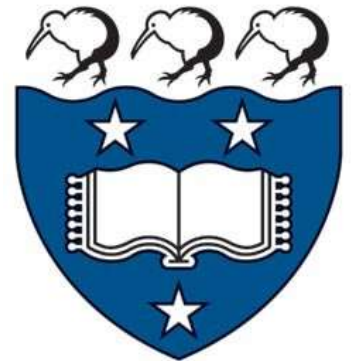# The Survey Octopus

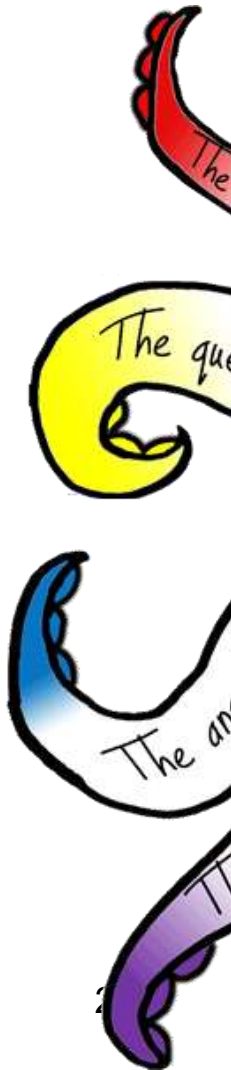## An approach to teaching Total Survey Error

Caroline Jarrett

@cjforms

Seminar, University of Auckland

Is there anyone here who…

- Is a survey methodologist?

- Teaches classes in survey methodology?

- Uses surveys in research?

- Responds to surveys?

- Eats octopus?

I'm a forms specialist

GOV.UK

Blog

Government Digital Service

Organisations: Government Digital Service, Cabinet Office

My new favourite form. Really.

Caroline Jarrett, 22 September 2015 — GOV.UK, User research

I have a new favourite form: HMRC's Pay your self-assessment online. Enjoy!

But maybe before you do, you'd like a little explanation? OK, I'll back up a bit and explain.

Search blog

Government Digital Service

The Government Digital Service (GDS) is leading the digital transformation of government.

Find out more.

What we do

Select Category

Work for us

Find out about current vacancies at GDS

Tax Return 2011
Year 6 April 2010 to 5 April 2011

HM Revenue & Customs

Why do people answer questions?

People ask me about surveys

"Please have a look at this survey"

"How many people do I need in my sample?"

"Tell me whether this is a good question"

Kill survey!
Kill! Kill!

Tell us all about it

Hello

Thank you for choosing Virgin Atlantic for your recent flight. We're always looking to improve our service. So it would be great if you could share your experience by completing our survey. It'll take about 20 minutes and you can complete it on PCs, tablets and smartphones. Don't worry if you get interrupted, you can come back later and continue where you left off.

If you've already completed a survey about a specific part of your journey, we're really grateful. Now that you've completed your trip, we'd love to hear your feedback about your experience as a whole, so please let us know your thoughts using the button below.

Thanks for your time.

Best wishes.

The Virgin Atlantic team

virgin atlantic

Survey Offline

Thank you for clicking through to this survey.

The survey is now closed and has been taken offline.

Bad surveys are training us to ignore all surveys

"Please have a look at this survey?"

Let's chat about a few of the issues

Some questions about TSE
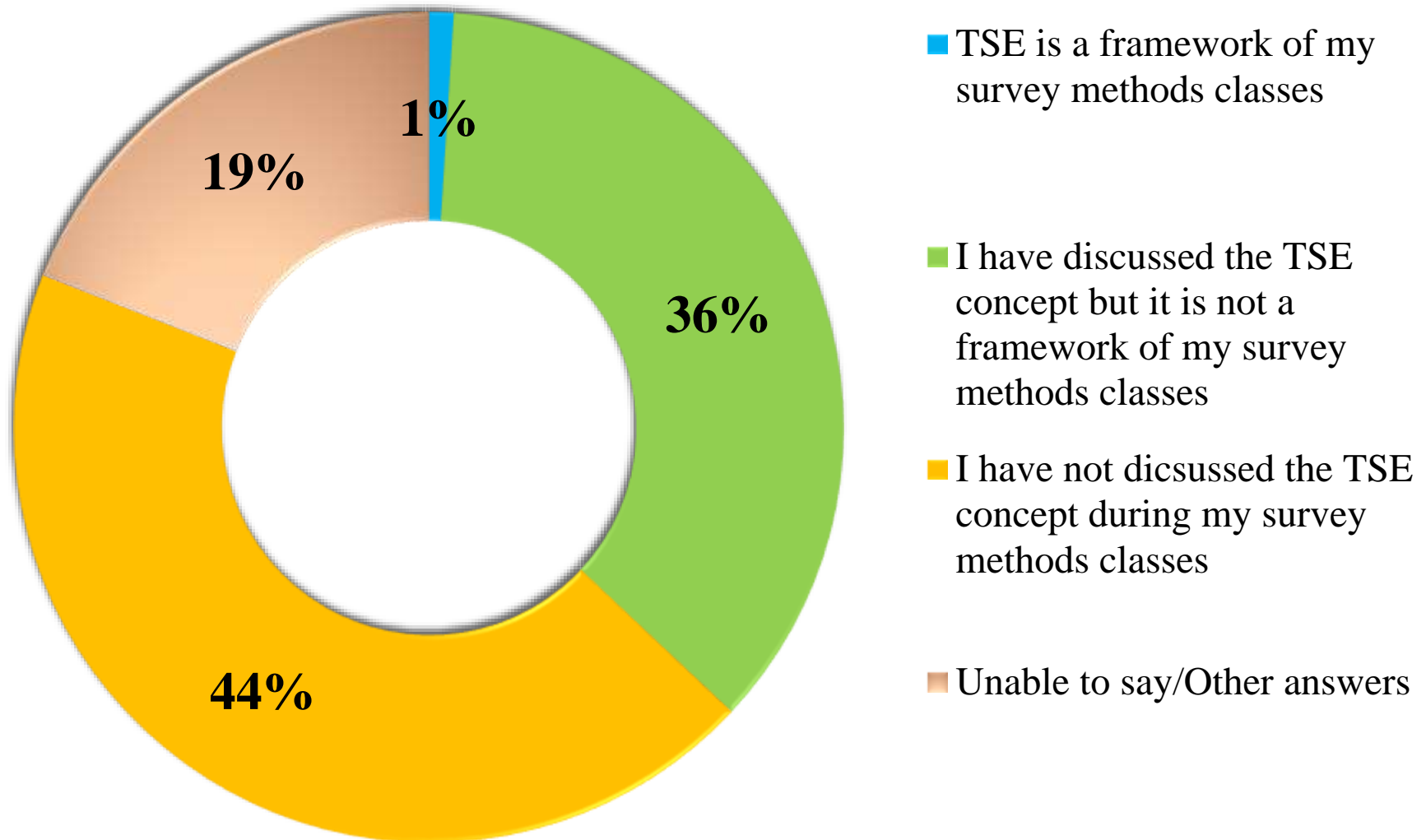
- Do you teach it?

- Do you use it?

Survey Methodology Courses and TSE/Big Data Issues: Classroom Experiences Among University Instructors

Wojciech Jablonski

University of Lodz | Poland

TSE15 | Baltimore, MD, USA | 22 September 2015

In what way have you used the Total Survey Error concept during you survey methods classes?

- **1%** — TSE is a framework of my survey methods classes
- **36%** — I have discussed the TSE concept but it is not a framework of my survey methods classes
- **44%** — I have not dicsussed the TSE concept during my survey methods classes
- **19%** — Unable to say/Other answers

STATS 740 Sample Surveys (15 points)

Taught: Semester Two, City Campus.

Prerequisites: STATS 340 or 341, or equivalent.

Assessment: Final exam 60%; coursework (four assignments) 40%.

Textbooks: Recommended: Survey Methodology. Robert M Groves (ed), Wiley, 2004; T. Lumley, Complex Surveys: a guide to analysis using R, Wiley Interscience, 2009; Lu Ann Aday & L.J. Cornelius, Designing and Conducting Health Surveys. 3rd. Edition, Jossey-Bass, 2006

For advice: Chris Wild (ext 88797), Nichola Shackleton (ext 89894)

STATS 740 is a course in the design, management and analysis of sample surveys, with Particular emphasis on surveys in the health sector. It is useful for students who are interested in either undertaking surveys, or analysing data collected from surveys.
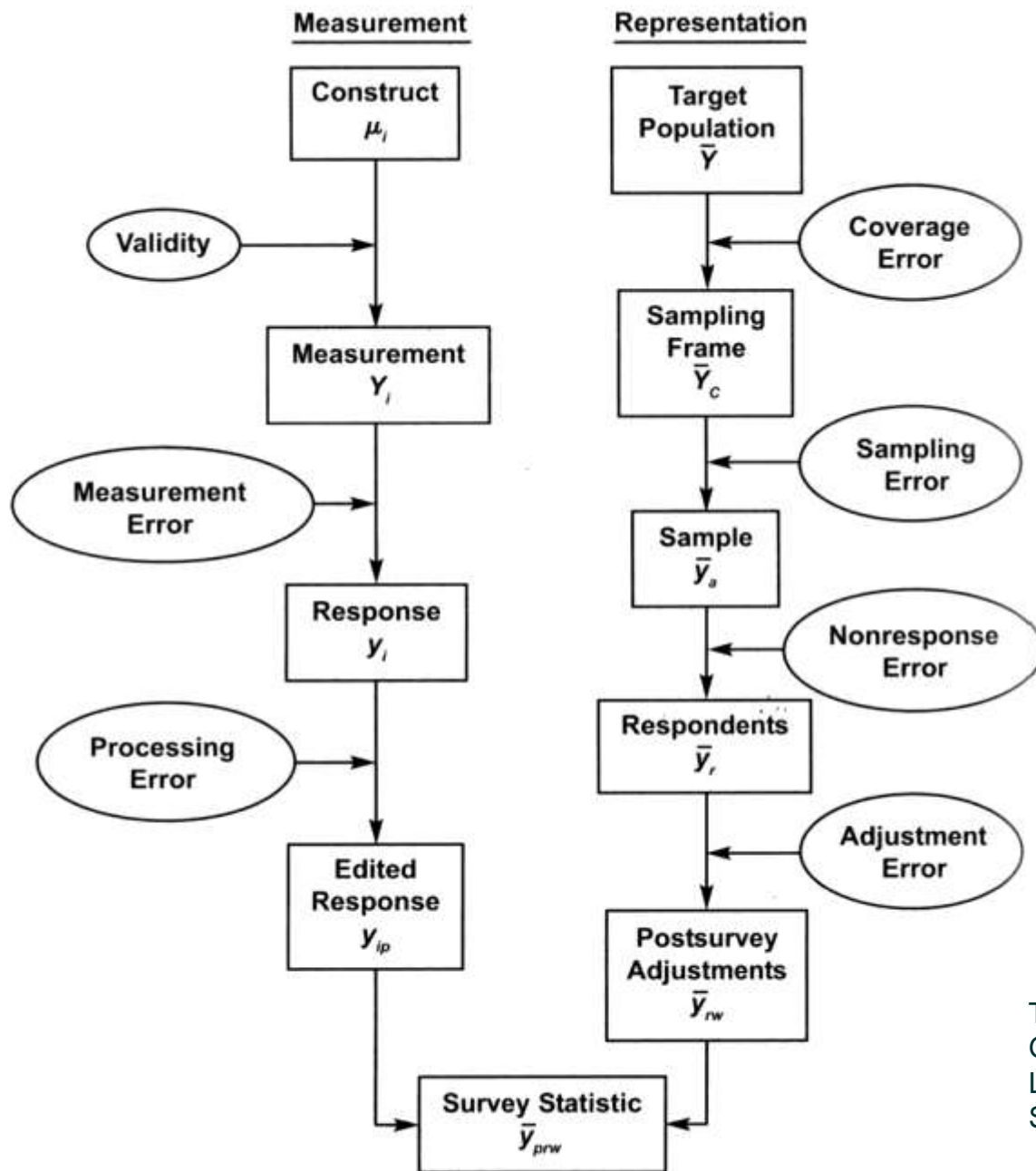
Topics studied include: Revision of statistical aspects of sampling. Preparing surveys. Research design: methodology and data collection; issues of sample design and sample selection. Conducting surveys: questionnaires and questions; non-sampling issues; project management; maintaining data quality. Analysis: computer software, weighting, special features of survey data. Dissemination. Other types of surveys.

Survey Methodology. Robert M Groves (ed)

Measurement

Construct
μ_i

Validity

Measurement
Y_i

Measurement Error

Response
y_i

Processing Error

Edited Response
y_{ip}

Representation

Target Population
$\bar{Y}$

Coverage Error

Sampling Frame
$\bar{Y}_c$

Sampling Error

Sample
$\bar{y}_a$

Nonresponse Error

Respondents
$\bar{y}_r$

Adjustment Error

Postsurvey Adjustments
$\bar{y}_{rw}$

Survey Statistic
$\bar{y}_{prw}$

Total Survey Error diagram as presented in Groves, R. M., F. J. Fowler, M. P. Couper, J. M. Lepkowski, E. Singer and R. Tourangeau (2009). Survey methodology. Hoboken, N.J., Wiley.

16

Figure 2.5 Survey life cycle from a quality perspective.

A conversation about measurement

Performance > Department for Transport > Driver and Vehicle Licensing Agency

Dashboard
Tax disc renewals

Visit this service
Renew a tax disc

This dashboard shows information about how the **Tax disc renewals** service is currently performing.

Transactions per year

43.4m

Jan to Dec 2013

+1.30% ▲ Oct 2012 to Sep 2013

Total cost

£44.7m

Jan to Dec 2013

+17.23% ▲ Oct 2012 to Sep 2013

Cost per transaction

£1.03

Jan to Dec 2013

+15.73% ▲ Oct 2012 to Sep 2013

Live service usage

Users currently on the GOV.UK start page for the service

275

users online at
9pm 17 July 2014

User satisfaction

Overall satisfaction score includes all ratings weighted from 100% for 'very satisfied' to 0% for 'very dissatisfied'

94%   +0.41% ▲

Mar 2014   Feb 2014

Tell us what you think   (opens a 3 minute survey on another website)

User satisfaction

Are users happy with the service you've provided

Contents

A good service makes it possible for users to successfully complete tasks. User satisfaction helps you to measure the overall quality of the service experience.

Many government transactions are mandatory for users, so they're not naturally enjoyable, and are sometimes referred to as grudge transactions. Still, try to make them as pleasant as possible for users, who may be nervous or stressed when interacting with the government.

Asking users how satisfied they are with a service can provide you with a measure of all the parts that contribute to the overall user experience, like ease of use, navigation and design.

What you will be measuring

Define user satisfaction as the percentage of people who answered either "very satisfied" or "satisfied" on a 5-point scale in response to this

Asking users how satisfied they are with a service can provide you with a measure of all the parts that contribute to the overall user experience, like ease of use, navigation and design.

What you will be measuring

Define user satisfaction as the percentage of people who answered either "very satisfied" or "satisfied" on a 5-point scale in response to this question:

Q: Overall, how satisfied were you with this [eg car tax] service today?

- very satisfied
- satisfied
- neither satisfied or dissatisfied
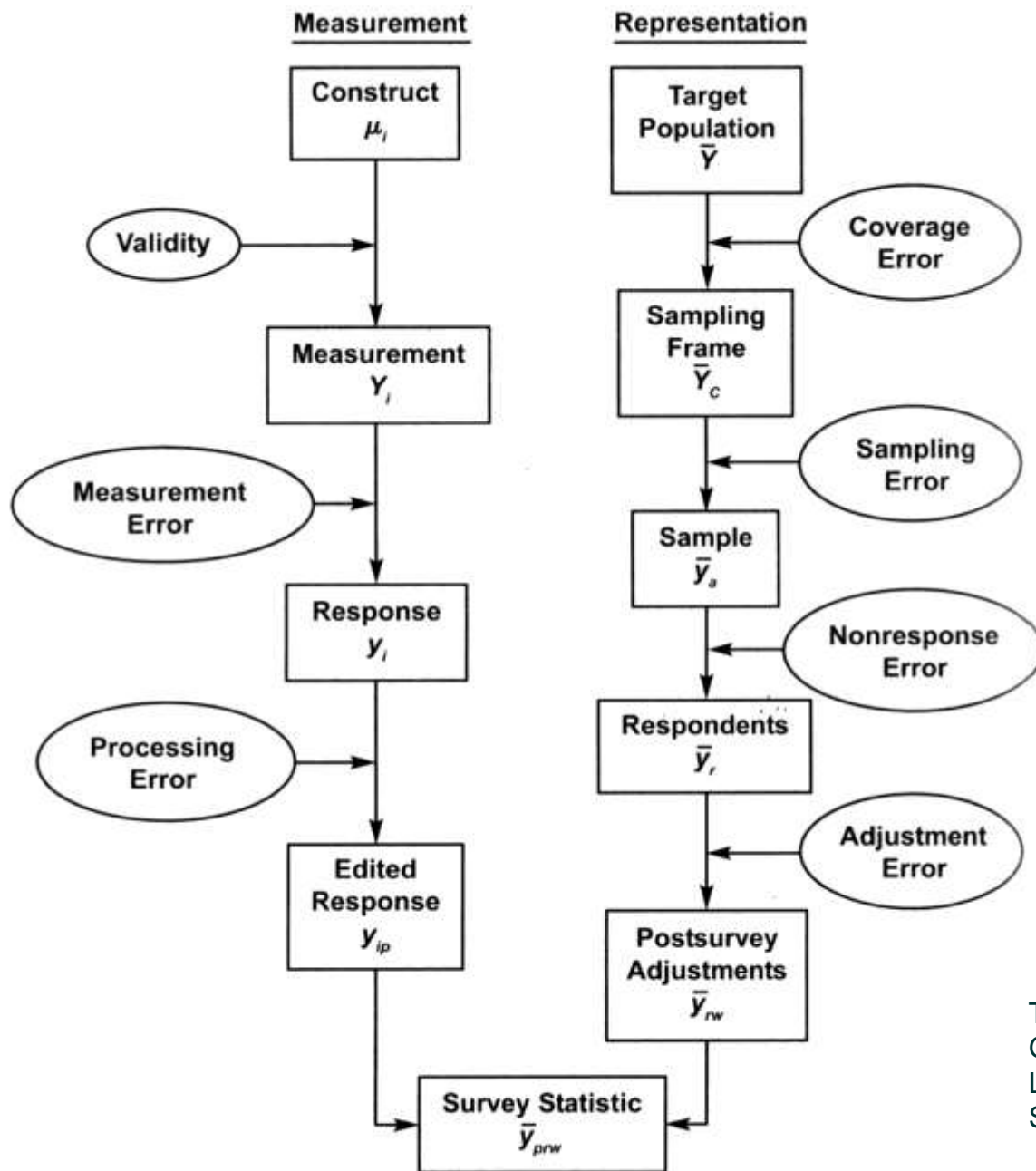- dissatisfied
- very dissatisfied

How to measure user satisfaction

GOV.UK will provide a user satisfaction survey at the end of your transactional service and make this data available.

What happens when a user exits the transaction midway through

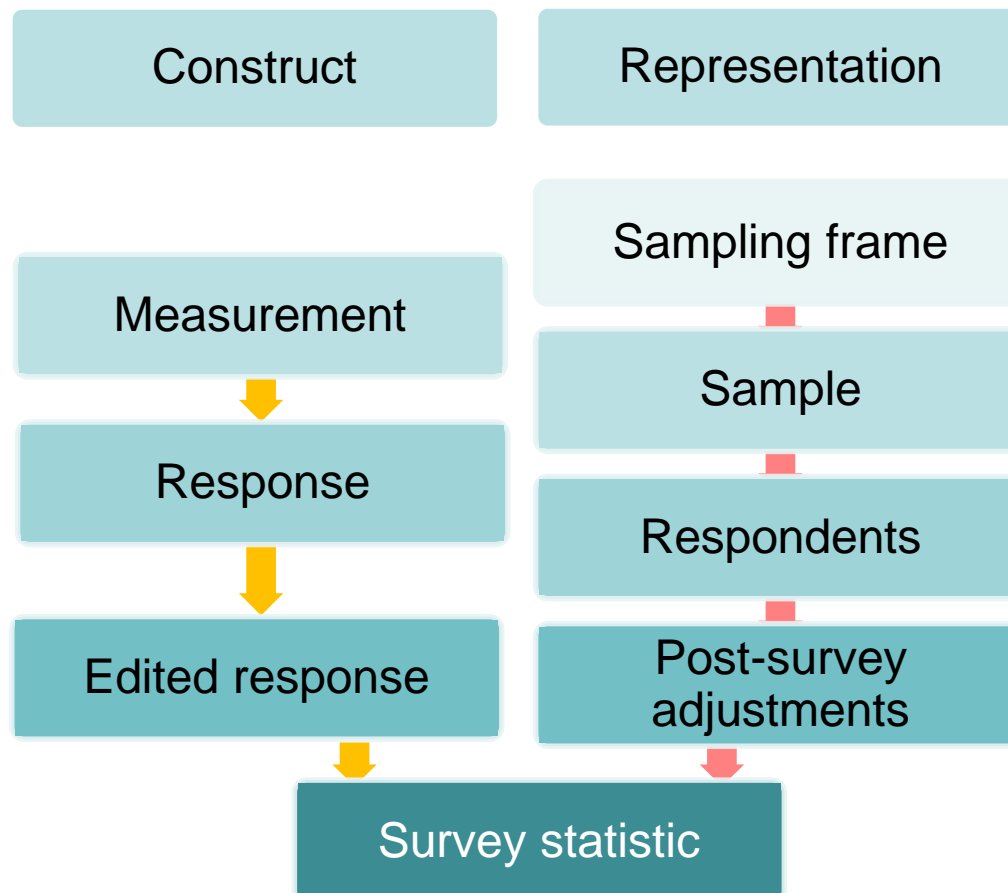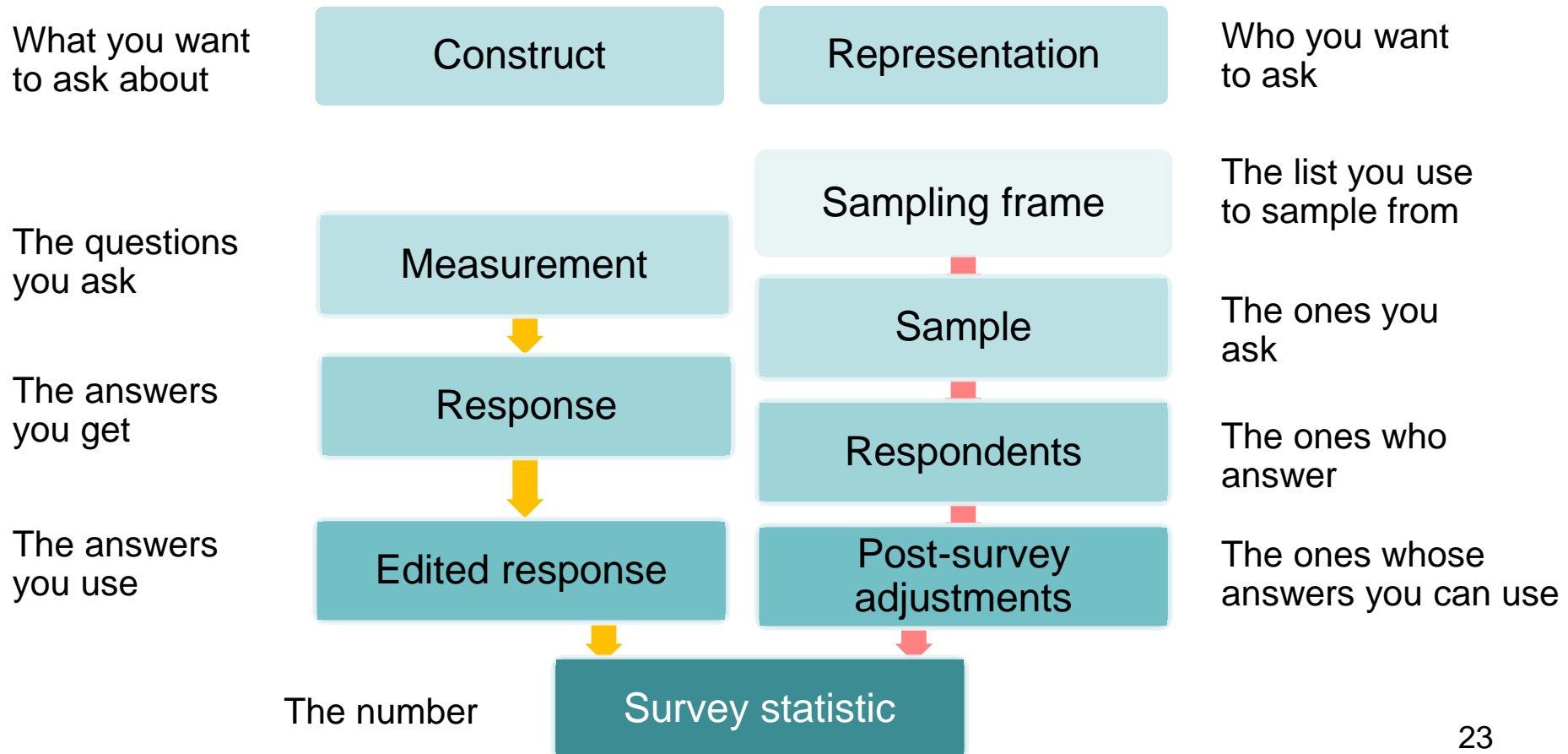Measure all user journeys through your transaction to better understand

Total Survey Error diagram as presented in Groves, R. M., F. J. Fowler, M. P. Couper, J. M. Lepkowski, E. Singer and R. Tourangeau (2009). Survey methodology. Hoboken, N.J., Wiley.

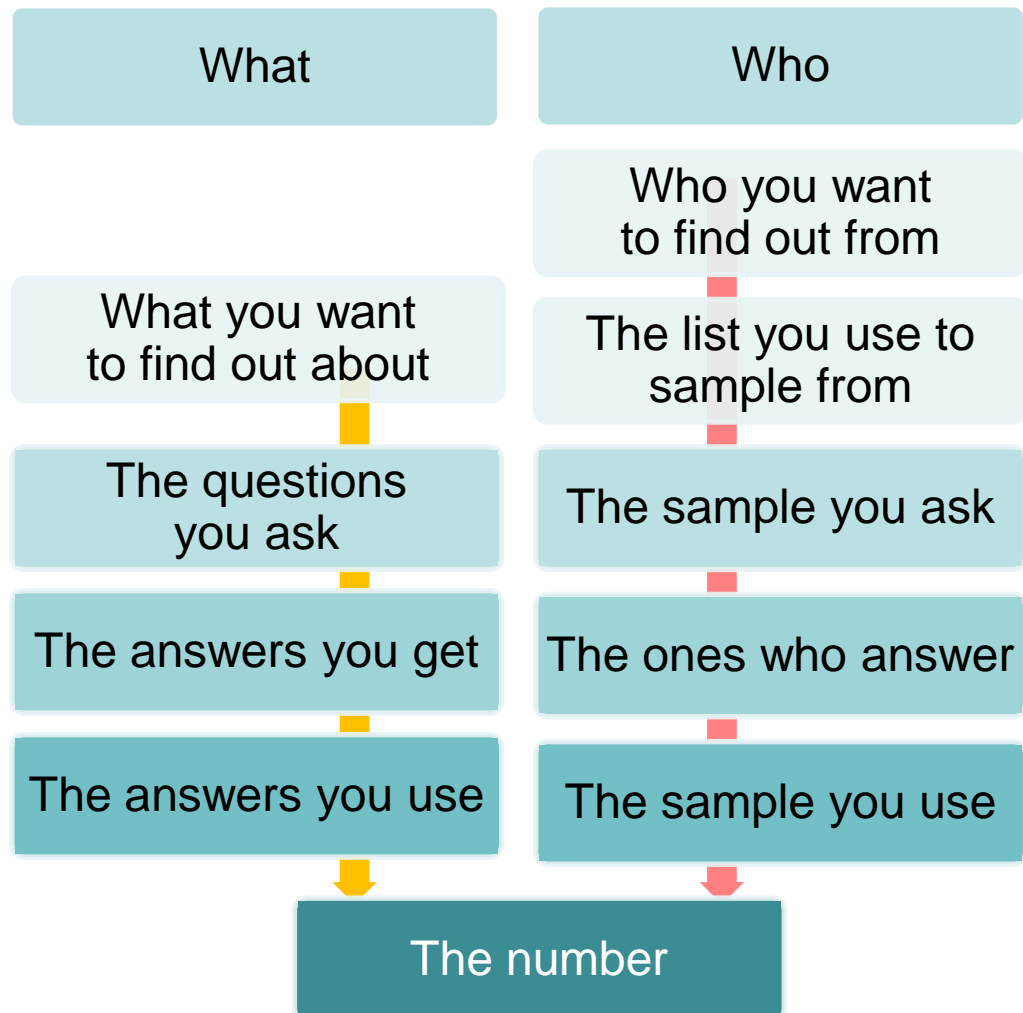Figure 2.5 Survey life cycle from a quality perspective.

21

First I tried removing all the errors

Construct	Representation
	Sampling frame
Measurement	Sample
Response	Respondents
Edited response	Post-survey adjustments

Survey statistic

Then I tried to approximate the technical terms with plainer ones

What you want to ask about

Construct

Representation

Who you want to ask

The questions you ask

Measurement

Sampling frame

The list you use to sample from

The answers you get

Response

Sample

The ones you ask

The answers you use

Edited response

Respondents

The ones who answer

Post-survey adjustments

The ones whose answers you can use

The number

Survey statistic

23

I used this diagram to discuss satisfaction with colleagues

What	Who
	Who you want to find out from
What you want to find out about	The list you use to sample from
The questions you ask	The sample you ask
The answers you get	The ones who answer
The answers you use	The sample you use

The number

Satisfaction with "renew tax disc"

Services so good that people prefer to use them

| What | Who | UK population |

Who you want to find out from — People who renew car tax online

Satisfaction

What you want to find out about — The list you use to sample from — Everyone who finishes the renewal

Overall, how satisfied were you with renewing your car tax today? — The questions you ask — The sample you ask — Everyone who finishes the renewal

Scale of 5 points from very satisfied to very dissatisfied — The answers you get — The ones who answer — People who answer the question

Ratings weighted from 100% for 'very satisfied' to 0% for 'very dissatisfied' — The answers you use — The sample you use — (Any exclusions for repeated answers or test answers?)

94%   The number

25

Blog

GDS design notes

Organisations: Government Digital Service

How good is your service? How many users give up?

Henry Hadlow, 13 August 2015 — Likely to change

GDS design notes

We believe in designing in the open. Most of the ideas on this blog will be iterated on over time, some of them will test badly and never make it onto GOV.UK, a few might end up being patterns that we use everywhere.

Categories

Select Category

Sign up for updates

✉ Email   🔊 Atom

We were only asking successful users if they were satisfied

We were asking users to give feedback from the Done page – a page you could only reach if you completed using the service successfully.

This was a good way to make our services look really good, but a terrible way to get the information needed to improve them.

We were missing out on the most important feedback – from the users who failed to complete the transaction or otherwise got stuck.

We've changed the guidance in the Service Manual. Now we're asking for feedback in many more places.

https://designnotes.blog.gov.uk/2015/08/13/how-good-is-your-service-how-many-users-give-up/

We're improving the Service Manual. **Help us get it right** (opens a short survey on another website.)

User satisfaction

How satisfied are the people who use your service?

Contents

Measuring user satisfaction helps you to gauge the overall quality of your service.

Tracking user satisfaction can help make sure the changes you make are improving the service for users. If your user satisfaction falls, then by asking for feedback, you can investigate to find out why.

How to measure user satisfaction

1. Get a feedback page on GOV.UK – request a content change
2. Add links from your service to the feedback page (more details below)
3. Use the Feedback Explorer to see feedback on your service

Measure satisfaction across the whole service

Measure satisfaction across the whole service

More often than not, the end of the transaction isn't the end of the service. For example, if you claim Carer's Allowance, the end of the transaction means you've finished filling in your claim. You're still waiting for a decision.

You must prompt users to give feedback at service endpoints. In the example above, this means prompting the user to give feedback when they get their benefit decision. This could be some time after they finish their transaction – the prompt could be in an email or a letter.

You must also allow users to give feedback from anywhere in the service, in case anything goes wrong.

And you must be able to show that you're collecting user satisfaction data appropriately at your Service Assessment.

29

https://www.gov.uk/service-manual/measurement/user-satisfaction.html

Some other chats about surveys

My 'plain language' diagram was OK, but not that different from many others
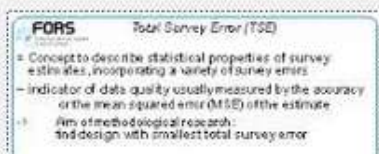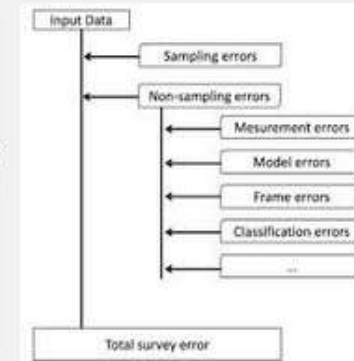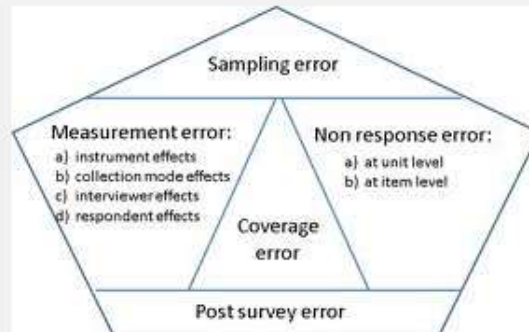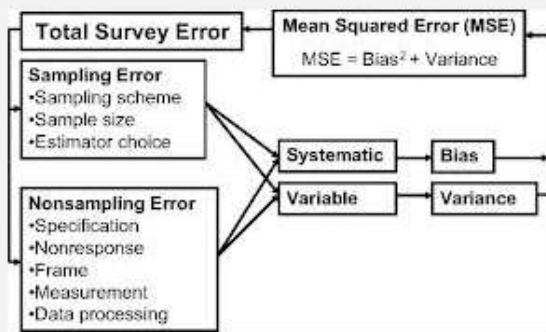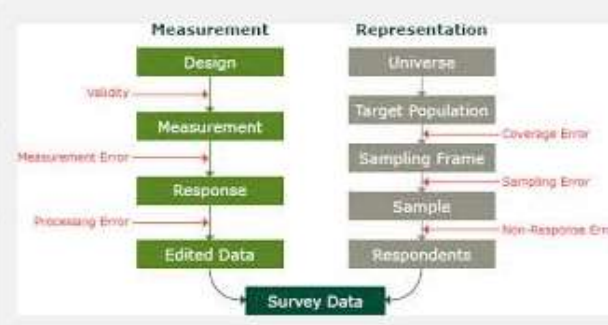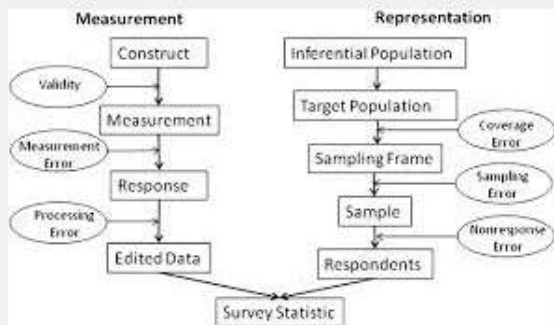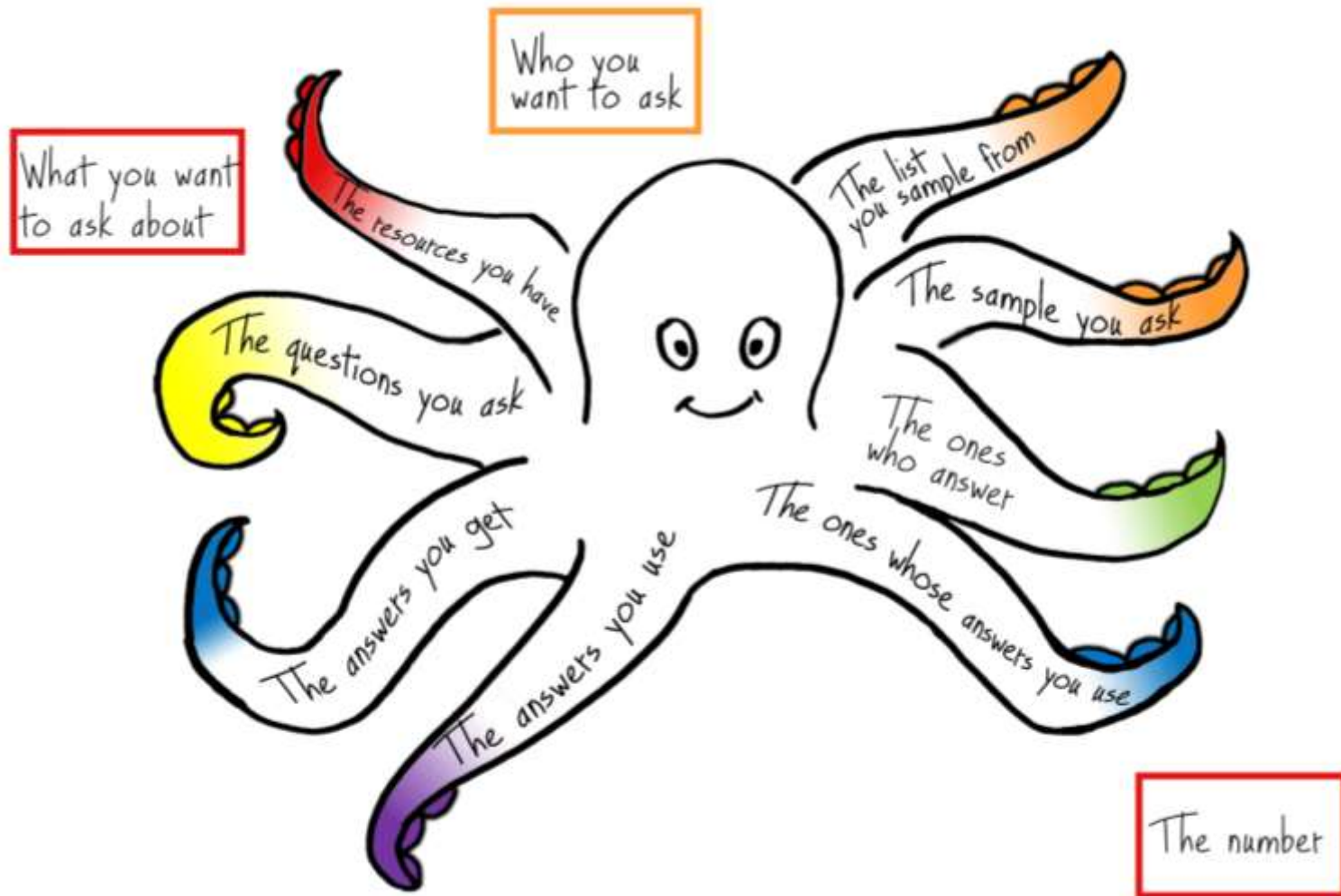
"You need a memory hook"

Christine Elgood

@elgoodgames

To get better results from your survey, think about the Survey Octopus

What you want to ask about

Who you want to ask

The list you sample from

The resources you have

The sample you ask

The questions you ask

The ones who answer

The answers you get

The answers you use

The ones whose answers you use

The number

"How many people do I need in my sample?"

To work that out, let's visit the Octopus

The list you sample from

The sample you ask

The resources you have

The ones who answer

The questions you ask

The ones whose answers you use

The answers you get

The answers you use

35
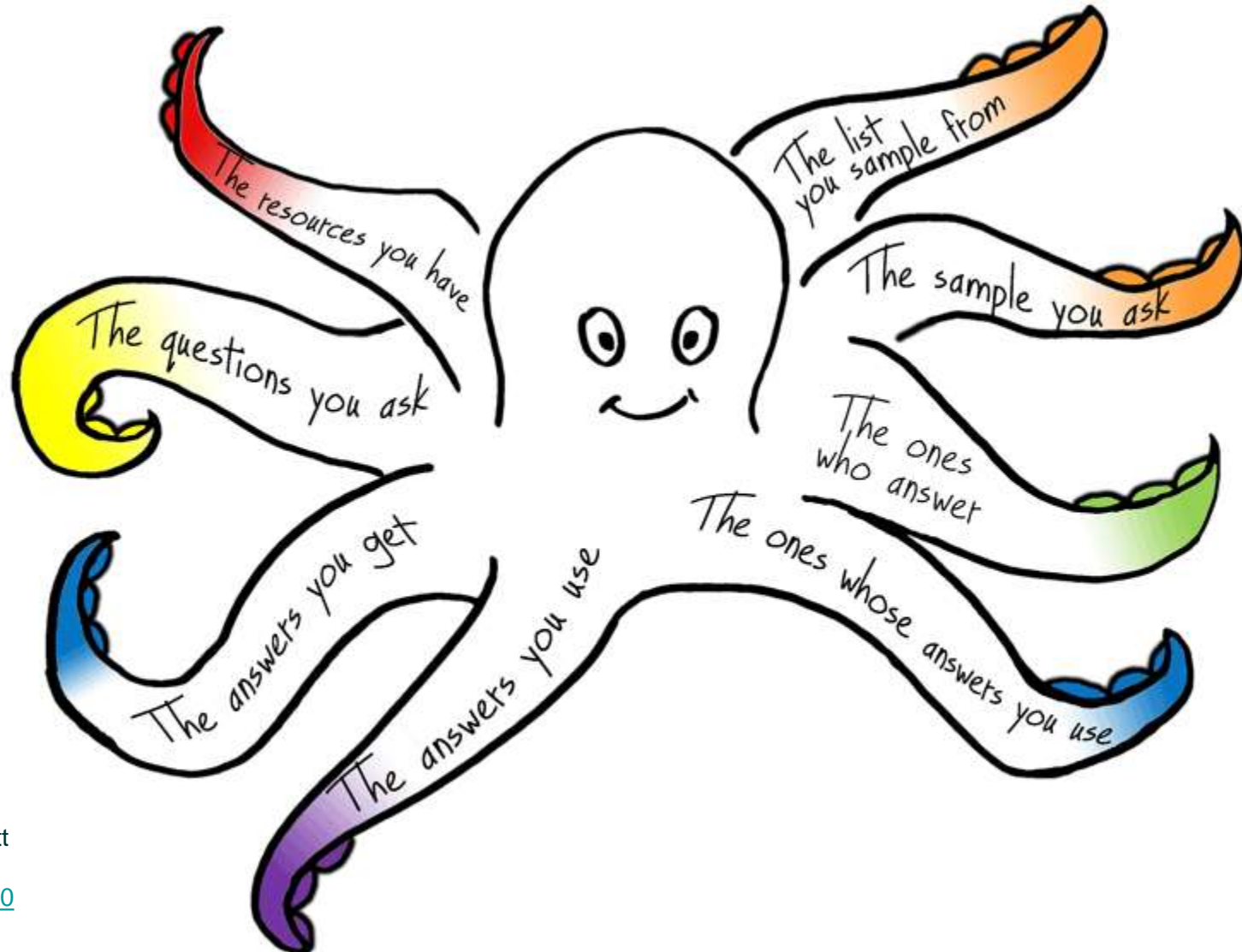
Start with how many will answer

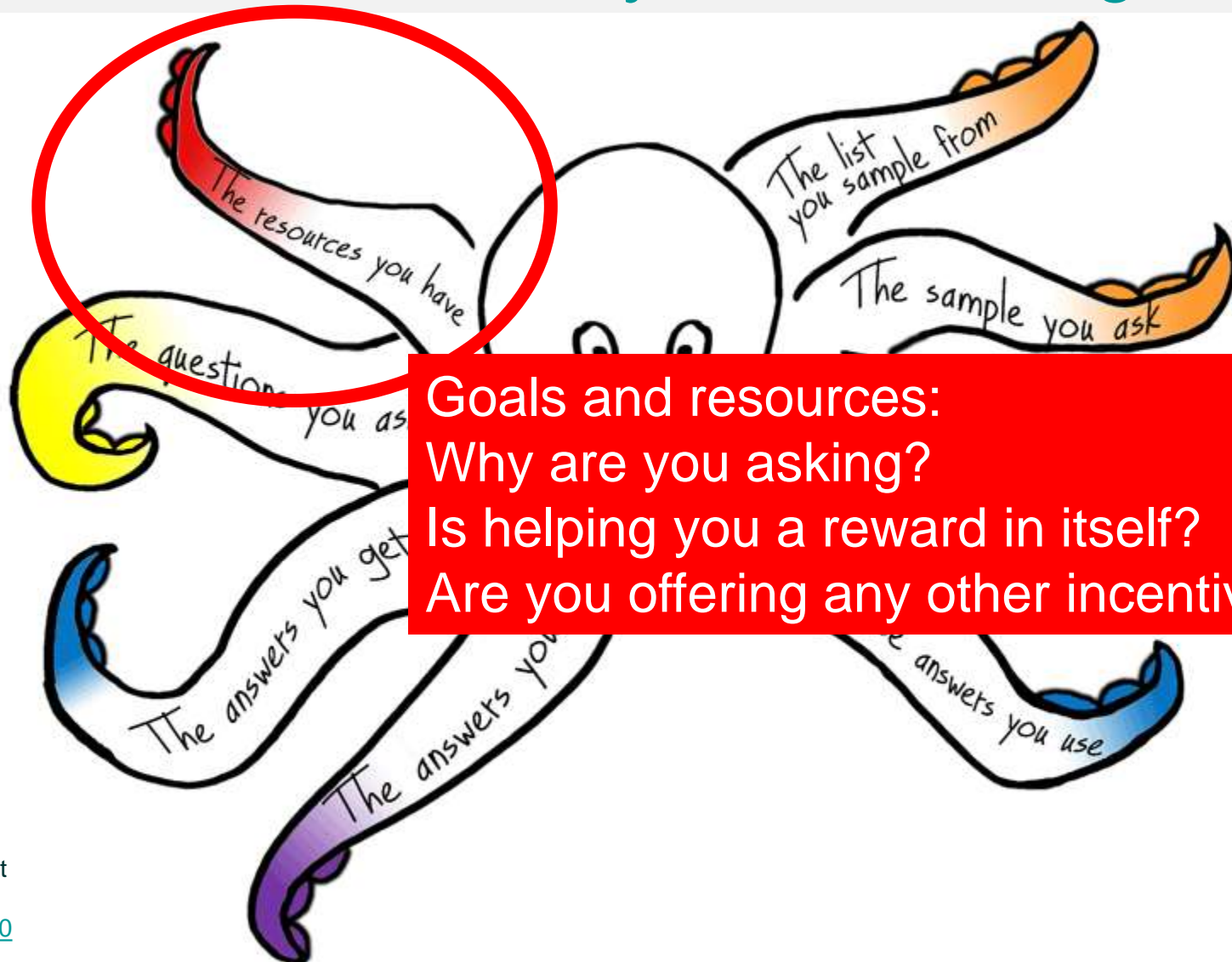Fieldwork:
Who answers?
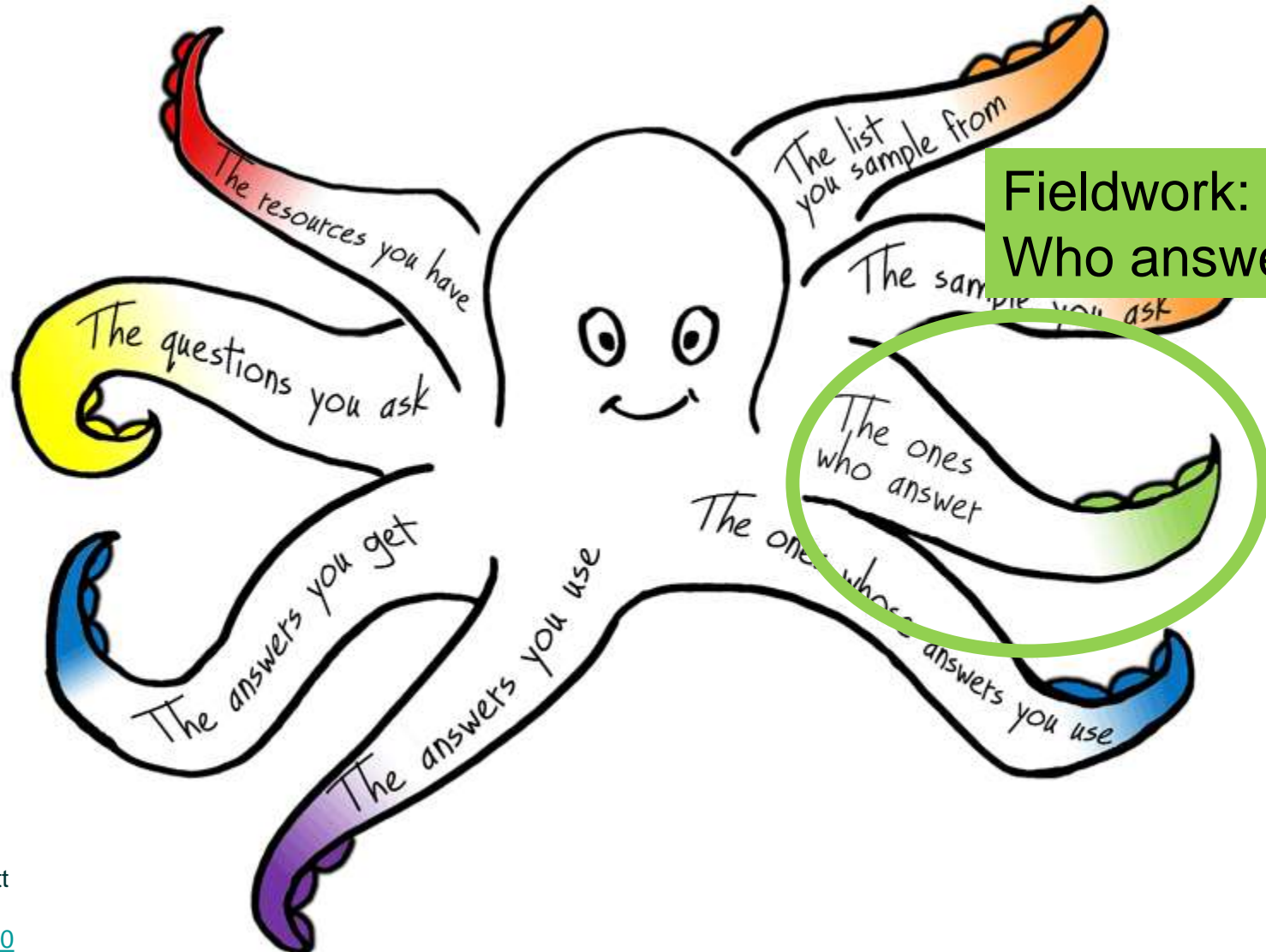
Whether they'll answer depends on effort
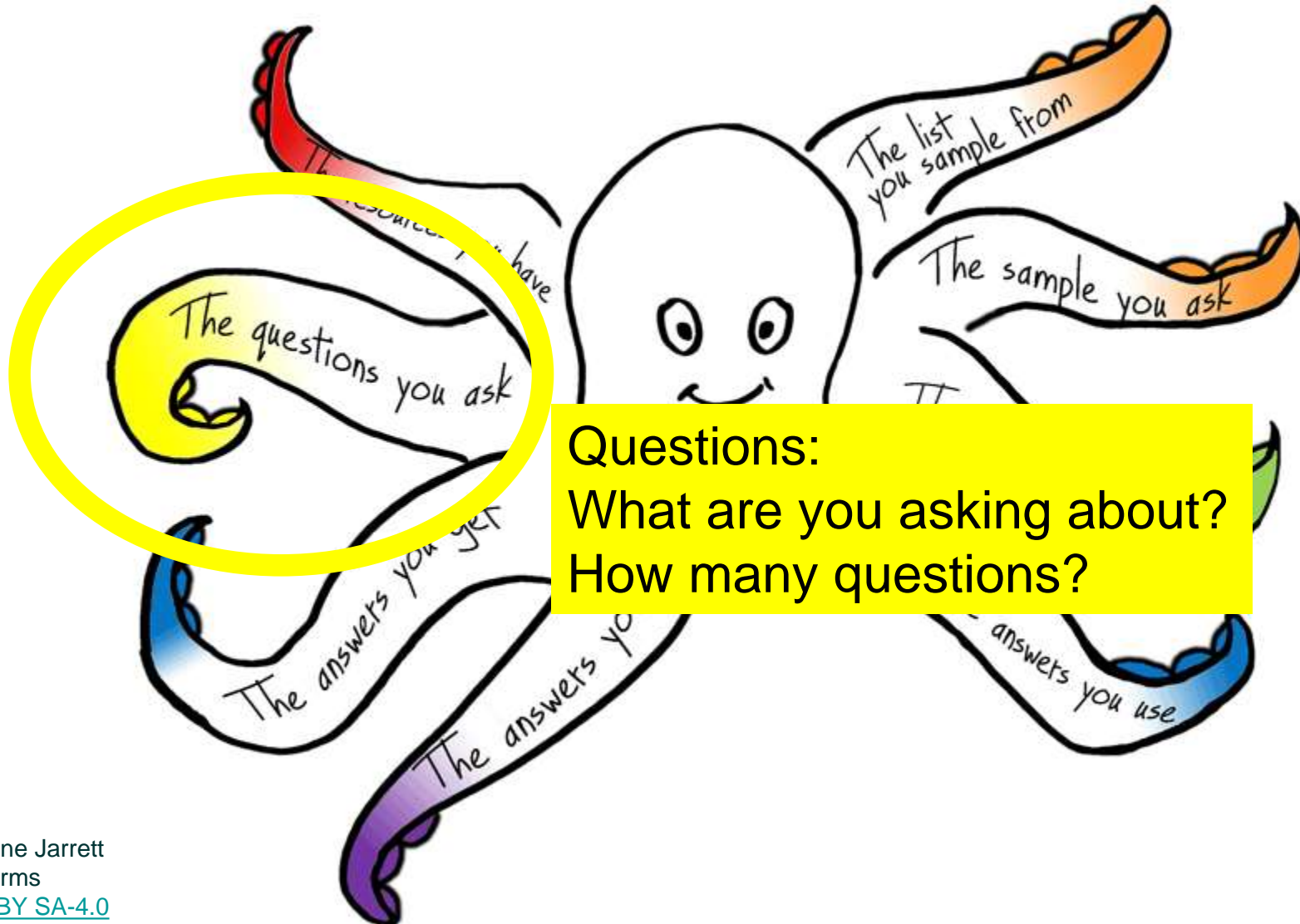
Questions:
What are you asking about?
How many questions?

And on the reward you're offering

Goals and resources:
Why are you asking?
Is helping you a reward in itself?
Are you offering any other incentive?

Then there's the 'Justin Bieber North Korea' problem

Prank leaves Justin Bieber facing tour of North Korea

By Daniel Emery
Technology reporter, BBC News

http://www.bbc.com/news/10506482

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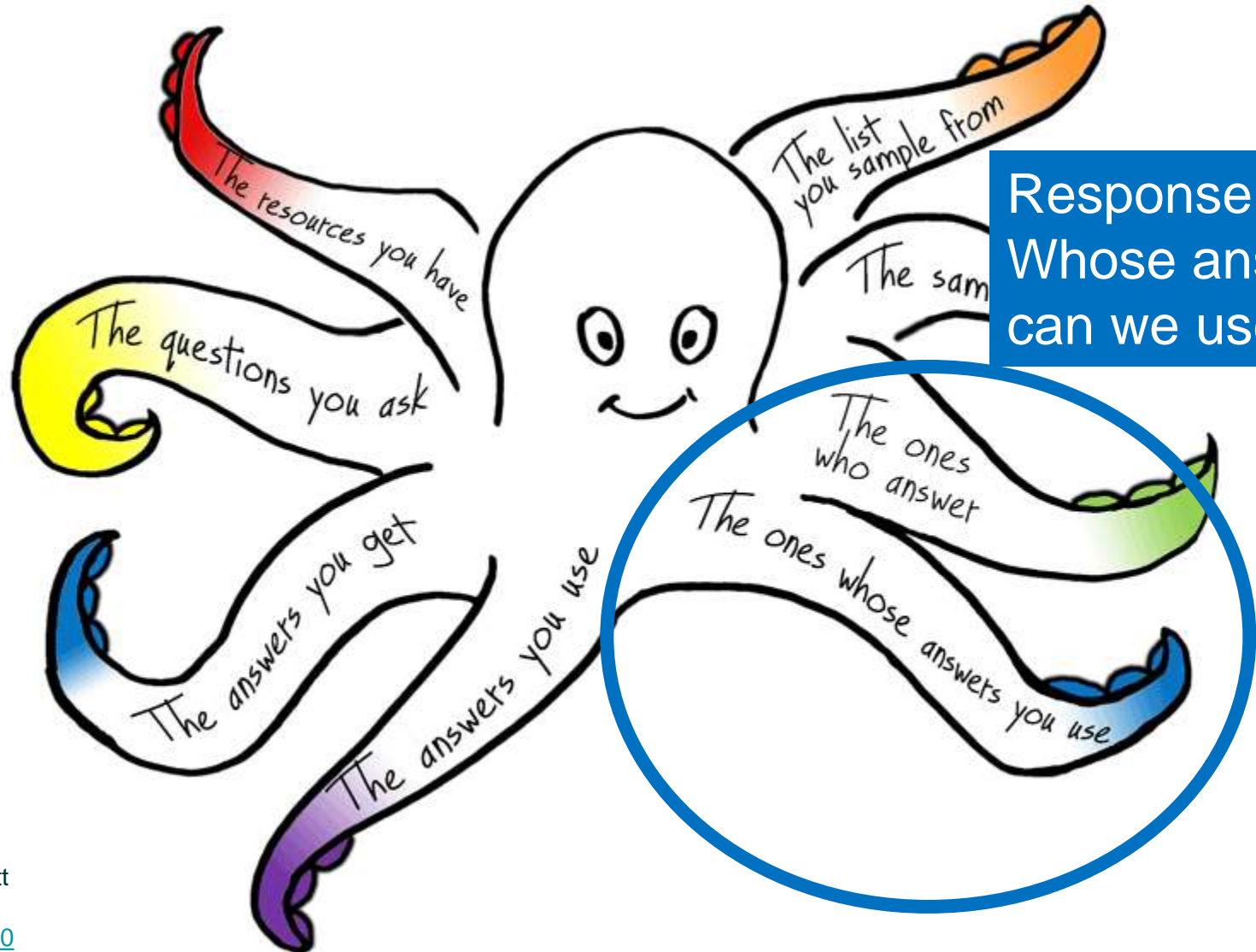
Many of the votes are thought to originate from imageboard website 4chan, which has built a reputation for triggering online viral campaigns.

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

Related Stories

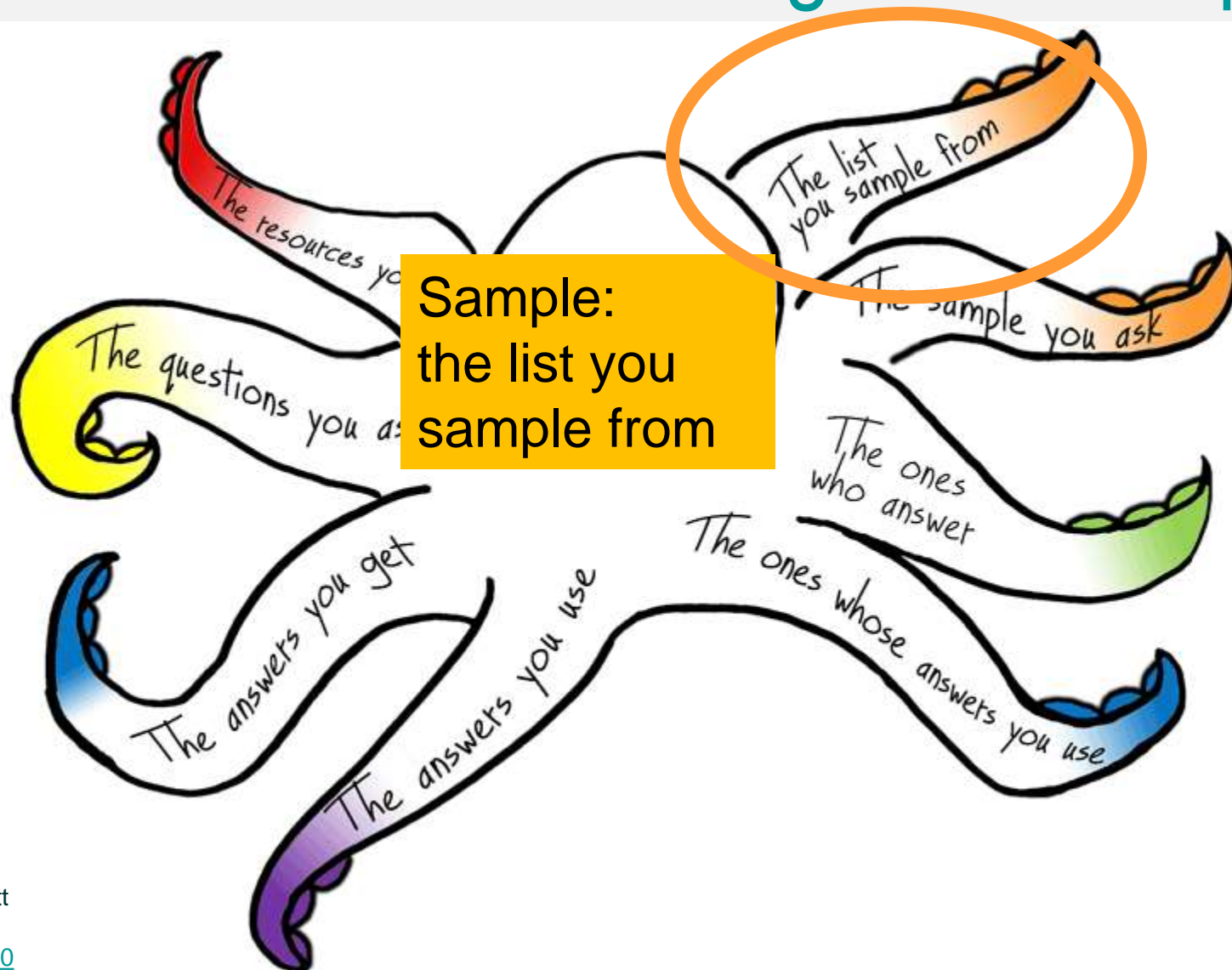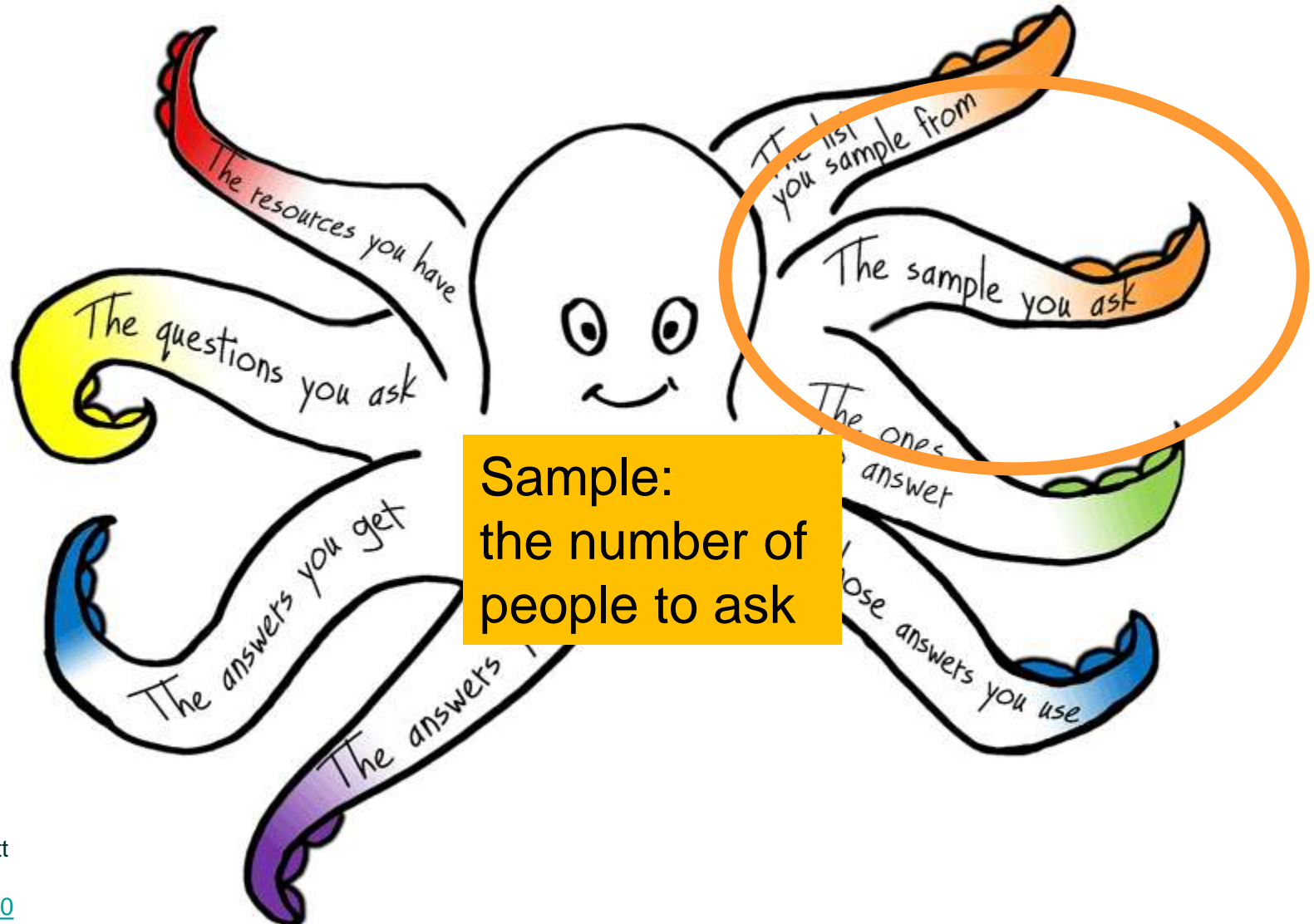# If we ask 'anyone', we'll have extra work here

Response: Whose answers can we use?

So it matters where we get our sample

Sample:
the list you
sample from

41

And now it's easy to work out how many to ask

Sample:
the number of
people to ask

We thought about a lot of topics to work that out

Goals

Questions

The resources you have

The questions you ask

The answers you get

The answers you use

Sample

The list you sample from
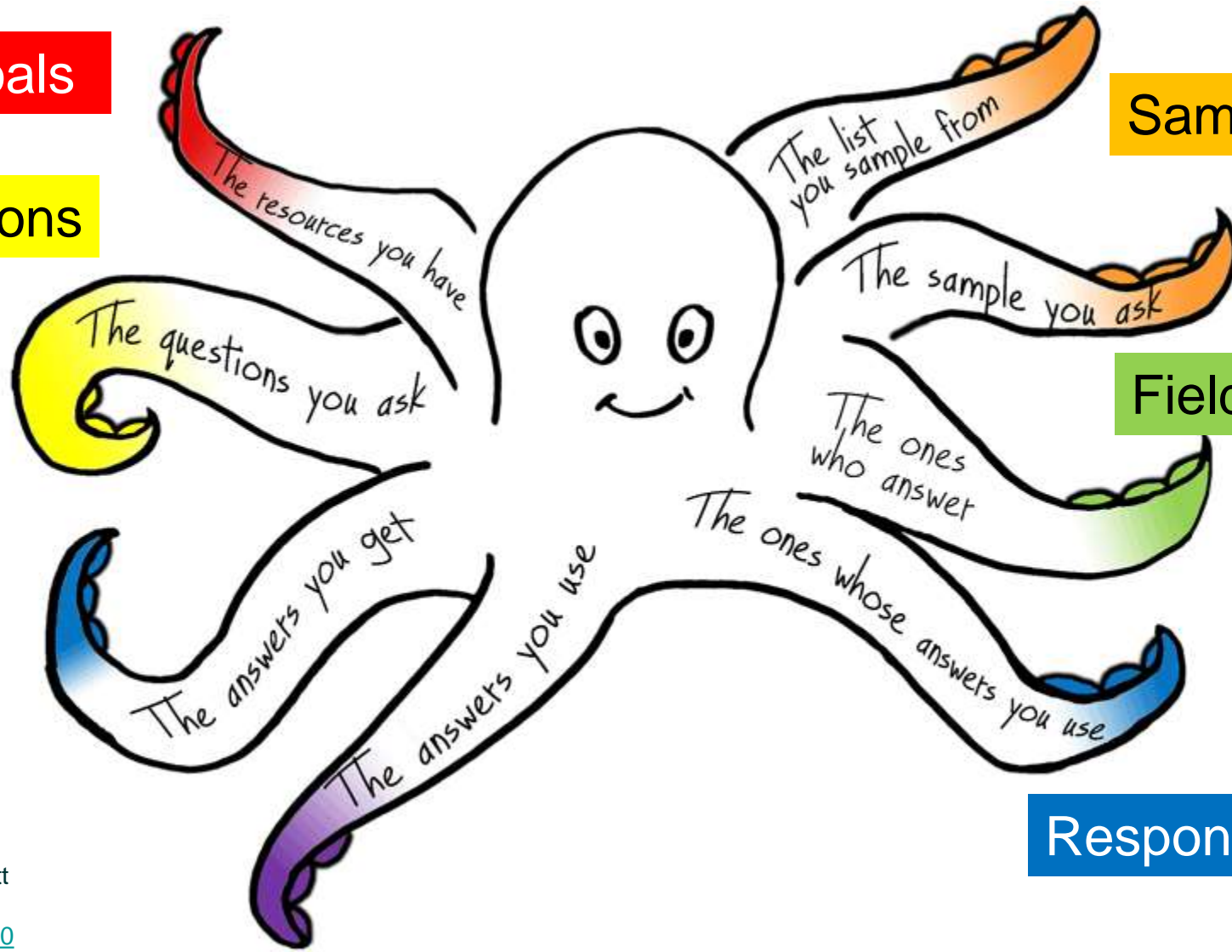
The sample you ask

Fieldwork

The ones who answer

The ones whose answers you use
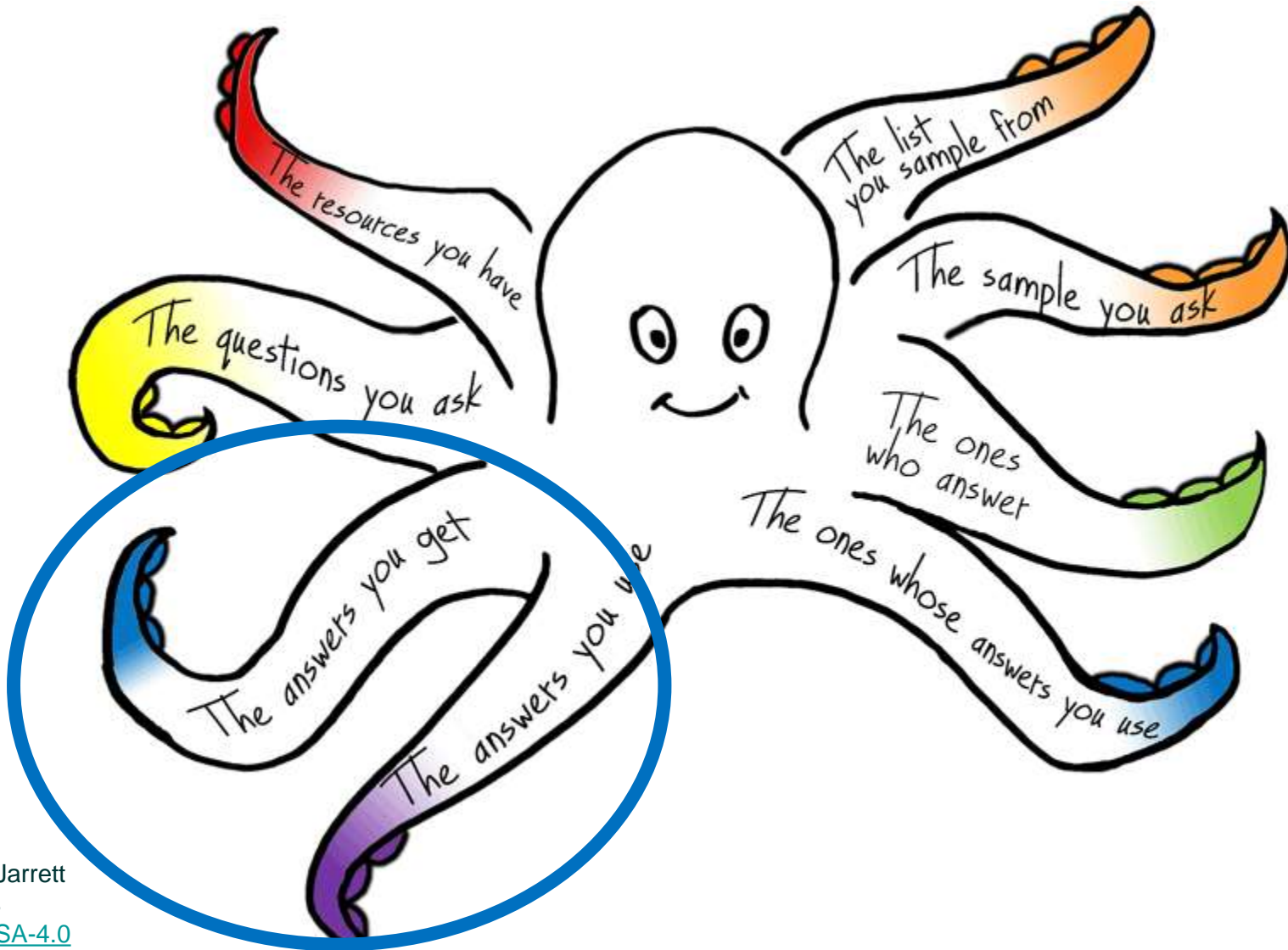
Response

43

What about this bit?

"Is this a good question?

24. Do you use a Windows or Mac computer?

○ Windows

○ Mac

○ Both

25. What is your gender?

○ Male

○ Female

46

On the phone screen:

24. Do you use a Windows or Mac computer?

○ Windows

○ Mac
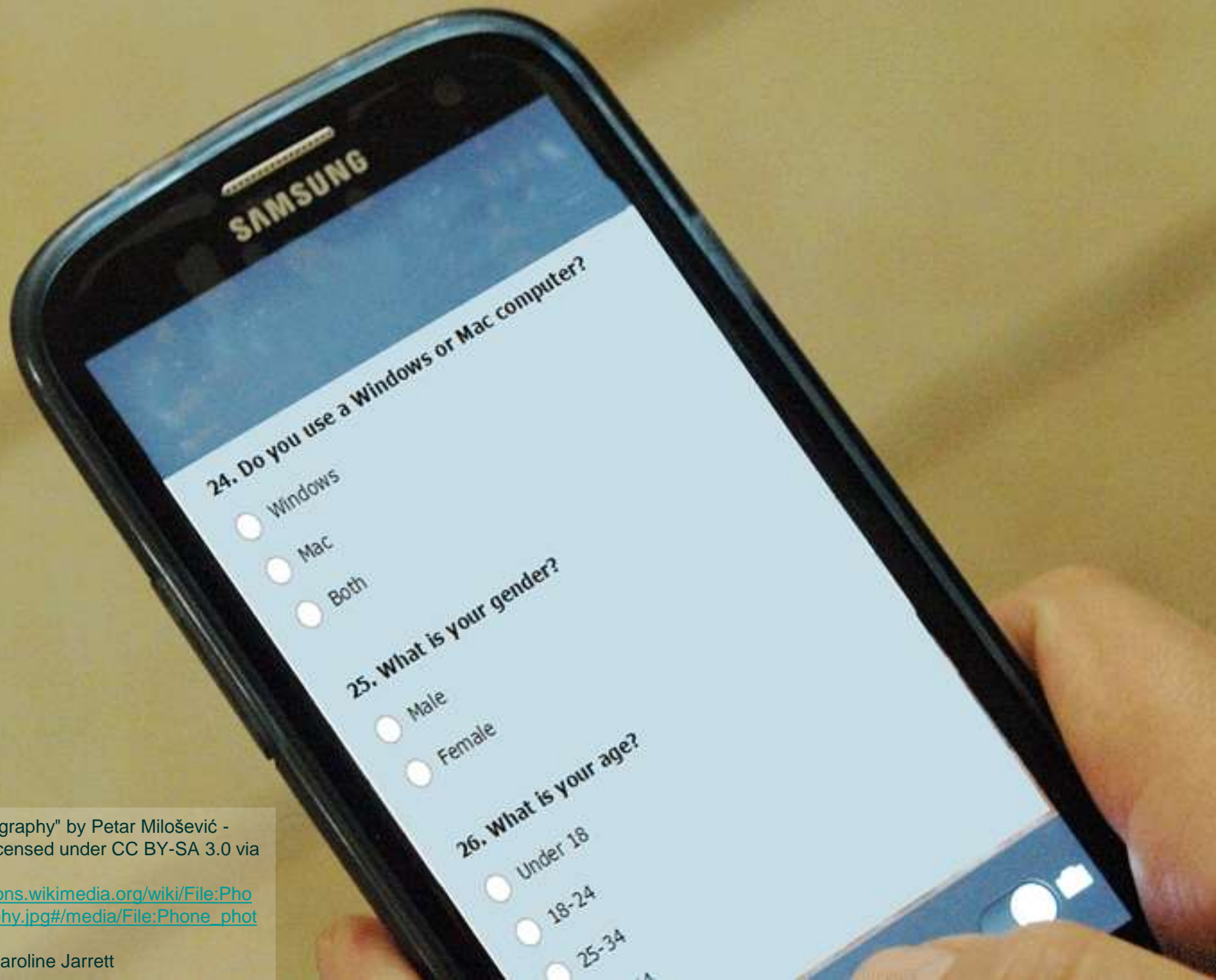
○ Both

25. What is your gender?

○ Male

○ Female

26. What is your age?

○ Under 18

○ 18-24

○ 25-34

A good question gets good answers

Response:
Is the question easy to answer?

Caroline Jarrett
@cjforms
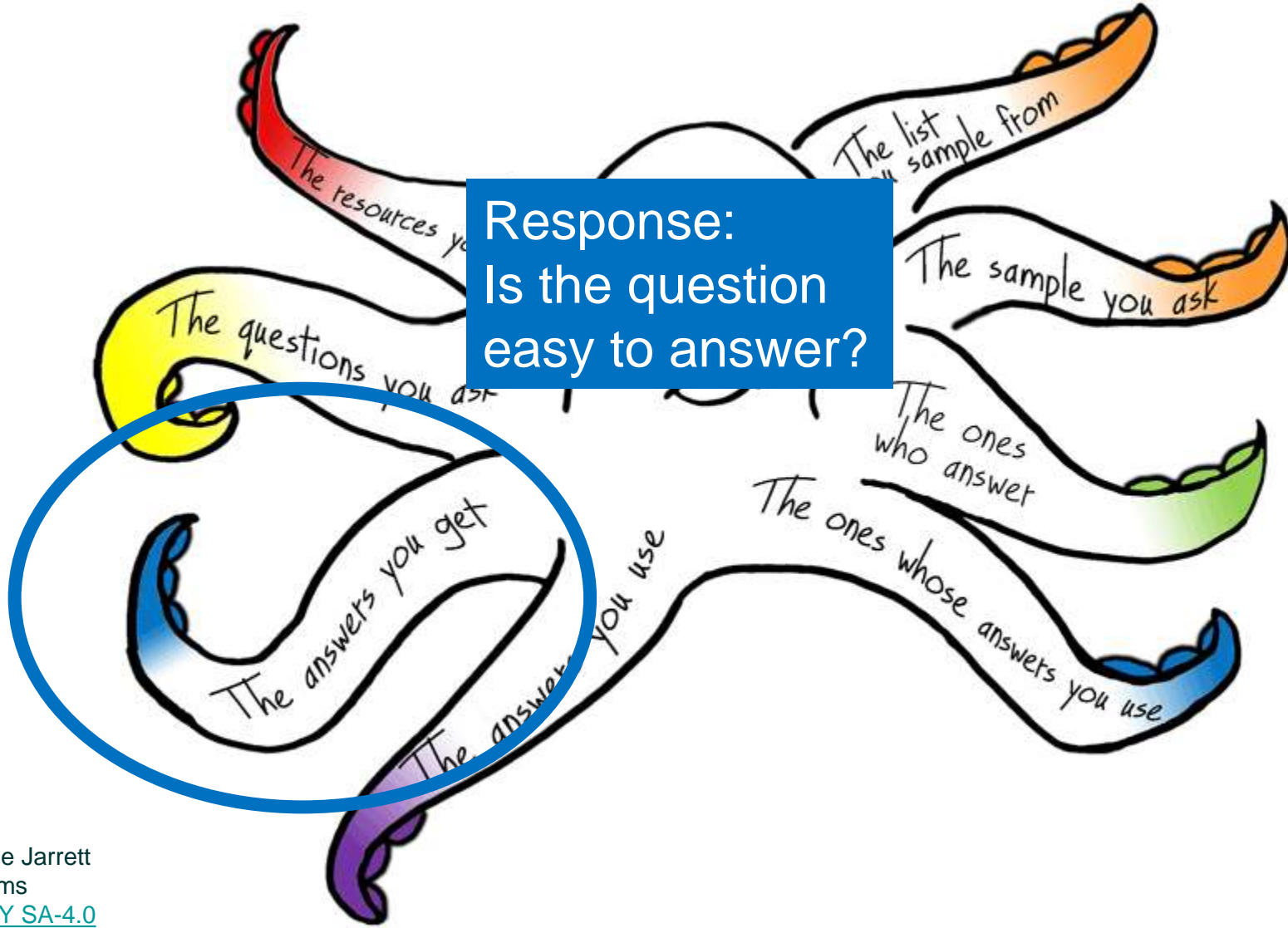
Good answers help you to make decisions

Insight:
Is the answer useful?

Caroline Jarrett
@cjforms
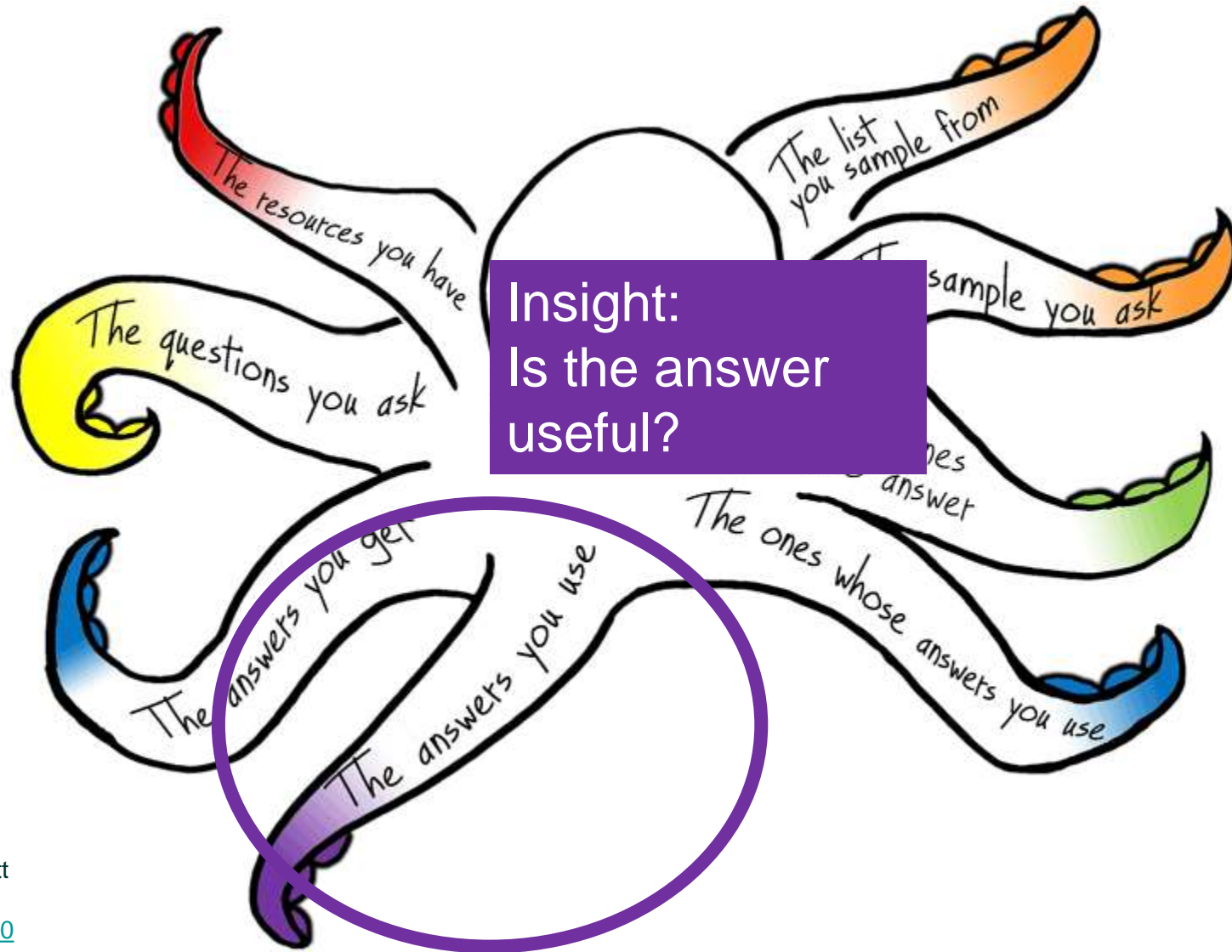
All the topics are connected

Goals

Sample

Questions

Response

Fieldwork

Insight

Response

The resources you have
The list you sample from
The sample you ask
The questions you ask
The ones who answer
The answers you get
The answers you use
The ones whose answers you

I tried the Survey Octopus at the Content Strategy Summit

Notifications   Messages   Search Twitter

justyna berzowska
@jberzowska

Follow

I'm entirely charmed by with the survey Octopus from @cjforms, a charming checklist for survey planning. #cssummit

Goals

Question s

The resources you have

The list you sample from

Sample

The questions you ask

The sample you ask

Fieldwork

The ones who answer

The answers you get

The answers you use

The ones whose answers you use
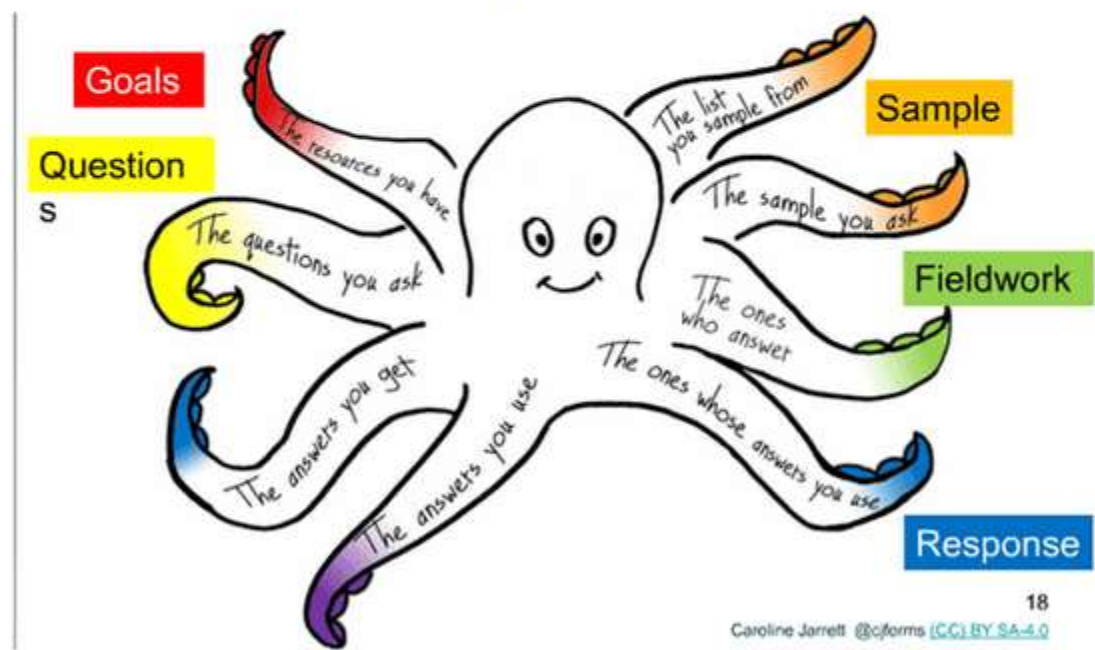
Response

18

Caroline Jarrett @cjforms (CC) BY SA-4.0

RETWEETS   FAVORITES
7   10

5:17 PM - 21 Sep 2015

People want a process, too

Goals

Questions

Questionnaires

Response

Insight

Sample

Fieldwork

Response

The resources you have
The list you sample from
The questions you ask
The sample you ask
The ones who answer
The answers you get
The ones whose answers you use
The answers you use
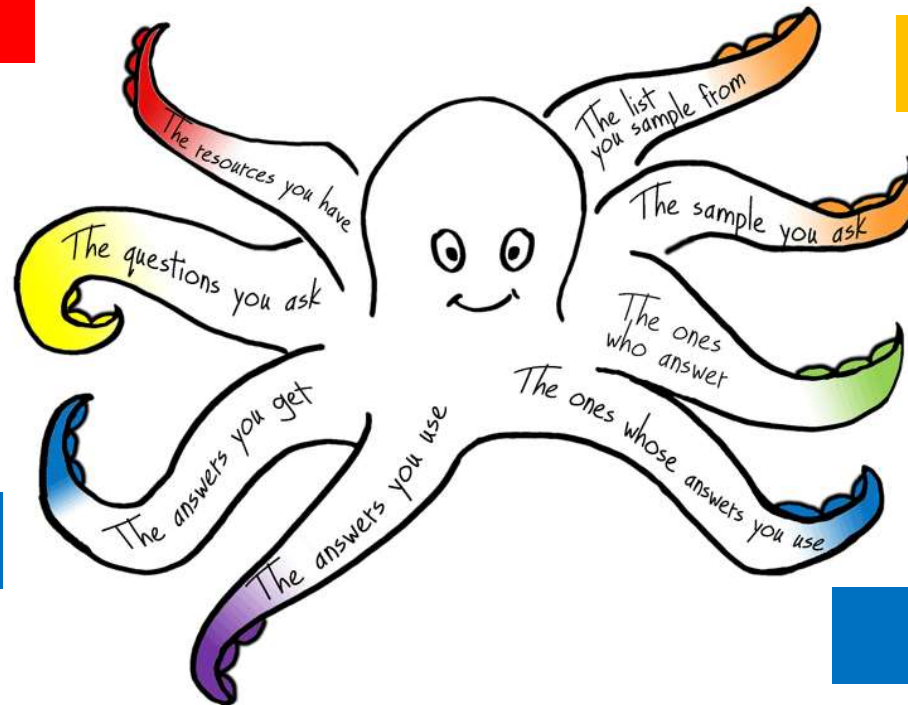
My survey process has 6 steps

Goals	Sample	Questions	Fieldwork	Response	Insight
Establish your goals for the survey	Decide who to ask and how many	Test the questions and build the questionnaire	Run the survey from invitation to follow-up	Clean the data	Analyse and present the results
Questions that you need answers to	People who you will invite to answer	Questionnaire	People who actually answer	Answers	Decisions

A survey is a quantitative method

To get better results from your survey, think about the Survey Octopus

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

What you want to ask about

Who you want to ask

Survey

The number

58

Some options for talking about Total Survey Error

1. As a Survey Octopus.

To get better results from your survey, think about the Survey Octopus
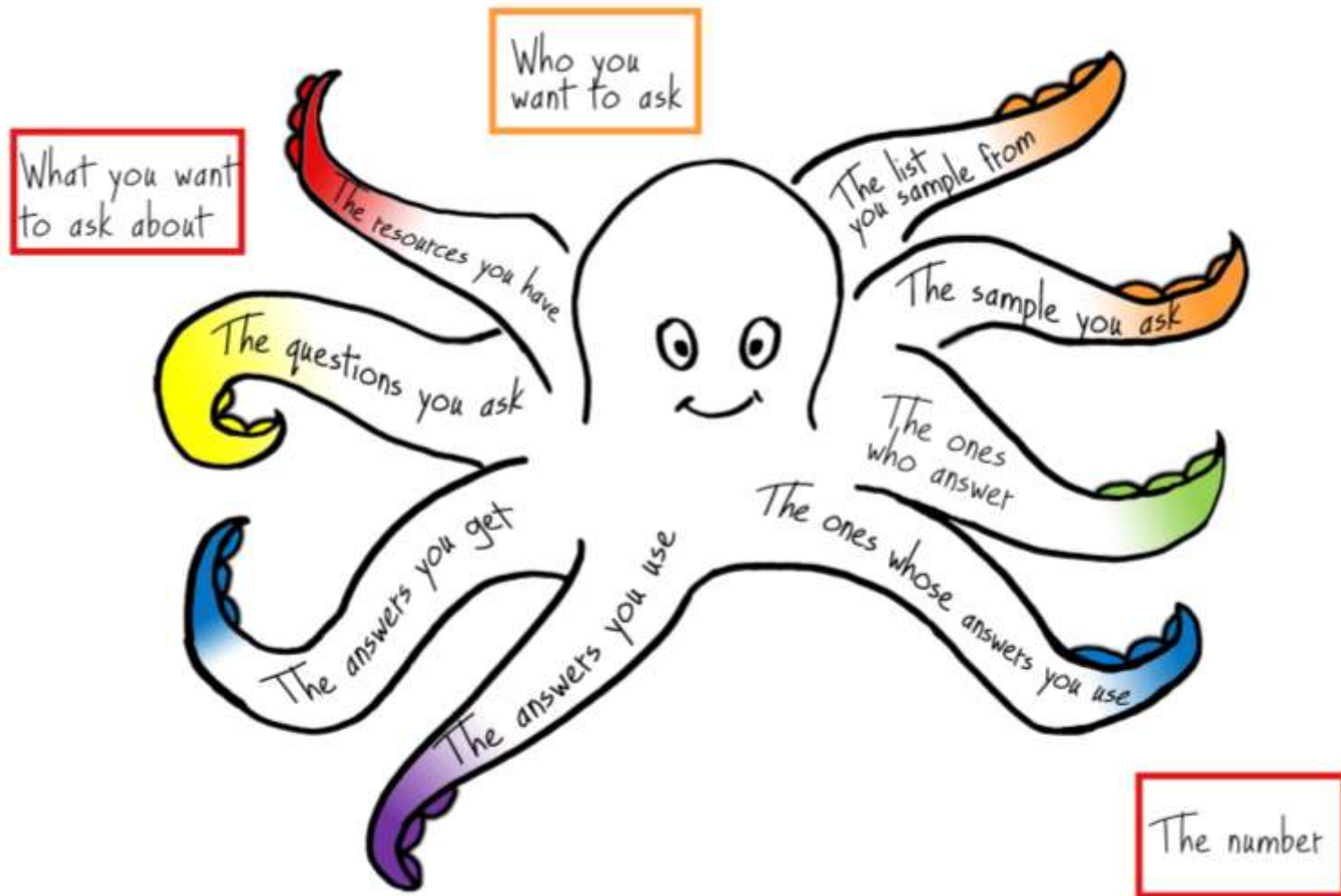
2. As a more conventional diagram

The aim is to get the best number you can, within the resources you have

What you want to ask about

The resources you have

The questions you ask

The answers you get

The answers you use

The number

Who you want to ask

The list that you sample from

The sample you ask

The ones who answer

The ones whose answers you can use
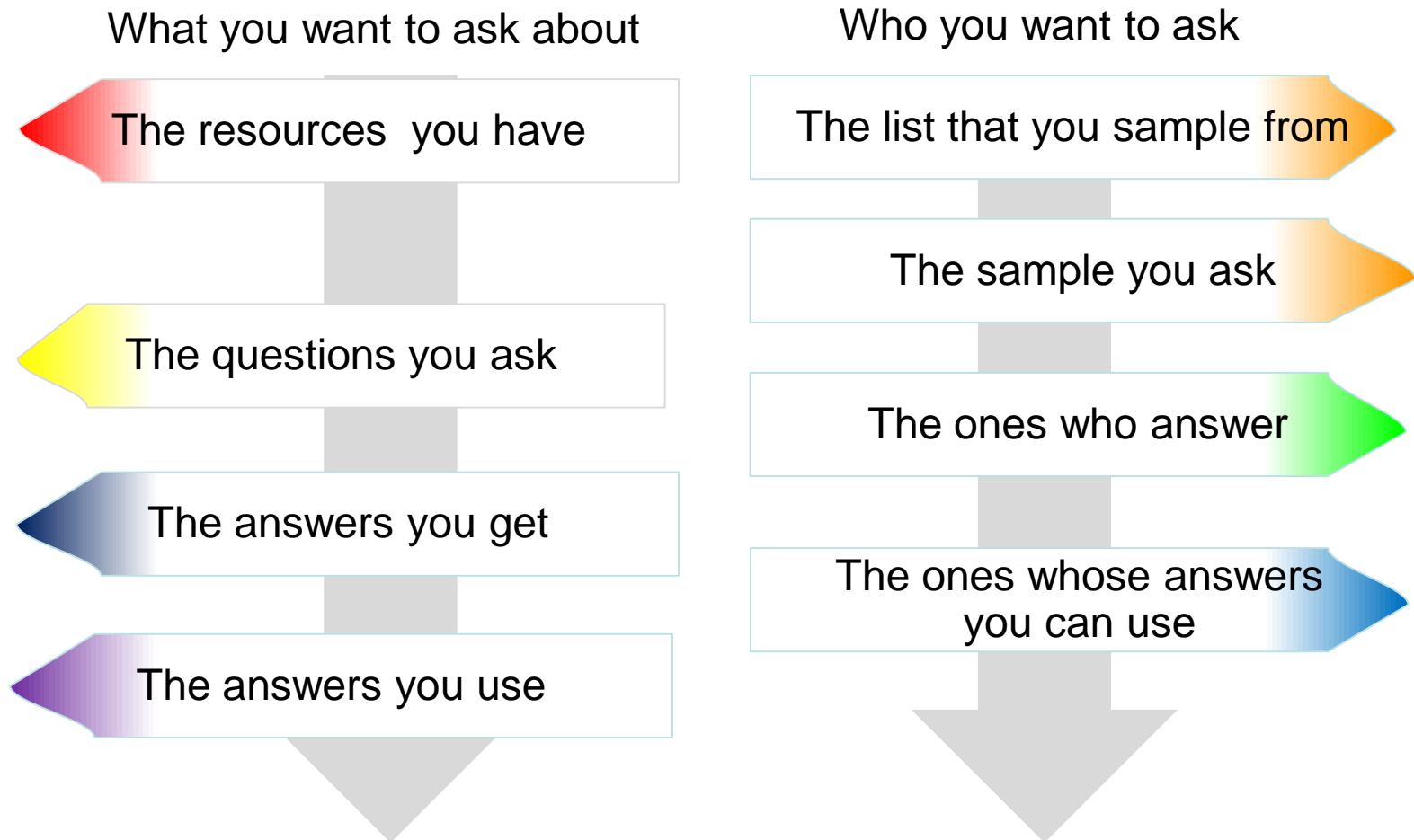
3. As a link to the terms used by survey methodologists (searchable)

The aim is to get the best number you can, within the resources you have

What you want to ask about	Construct	Representation	Who you want to ask
The resources you have	Resources	Sampling frame	The list you use to sample from
The questions you ask	Measurement	Sample	The ones you ask
The answers you get	Response	Respondents	The ones who answer
The answers you use	Edited response	Post-survey adjustments	The ones whose answers you can use

The number — Survey statistic
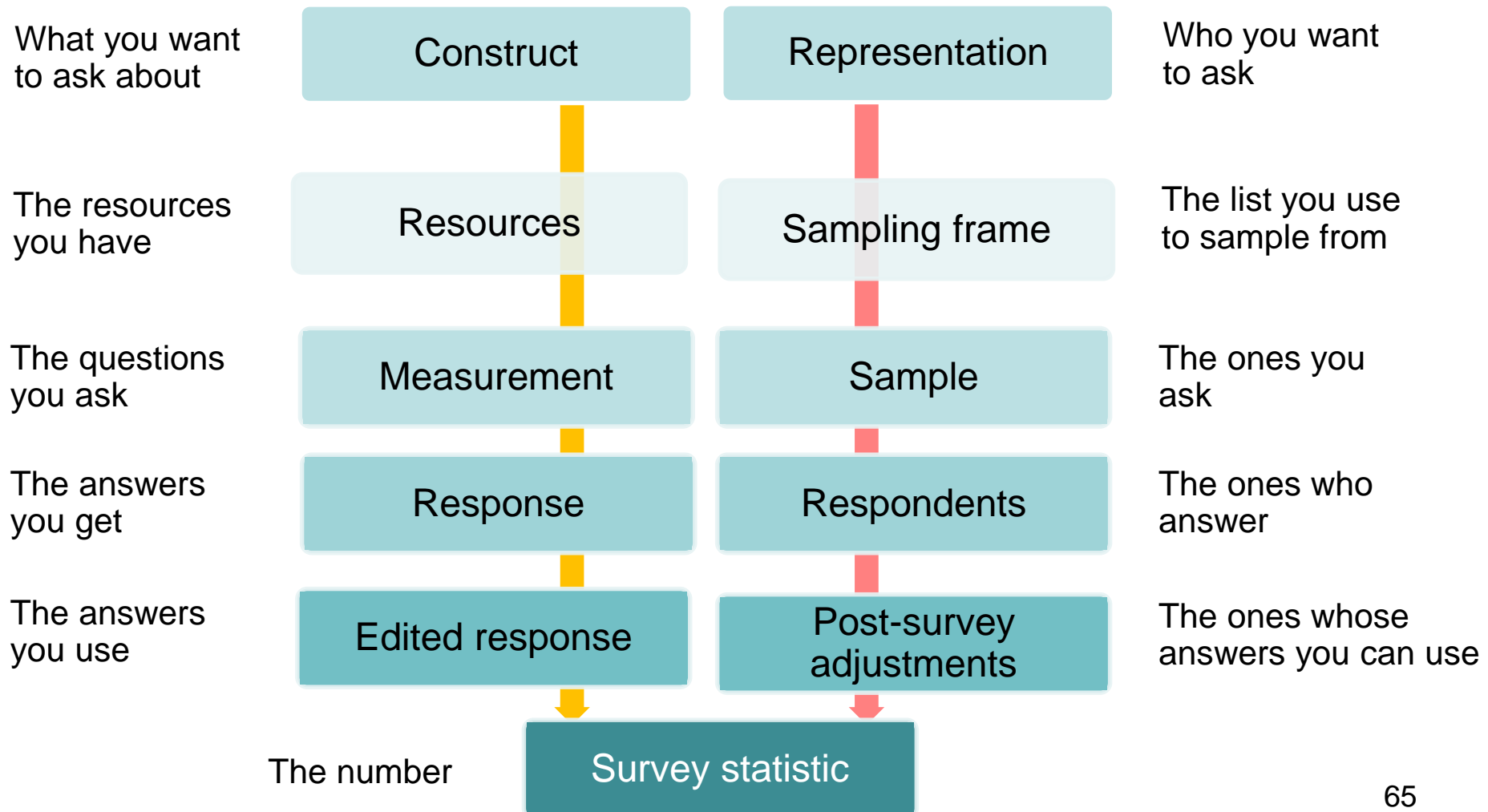
4. With all the errors in it

The aim is to get the best statistic you can, within the resources you have

Construct

Representation

(Lack of) Validity

Coverage error

Sampling frame

Measurement

Sampling error

Measurement error

Sample

Response

Nonresponse error

Respondents

Processing error

Adjustment error

Edited response

Post-survey adjustments

Survey statistic

Measurement

Construct
μ_i

Validity

Measurement
Y_i

Measurement
Error

Response
y_i

Processing
Error

Edited
Response
y_{ip}

Representation

Target
Population
$\bar{Y}$

Coverage
Error

Sampling
Frame
$\bar{Y}_c$

Sampling
Error

Sample
$\bar{y}_a$

Nonresponse
Error

Respondents
$\bar{y}_r$

Adjustment
Error

Postsurvey
Adjustments
$\bar{y}_{rw}$

Survey Statistic
$\bar{y}_{prw}$

Total Survey Error diagram as presented in Groves, R. M., F. J. Fowler, M. P. Couper, J. M. Lepkowski, E. Singer and R. Tourangeau (2009). Survey methodology. Hoboken, N.J., Wiley.

Figure 2.5 Survey life cycle from a quality perspective.

Caroline Jarrett

Twitter @cjforms

http://www.slideshare.net/cjforms

carolinej@effortmark.co.uk

User Interface Design and Evaluation

Forms that Work — Designing Web Forms for Usability — Caroline Jarrett · Gerry Gaffney

Surveys that work (in progress)