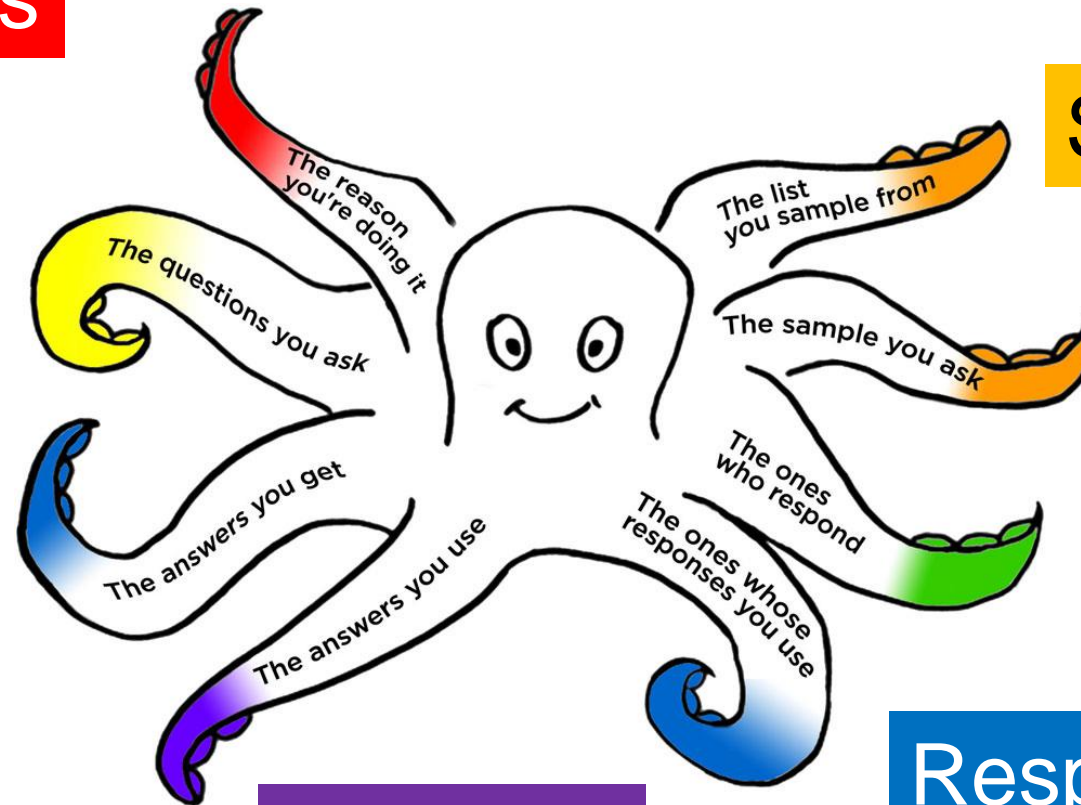
Response

Sample

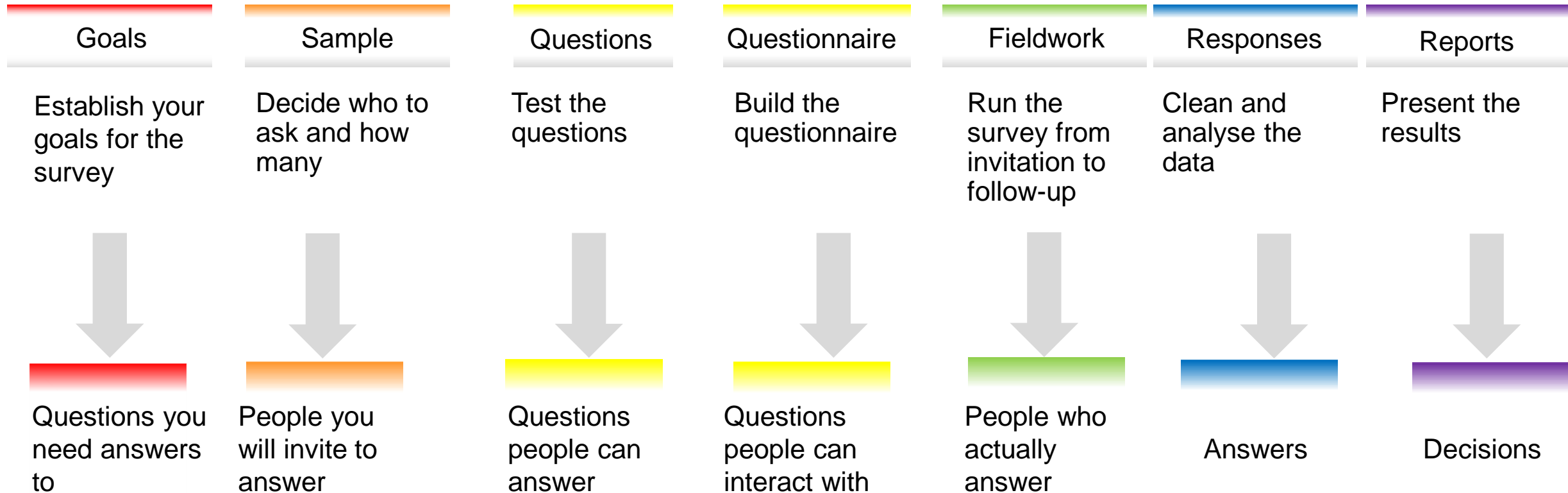
Fieldwork

Reports

Response



# Here are the 7 steps as a linear process



# Today we get clear objectives

Goals	Sample	Questions	Questionnaire	Fieldwork	Responses	Reports
Establish your goals for the survey	Decide who to ask and how many	Test the questions	Build the questionnaire	Run the survey from invitation to follow-up	Clean and analyse the data	Present the results
Today		Tomorrow			Wednesday	

# The goals set the scene for the survey

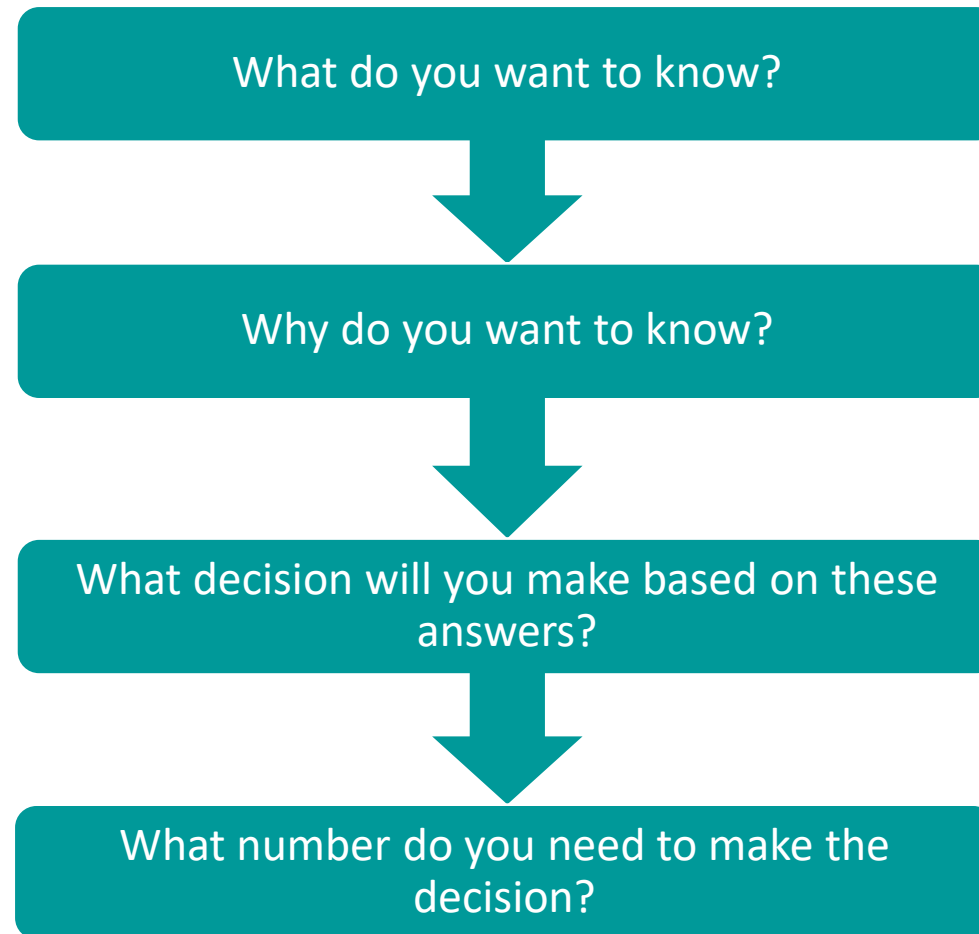
## Goals

Establish your  
goals for the  
survey



Questions you  
need answers  
to

# Establish your goals for your survey



# We will try this example

*“We want to know what users think about our new funding application process”*

# I gave it a go

## EXAMPLE: LYCHEE



Caroline Jarrett

What do you want to know?

"We want to know what users think about our new funding application process"

Why do you want to know?

Add your notes here →

To avoid bad press

What decision will you make based on these answers?

Add your notes here →

whether to hire a PR company

What number do you need to make the decision?

Add your notes here →

the mean rating is less than 20%

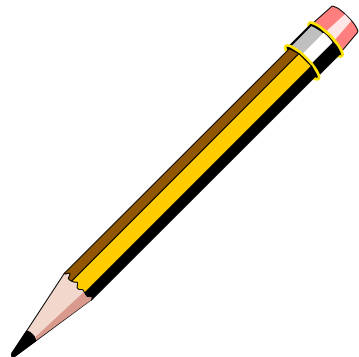


# Write an idea about why you might want to know

“We want to know what users think about our new funding application process”

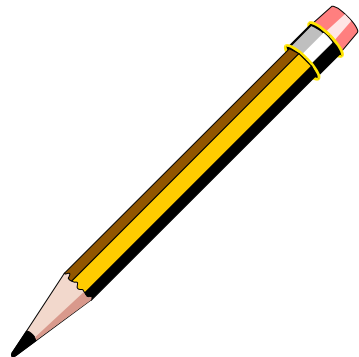
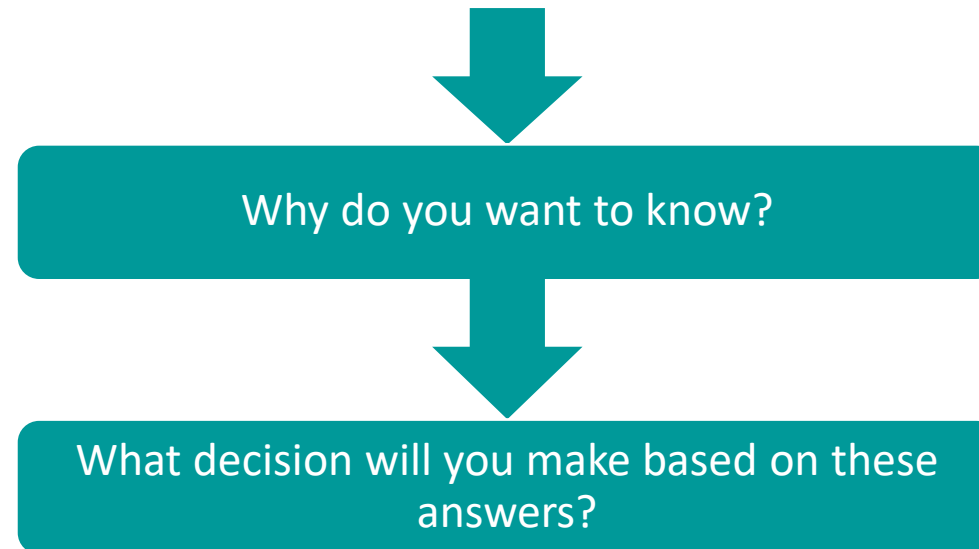


Why do you want to know?



# Write an idea for a possible decision

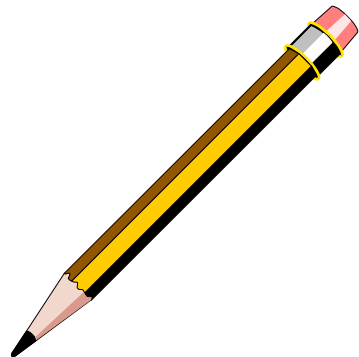
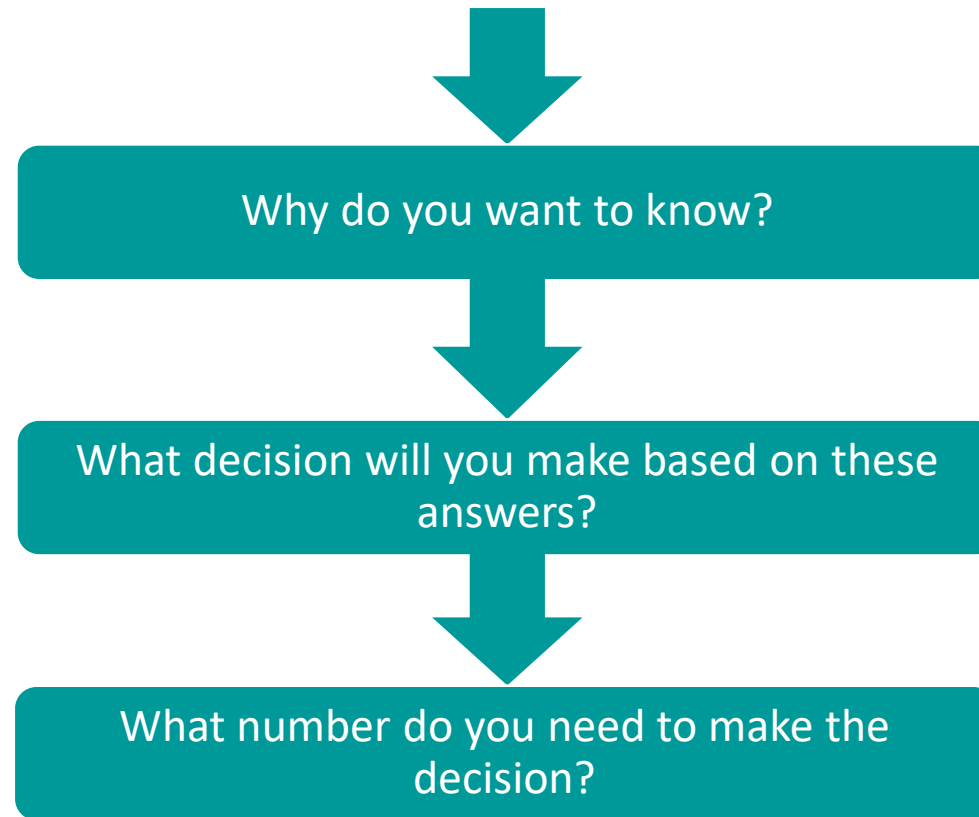
“We want to know what users think about our new funding application process”



# Write an idea for a number

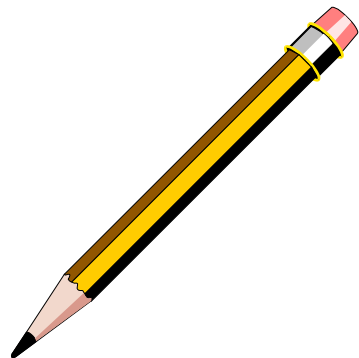
“?” is ok! But do try

“We want to know what users think about our new funding application process”



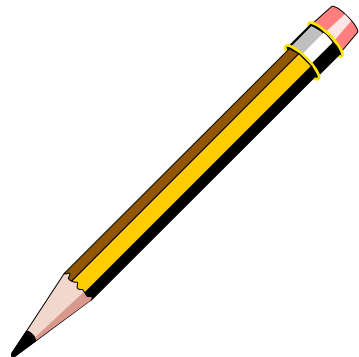
# Compare your ideas in your groups

- Join your breakout room
- Visit the Mural board
- Find the board area for your breakout room
- Add your sticky notes
- Discuss in the room
- 5 minutes

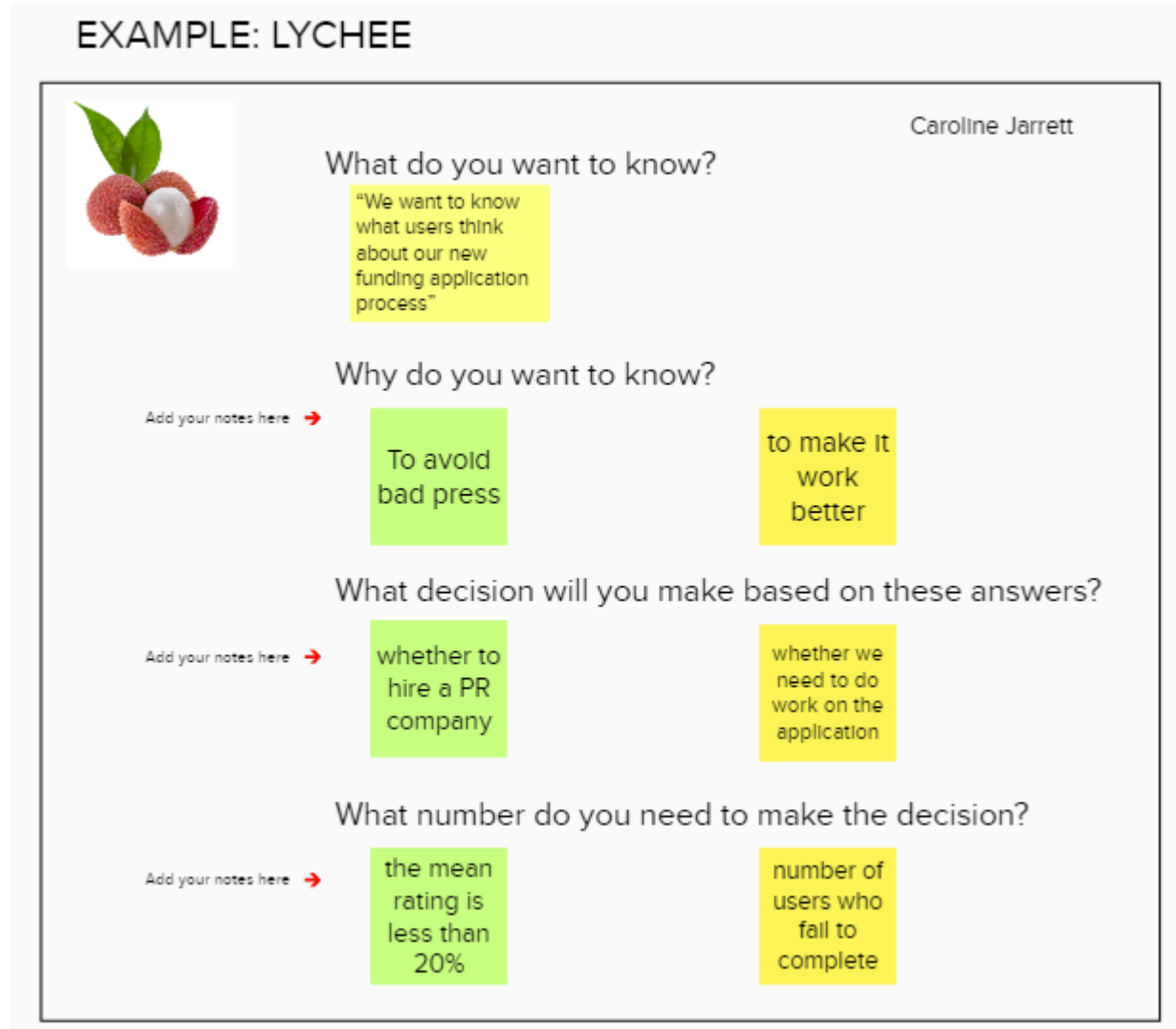


# How was that for you?

- Why do you want to know?
- What decision will you make based on the answers?
- What number do you need make the decision?



# Sometimes the result is a change of ideas



# Takeaway

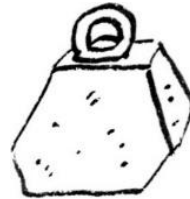
Think carefully about whether you need a quantitative method

# Break



# The 1950s mindset was “Ask Everything”

Survey =  
Big Honkin' Survey



# This one-box survey asks one open question

The screenshot shows the Suttons Seeds website. The header includes the Suttons Seeds logo (Est. 1806), contact numbers (0844 922 2899 for Customer Services, 0844 922 0606 for Orders only), a search bar, and links for Sign In / Register and My Account. A shopping basket summary shows 1 item for £1.45 with a View Basket button. The main navigation bar lists categories: Home, Vegetables, Flowers, Garden Equipment, Fruit, Perennial Plants, Special Offers, and Garden Advice and Help. The breadcrumb trail is Home » Gardening » Vegetables » New Vegetables for 2012 » Brussels Sprout Continuity Collection. The product page for 'Brussels Sprout Continuity Collection' (Code: 216121) features a large image of the sprouts and text describing the collection: 'Harvest October-February', 'Collection contains 18 plants (6 of each variety): Nautic (a vigorous, high-yielding early variety with good standing)'. A 'Pack of 18 Plug Plants (6 of each variety)' is shown with a quantity selector set to 1 and a price of £6.99. An 'Add to Basket' button is prominent, along with an 'Add to wish list' button. A survey overlay titled 'Help us improve' is displayed in the foreground, asking 'We value your opinion. What do you like about our site and what can we improve on?' with a text input field and a 'SUBMIT' button.

**SUTTONS SEEDS** Est. 1806  
0844 922 2899 (Customer Services) 8.30am to 5pm, Mon to Fri  
0844 922 0606 (Orders only) 24hrs a day, 7 days a week

Plant Despatch Schedule

Sign In / Register | My Account

1 item £1.45  
View Basket

Home | Vegetables | Flowers | Garden Equipment | Fruit | Perennial Plants | Special Offers | Garden Advice and Help

Home » Gardening » Vegetables » New Vegetables for 2012 » Brussels Sprout Continuity Collection

## Brussels Sprout Continuity Collection

Code: 216121

**Harvest October-February**  
Collection contains 18 plants (6 of each variety): **Nautic** (a vigorous, high-yielding early variety with good standing)

Pack of 18 Plug Plants (6 of each variety)

Quantity: 1  
**Add to Basket** £6.99  
Add to wish list

to grow your own. Even the smallest patio or  
at will give you a bumper crop of delicious fresh

**Help us improve**  
We value your opinion.  
What do you like about our site and what can we improve on?

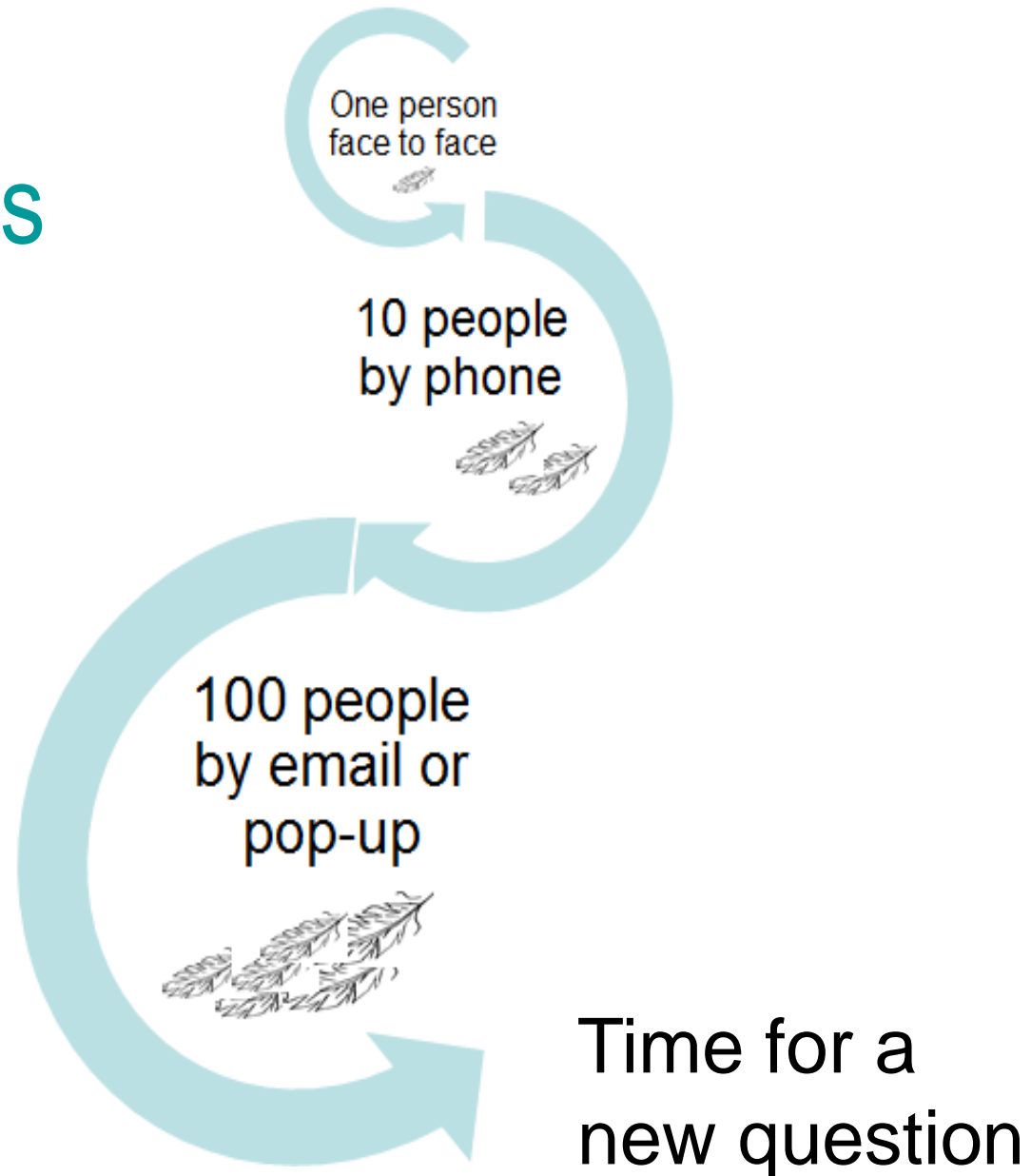
Click here to type...

SUBMIT

# Technology allows us to do the Light Touch survey

- Choose ONE question
- Find ONE person
- Ask the question, face-to-face
- Think about representativeness
- See if you can make ONE decision
- Improve, iterate, increase

# You can get from 1 to 100 in three steps



# What's the Most Crucial Question (MCQ)?

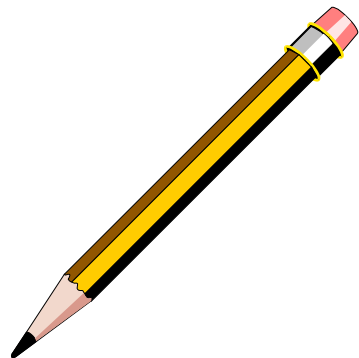
- The MCQ is the one that stakeholders most want to ask
- An MCQ lets you calculate a numeric answer somehow
- It's a research question that may need work
  - It may not (yet) make sense to the people who will answer
  - That's part of the fun of creating a survey

# What's the Most Crucial Question?

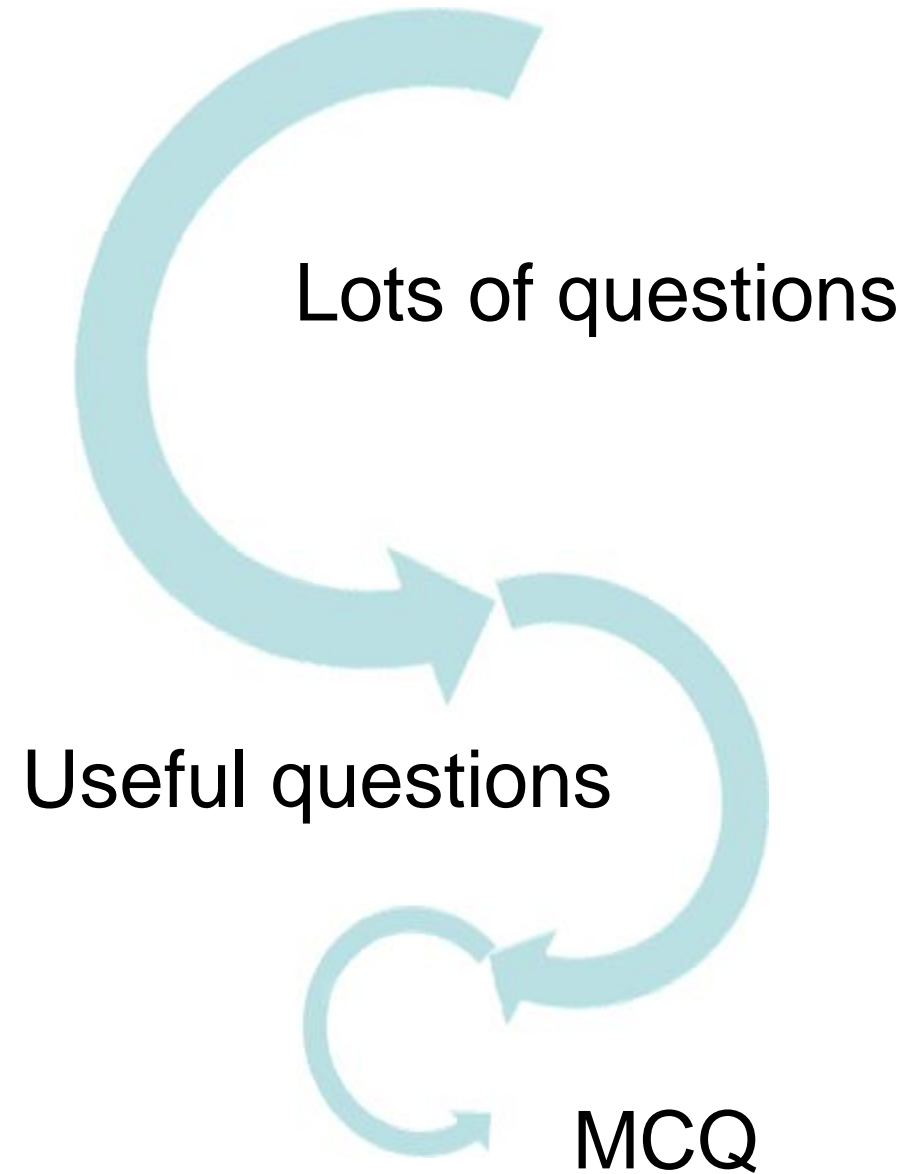
Look through the questions in this survey

What is the Most Crucial Question?

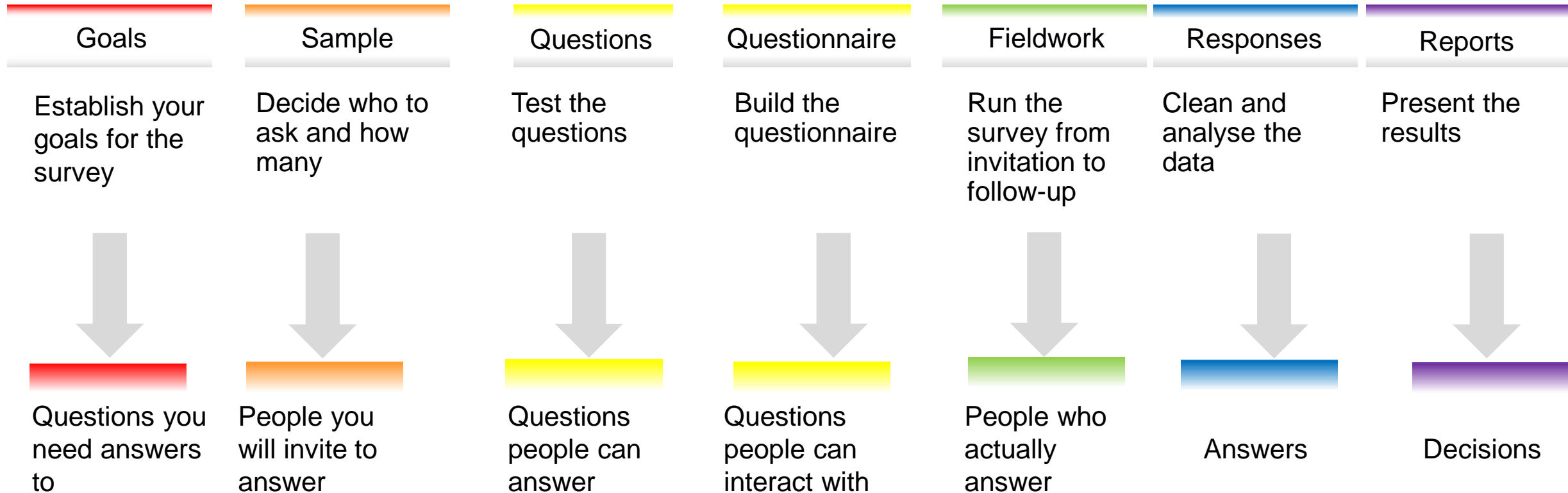
2 minutes



Narrowing down from  
lots of questions is  
another way to iterate  
and improve



# Here are the 7 steps as a linear process





# Let's have a look at who we'll ask

Sample

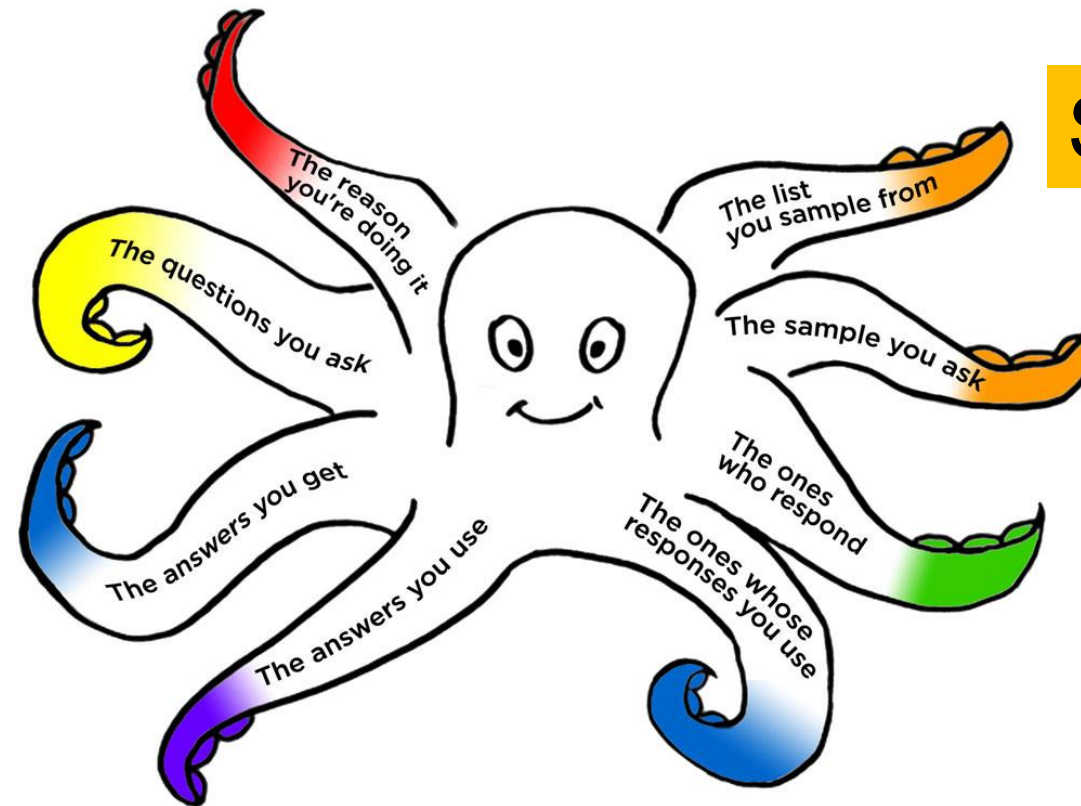
Decide who to  
ask and how  
many



People you  
will invite to  
answer

# Asking the right people is better than asking lots of people

Who you want to ask

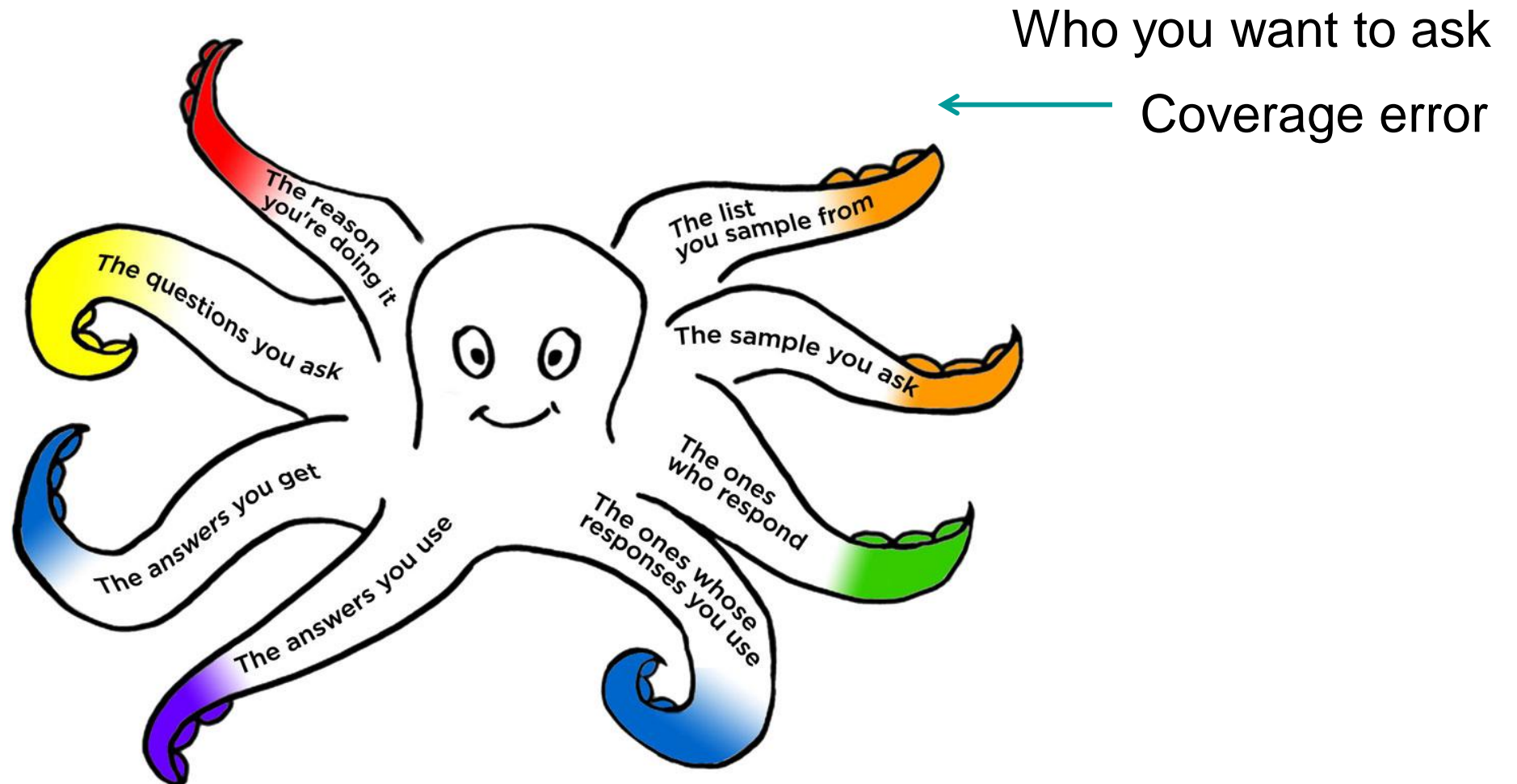


Sample

The number

# Coverage error happens when 'who you want to ask' does not match the list you sample from

Sample



# This prank co-ordinated unwanted respondents

## Prank leaves Justin Bieber facing tour of North Korea

By Daniel Emery

Technology reporter, BBC News

**Canadian singer Justin Bieber's has become the target of a viral campaign to send him to North Korea.**

A website polled users as to which country he should tour next, with no restrictions on the nations that could be voted on.

There are now almost half a million votes to send the singer to the secretive communist nation.

The contest, which ends at 0600 on 7 July, saw North Korea move from 24th to 1st place in less than two days.

Many of the votes are thought to originate from imageboard website 4chan, which has built a reputation for triggering online viral campaigns.



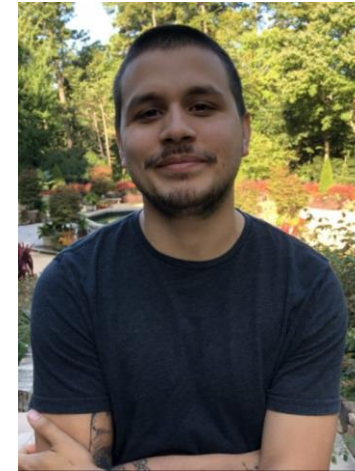
It is highly unlikely Bieber would be given permission to enter North Korea

### Related Stories

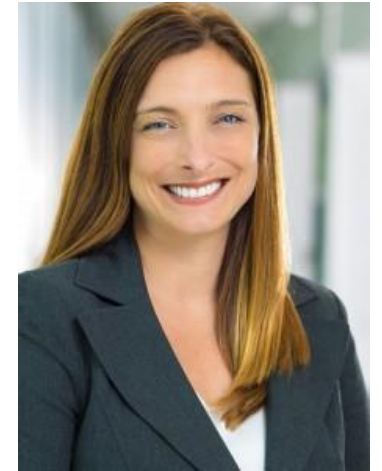
# Lopez and Hillygus found that people are naughty

*“Our results suggest that not only do “survey trolls” exist, and report beliefs in systematically different ways, but their humorous responding can upwardly bias the level of belief in more recent cases of political rumors and misinformation (e.g., PizzaGate).”*

Lopez, Jesse and Hillygus, D. Sunshine,  
*Why So Serious?: Survey Trolls and Misinformation*  
(March 14, 2018). Available at  
<http://dx.doi.org/10.2139/ssrn.3131087>




Jesse Lopez



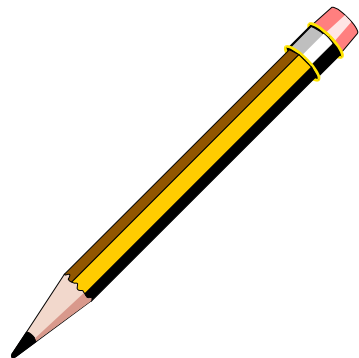
D. Sunshine Hillygus

# Response, response rate and representativeness are all different

Concept	Definition	Example
Response	Number of answers	5,000
Response rate	Response divided by the number of invitations	10%
Representativeness	Whether the respondents you get are typical of the users you want	

# Did we get answers from the right people?

The sample we got



# Check the representativeness of your sample

Who we wanted to ask

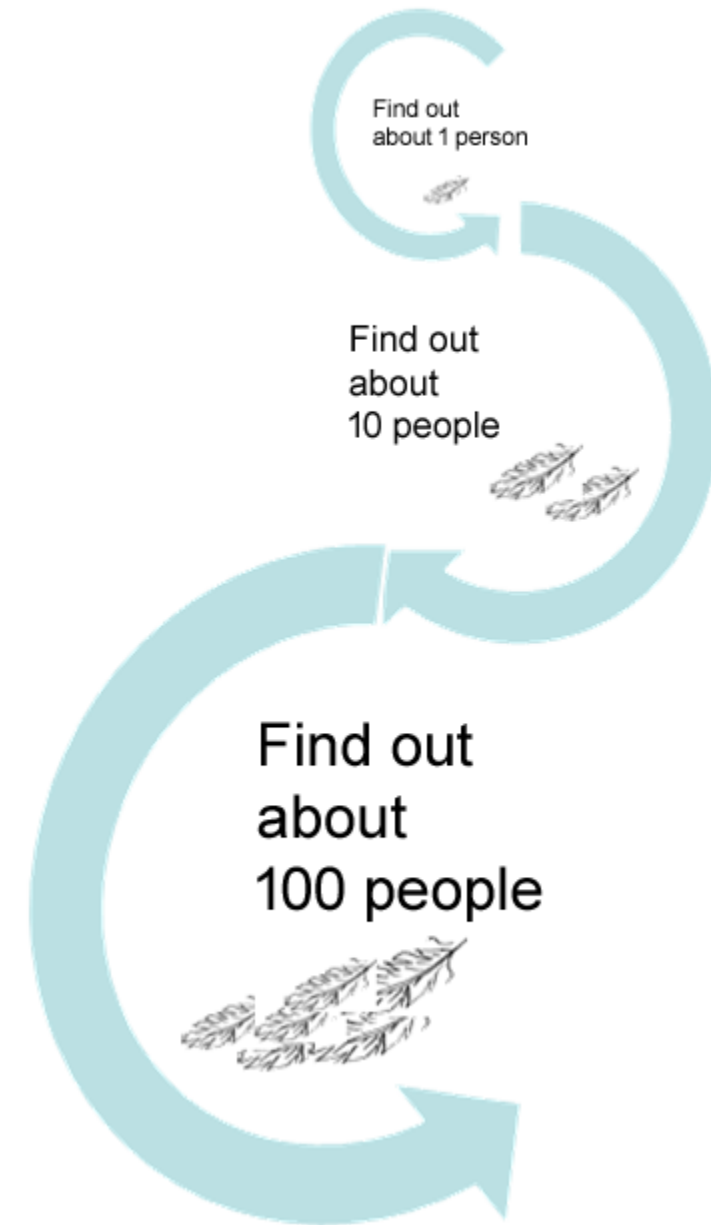


The sample we got





Iterate, improve, increase  
to understand  
the people you want to ask



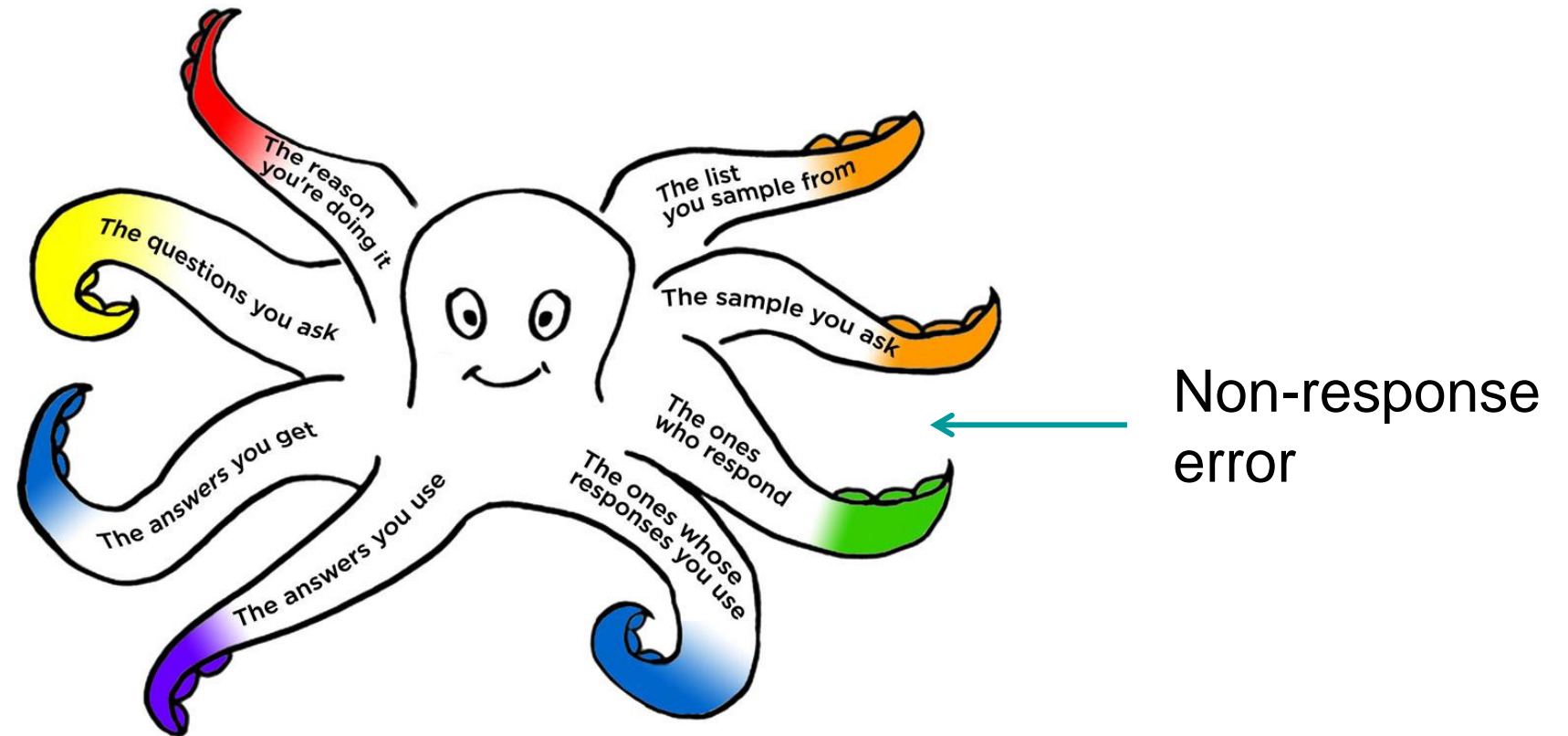
# Decide how to target the correct people

- Iterate down from a list
  - Public list
  - Private list
- Try a 'snowball'
  - Use contacts
  - Use social media
- Catch them in the moment



Non-response error happens when the people who do not respond are different to the people who do respond in a way that affects your decision

# Non-response error can really hurt

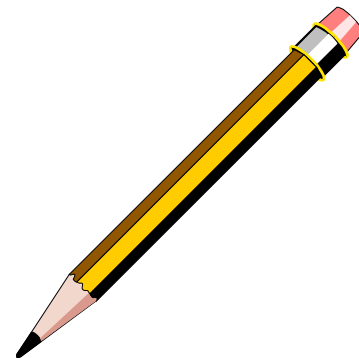


# Why might this be non-response error?

“... giving it a unique taste of which (sic) most people liked after 14 days of use”



Image credit: Caroline Jarrett





# Jane Matthews told me a story

- 20 people attend a workshop; they all seem to enjoy it
- Only get 3 or 4 back from a web survey

*“If we rely on those responses,  
we might be at risk of making bad decisions”*

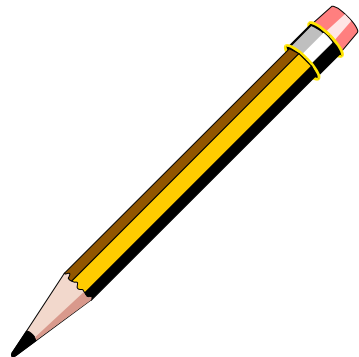
- Now changing to phoning half the people



# Who will we ask?

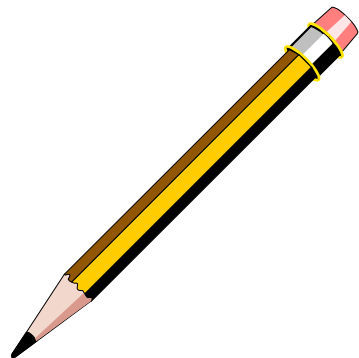
“We want to know what users think about our new funding application process”

- Who do we want to ask?
- Which strategy will we use to find them? Choose ONE
  - Narrow down from a public or private list
  - Snowball up from contacts
  - Catch them in the moment
- Into groups please
- 5 minutes



# How was that for you?

- Which strategy did you choose for finding your sample?

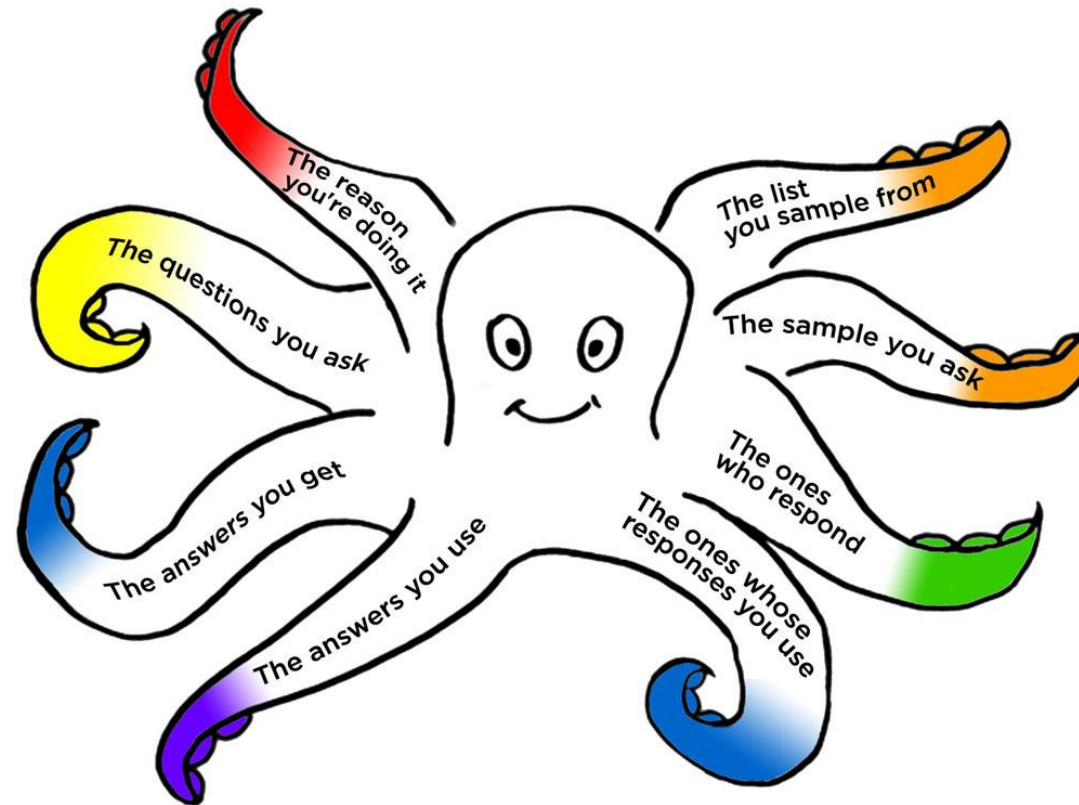




# “The ones who respond” connects to why and who

Why you want ask

Who you want to ask



The number

# Response depends on effort, reward and trust

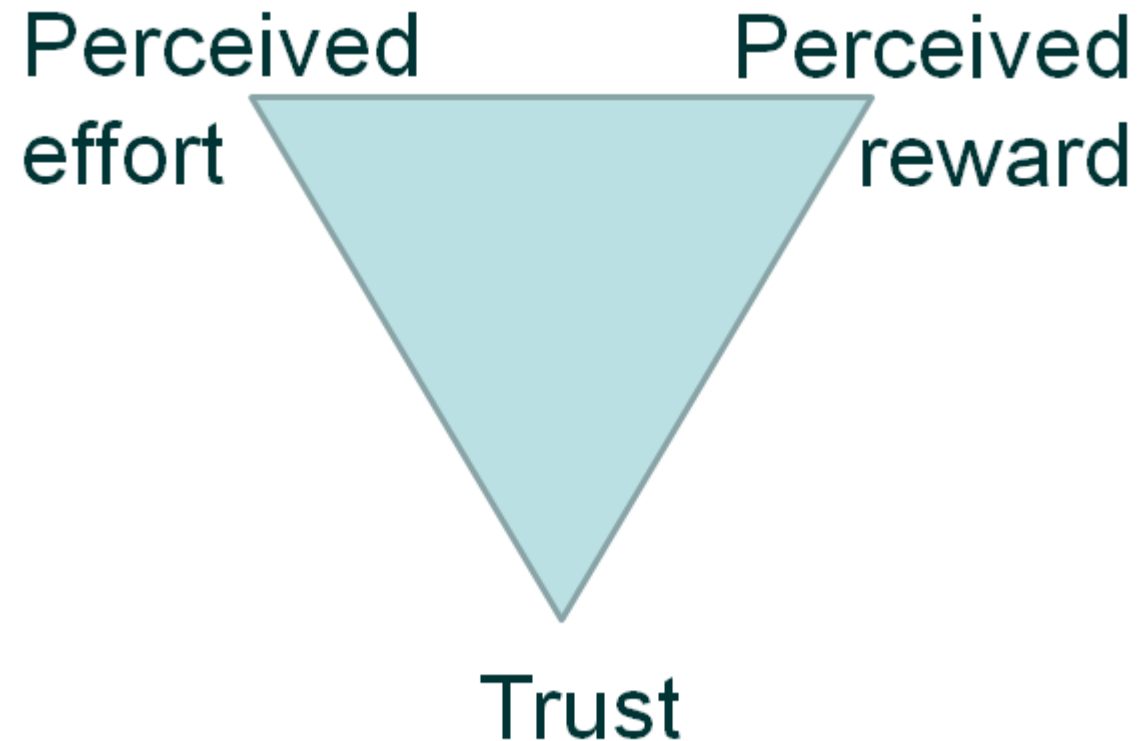
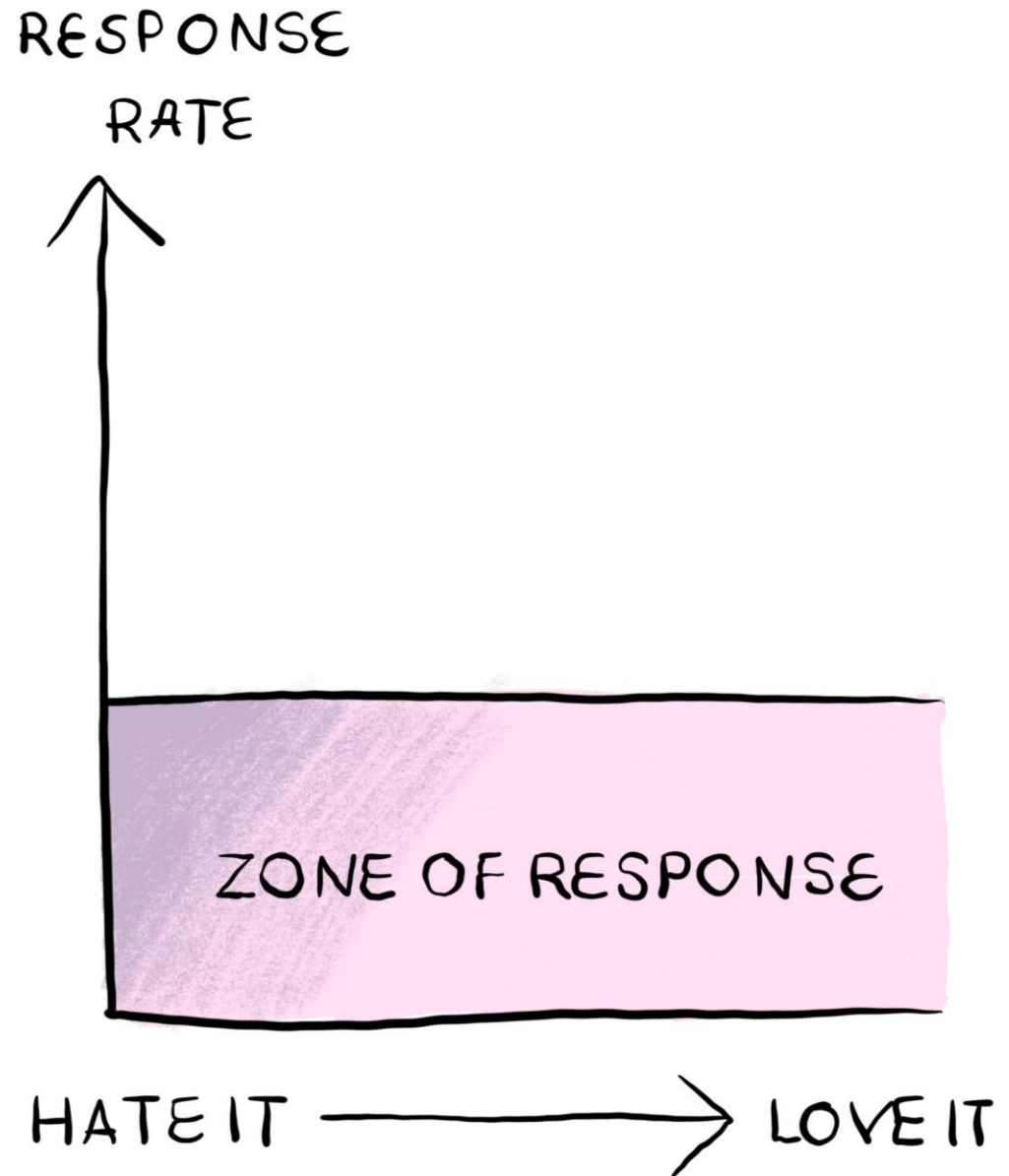


Diagram from Jarrett, C, and Gaffney, G (2008)  
"Forms that work: Designing web forms for usability" inspired by Dillman, D.A. (2000)  
"Internet, Mail and Mixed Mode Surveys: The Tailored Design Method"

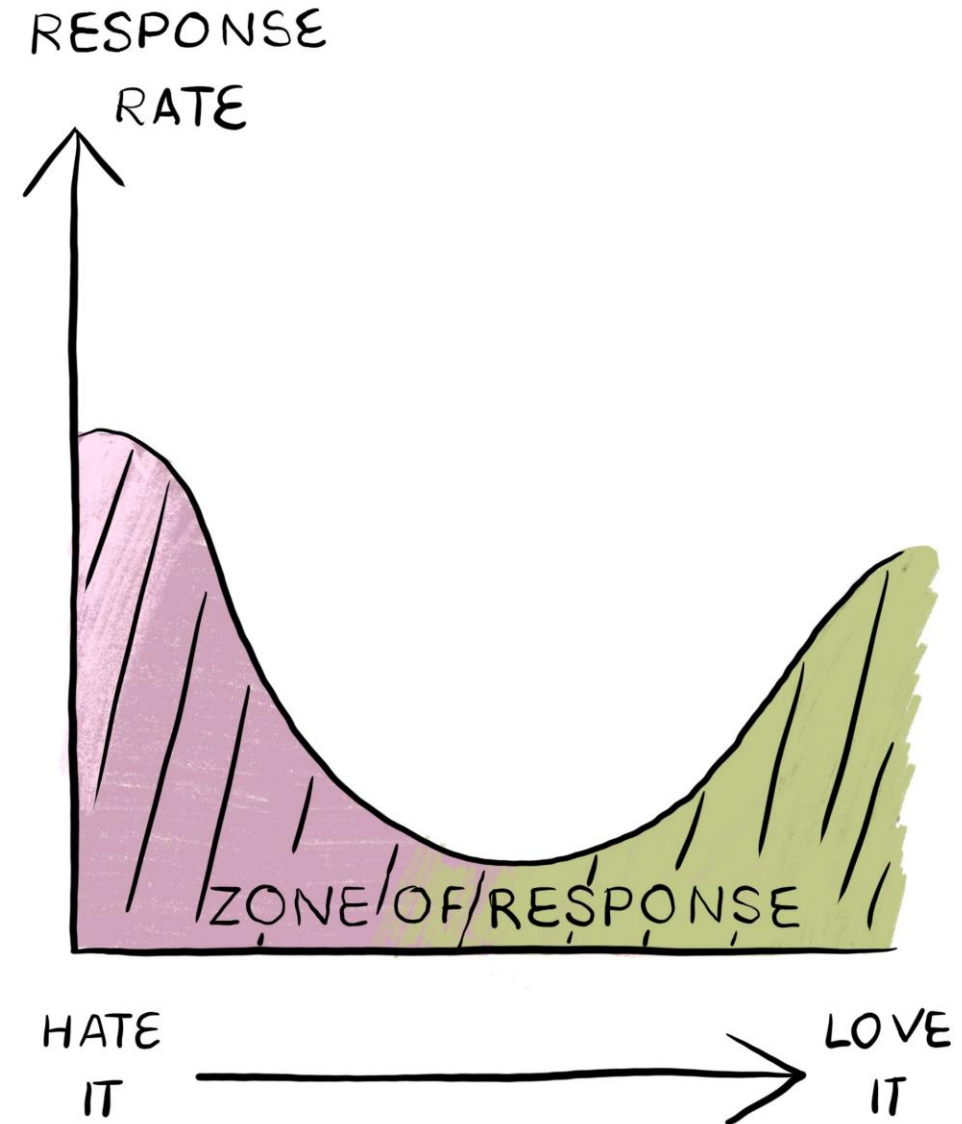
# Would you respond to this invitation?



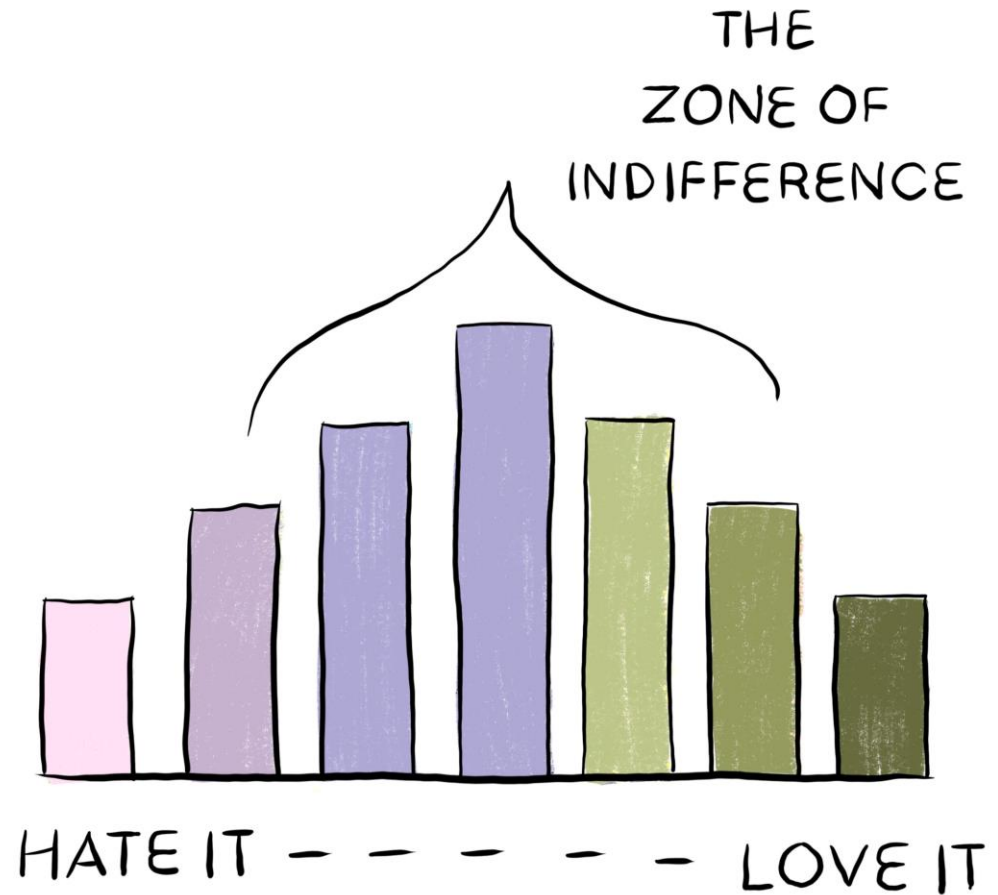
If attitude does not affect response rate, you'd get a graph like this



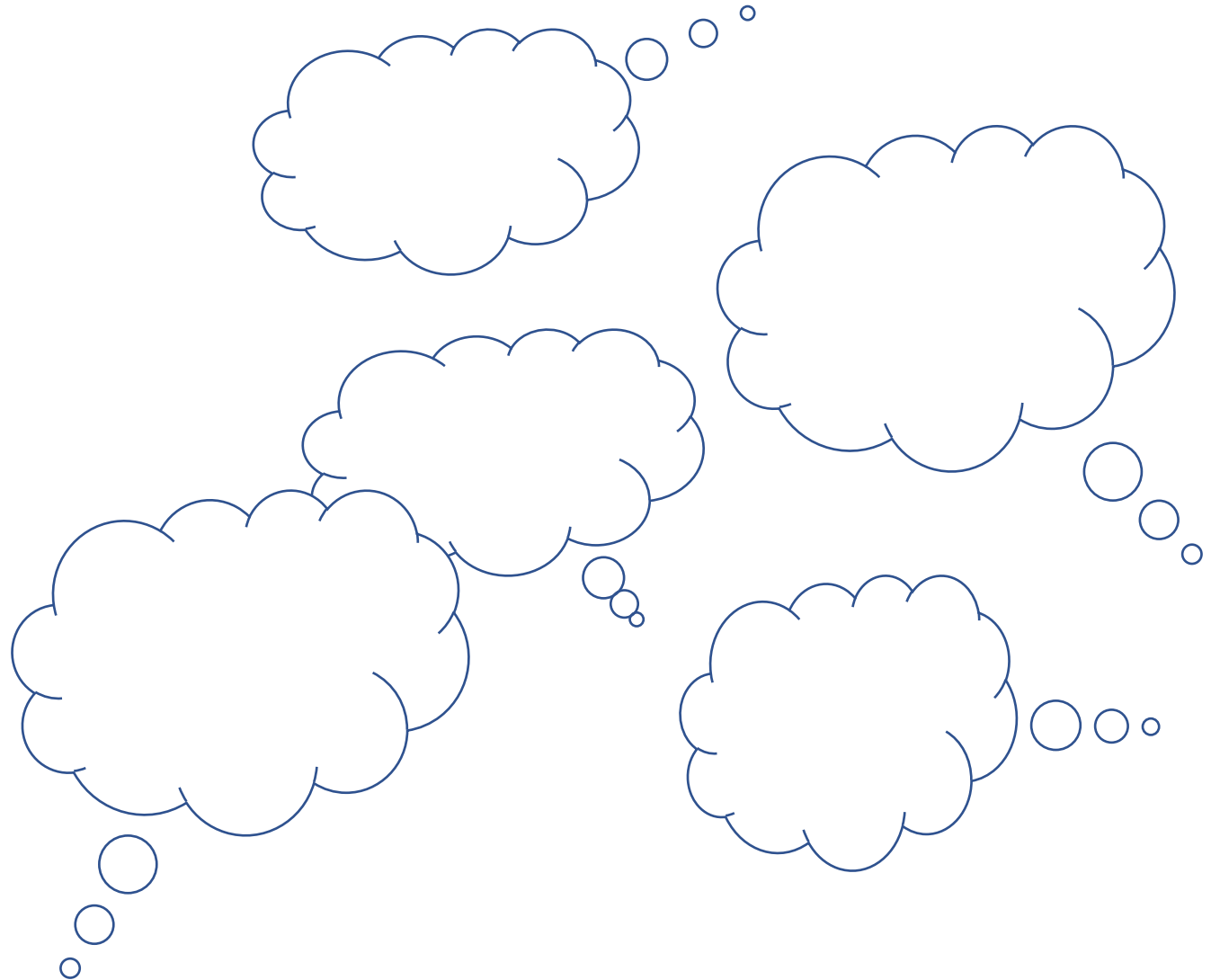
You might get a different picture altogether



There's often a  
'zone of indifference'

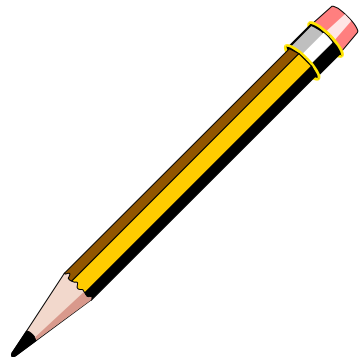


# Burning Issues are things people want to tell you



# What are the Burning Issues?

- Think about a service that you've used recently
- Make a note of any Burning Issue that you had





# Now answer this questionnaire

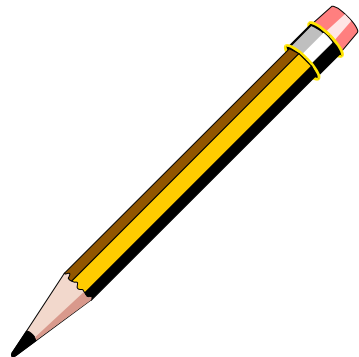
We'd love to hear what you think of our customer service. Please take a moment to answer one simple question by clicking either link below:

How would you rate the support you received?

How would you rate the support you received?

[Good, I'm satisfied](#)

[Bad, I'm unsatisfied](#)



# Did you find space for your issue?

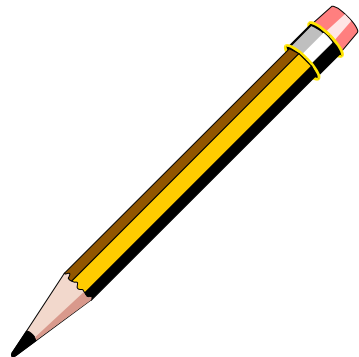
We'd love to hear what you think of our customer service. Please take a moment to answer one simple question by clicking either link below:

How would you rate the support you received?

How would you rate the support you received?

[Good, I'm satisfied](#)

[Bad, I'm unsatisfied](#)



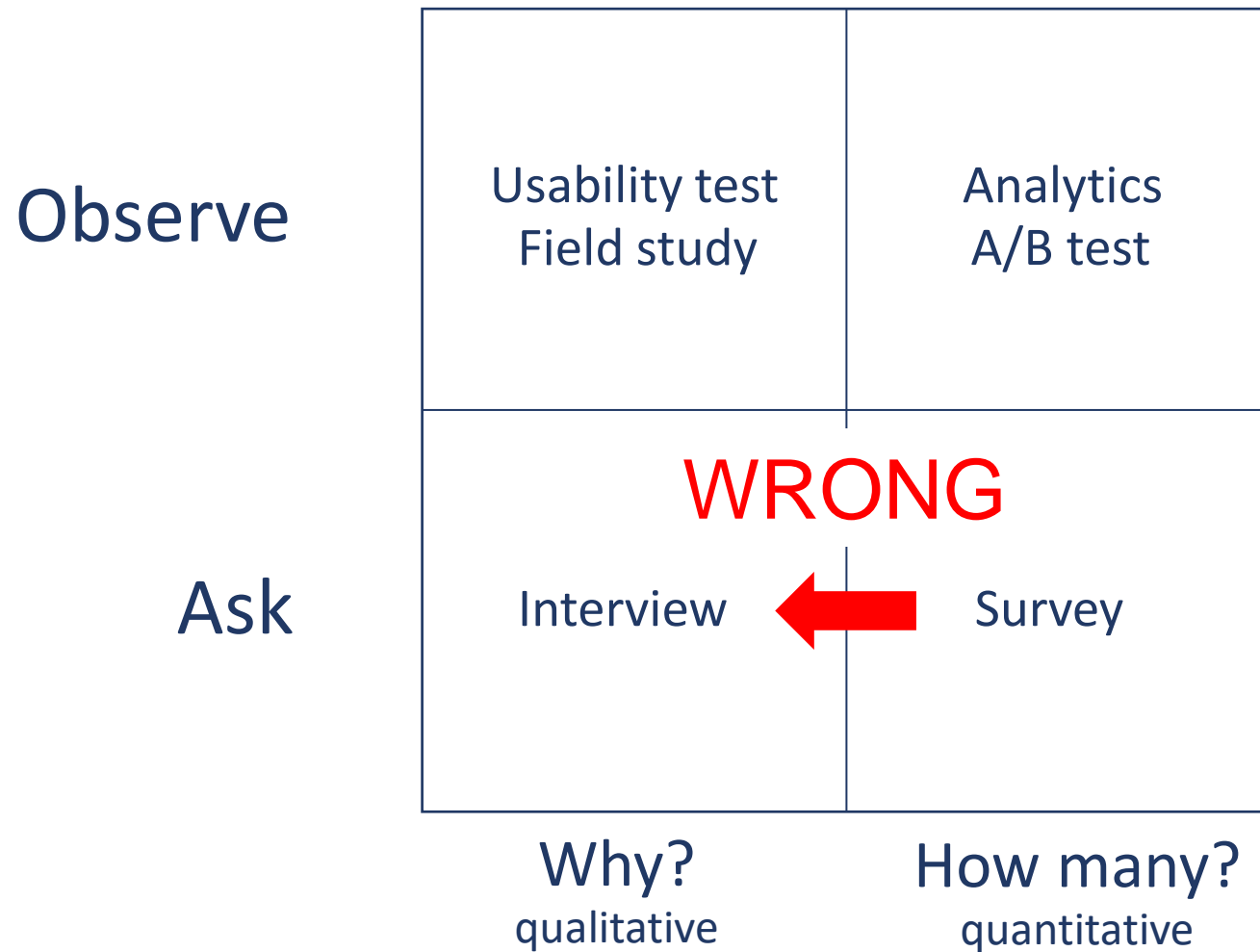
# Interview users about the topics in your survey

- Who are they?
- How will you find them?
- Do they want to answer your questions?
- What are their Burning Issues?
- Do they understand your questions?

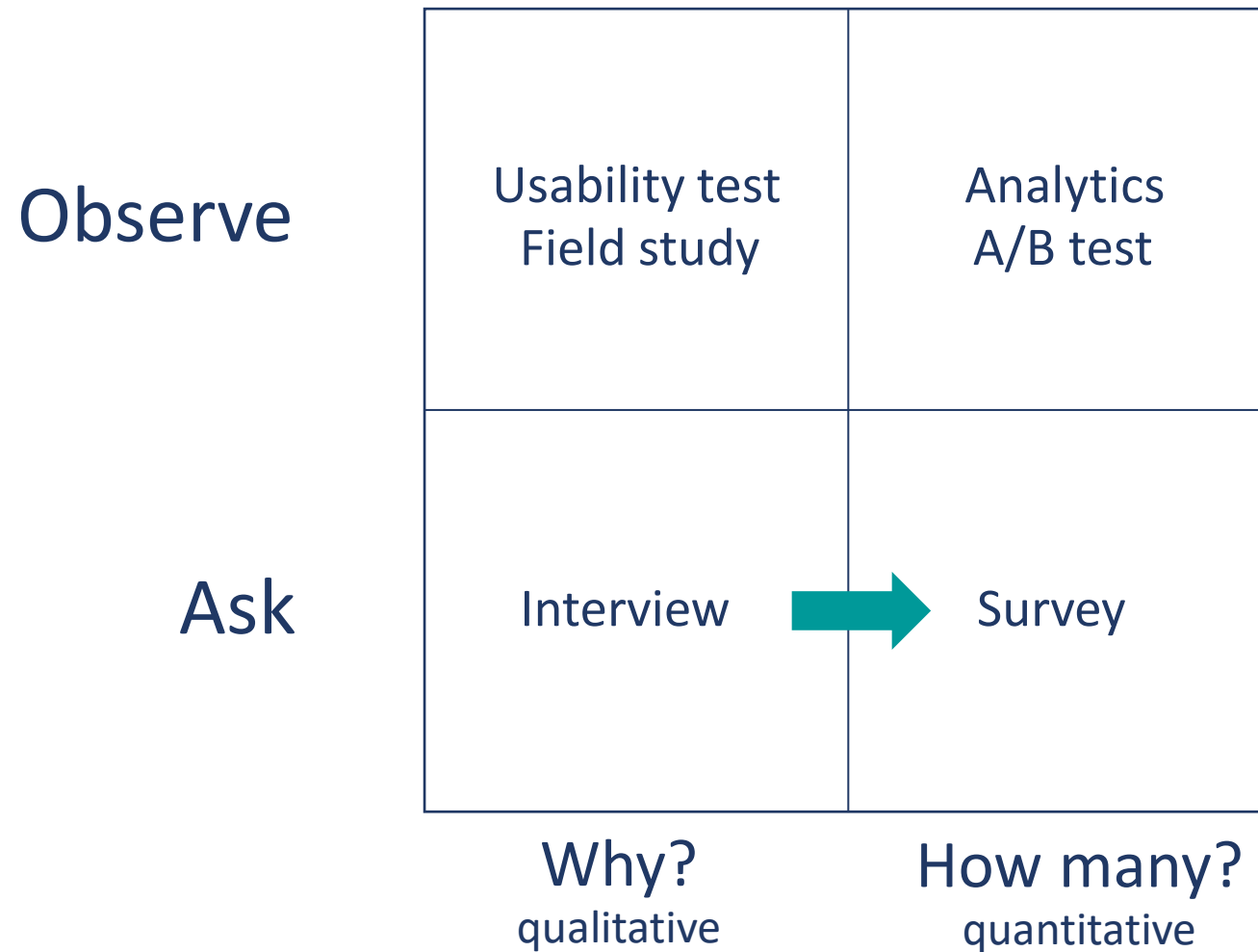


# Break

# I often hear plans to “start with a survey”

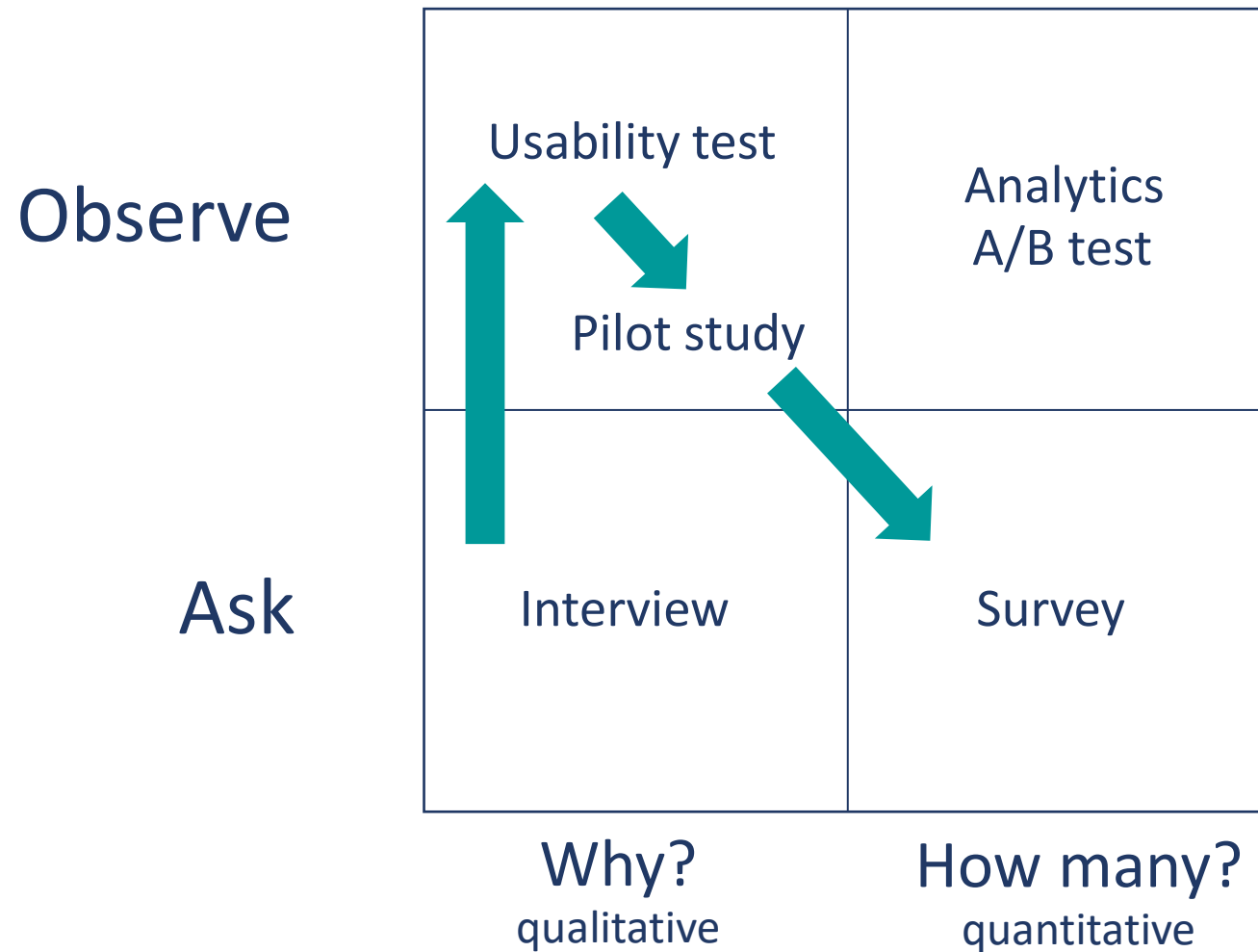


# It's much, much better to interview first\*

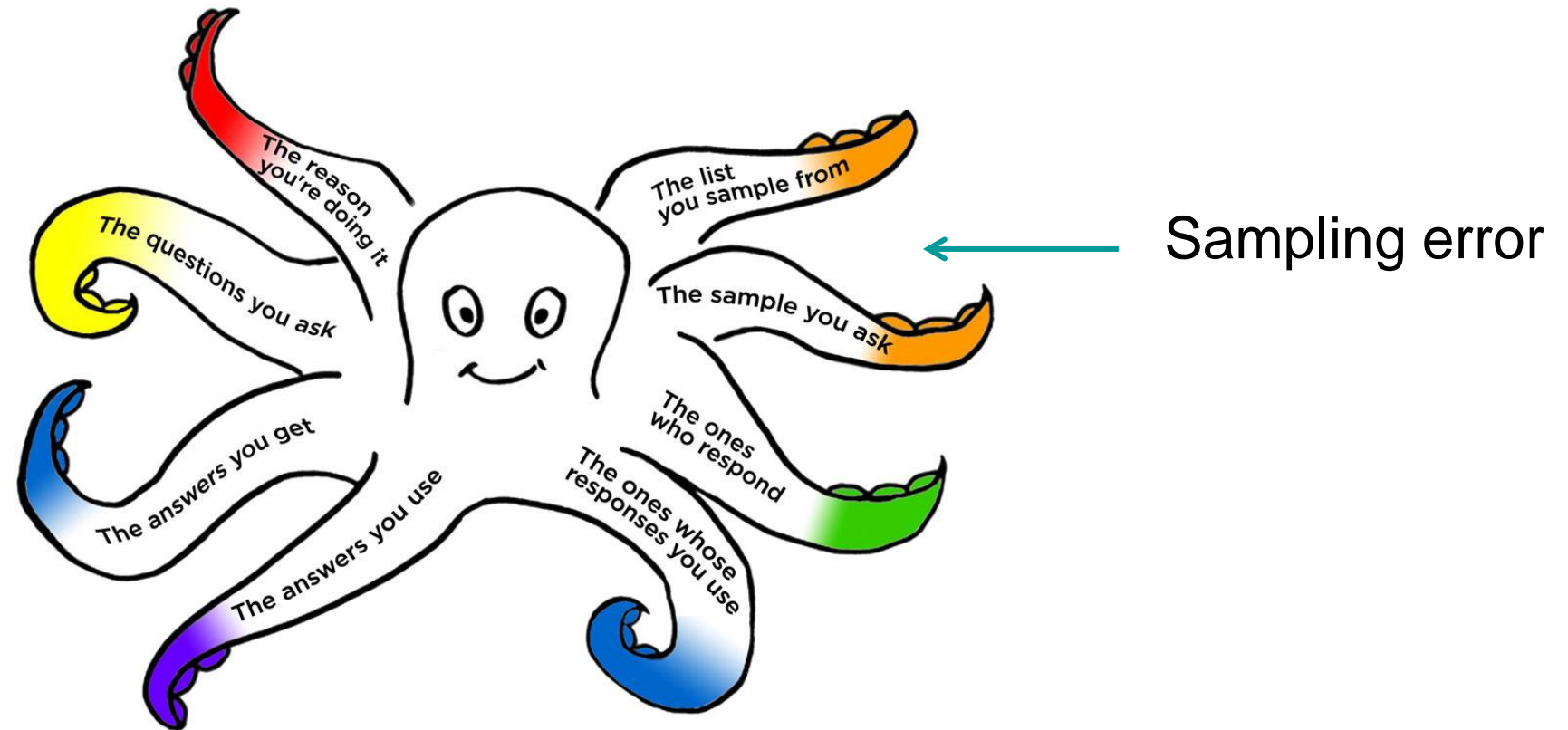


\*It's also good to do more interviewing later. Iteration is great.

# Survey methodologists do lots of testing



# Sampling error happens when you ask a sample





# Sample size calculations need lots of estimates

- **Acceptable level of [statistical] significance** (risk of reporting a result when the differences happened by chance, type 1 error)
- **Power of the study** (risk of missing a result that is really there, type 2 error)
- **Expected effect size** (whatever counts as a worthwhile change)
- **Underlying event rate in the population** (how many people affected)
- **Standard deviation in the population** (amount of variability in the population)
- **Assumptions about sampling**

Kadam, P., & Bhalerao, S. (2010). Sample size calculation. *International journal of Ayurveda research*, 1(1), 55–57.  
[Sample size calculation \(nih.gov\)](#)

# What type of significance do you need?

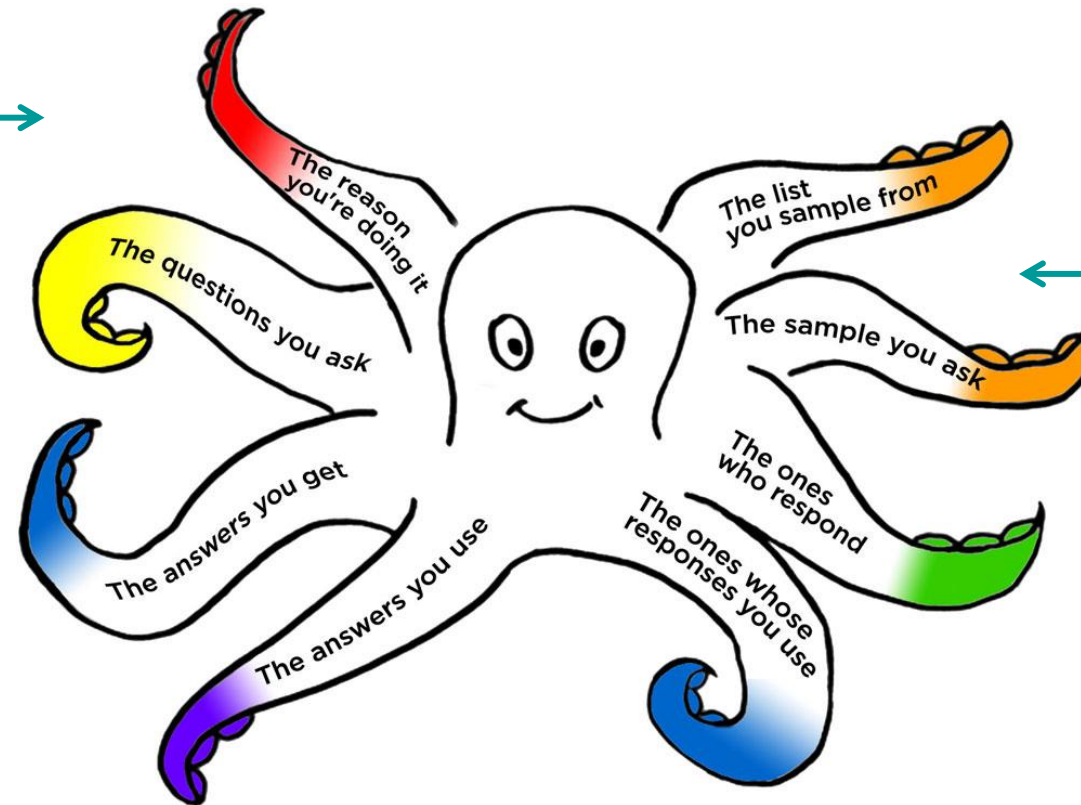
- A result that is *statistically significant* is one that is mathematically unlikely to be the result of chance
- A result that is *significant in practice* is one that is meaningful in the real world

# If you ask the wrong questions, you'll fail at validity

Why you want ask

Who you want to ask

(Lack of)  
validity



Sampling error



The number

# Takeaway

Asking one person  
the right question

gets better results

than asking 10,000 people  
the wrong question

# Significance in practice relates to Total Survey Error

Why you want ask

(Lack of) validity

Measurement error

Processing error

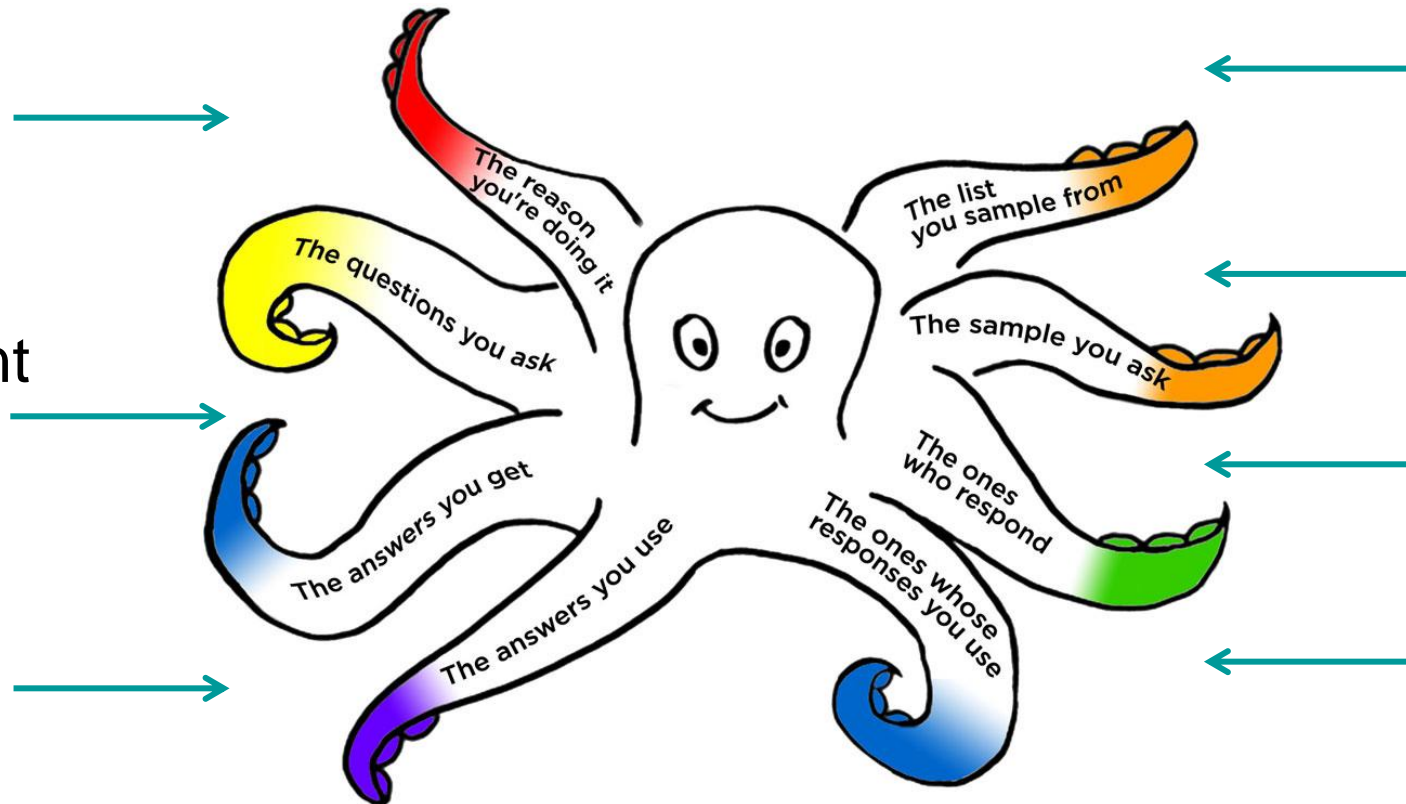
Who you want to ask

Coverage error

Sampling error

Non-response error

Adjustment error



The number

# Takeaway

Statistical significance is completely different from significance in practice

# You need these things to calculate a sample size

Mostly, we accept these two numbers

- Acceptable level of significance: 5%
- Power of the study: 80%

We have to estimate or decide on these three numbers

- Expected effect size
- Underlying event rate in the population
- Standard deviation in the population

We have to commit to a random sample (every person in the population has a known, non-zero, chance of being selected)

# Bacon does increase your risk of cancer

- [A rasher of bacon a day 'ups cancer risk' - BBC News](#)
- In the scientific paper
  - Sample 1: “a short food-based questionnaire” (n = 475 581)
  - Sample 2: “an online 24-hour dietary assessment” (n = 175 402)
  - 2609 cases of colorectal cancer occurred (0.55%)
    - Out of every 1000 people, about 5 and a half got colorectal cancer
  - Reporting three times as much red and processed meat every day led to 20% increased risk of cancer
    - Out of every 1000 keen “bacon” eaters, about 6 and a half got colorectal cancer
    - 76g compared to 21g or 2.7oz compared to 0.7oz or 3 rashers compared to 1.



# Let's think about an effect size in surveys

A total of [x] individuals were randomly assigned to one of three conditions in a mailed paper questionnaire where demographic questions were

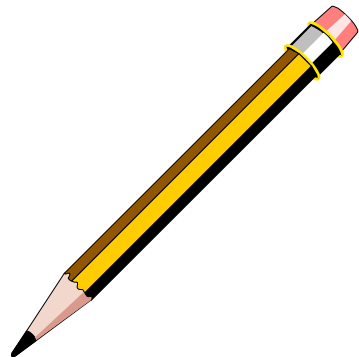
1. not asked,
  2. integrated at the end of the survey, or
  3. included as standalone questions on a separate piece of paper
- We're looking at changes in response rate
    - “1 - not asked” means we may lose valuable data
    - “3 - included as standalone questions” means extra hassle
    - We'd prefer to stick to 2 but not if it has a much worse response rate

# What effect size would you like to see?

- We are looking for a change in the expected 33% response rate
- What difference in response rate (effect size) are we hoping to detect here?

A total of [x] individuals were randomly assigned to one of three conditions in a mailed paper questionnaire where demographic questions were

- not asked,
- integrated at the end of the survey, or
- included as standalone questions on a separate piece of paper



# Our preferred method has about the same response rate

Demographic questions	Response rate
1. not asked	34.2%
2. integrated at the end of the survey	33.1%
3. included as standalone questions on a separate piece of paper	33.0%
Statistically significant?	No
Significant in practice?	Yes

Ziegenfuss, J. Y., et al. (2021). "Impact of demographic survey questions on response rate and measurement: A randomized experiment." Survey Practice **14**(1): 26126.

# The extra hassle of standalone is not needed

Demographic questions	Response rate	Response to demographic questions
1. not asked	34.2%	(not relevant)
2. integrated at the end of the survey	33.1%	32.7%
3. included as standalone questions on a separate piece of paper	33.0%	28.3%
Statistically significant?	No	Yes
Significant in practice?	Yes	Yes

Ziegenfuss, J. Y., et al. (2021). "Impact of demographic survey questions on response rate and measurement: A randomized experiment." Survey Practice **14**(1): 26126.

# Many statisticians aren't keen, either

*Scientists rise up against statistical significance*

<https://www.nature.com/articles/d41586-019-00857-9>



# Wrapping up today

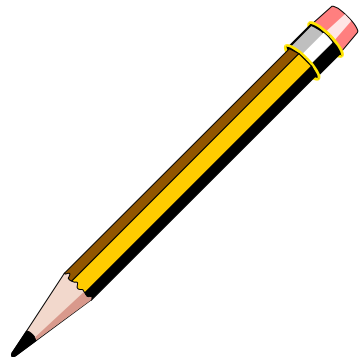
# Tomorrow we mostly look at questions

Goals	Sample	Questions	Questionnaire	Fieldwork	Responses	Reports
Establish your goals for the survey	Decide who to ask and how many	Test the questions	Build the questionnaire	Run the survey from invitation to follow-up	Clean and analyse the data	Present the results
Today		Tomorrow			Wednesday	

# Please join my EasyRetro

You'll find columns for:

- Anything useful from today
- Not useful / confusing / could have skipped
- Want to know but hasn't yet come up
- Has come up but want more



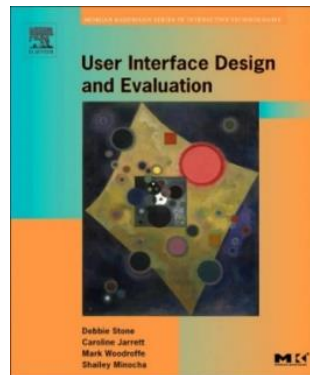
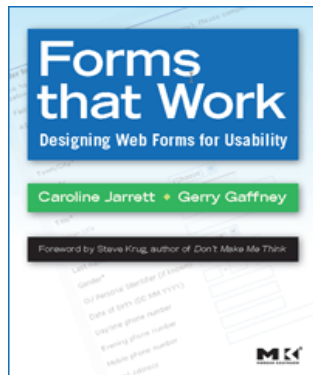


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## SURVEYS THAT WORK

A Practical Guide for Designing Better Surveys

by **CAROLINE JARRETT**

Foreword by Steve Krug

 Rosenfeld