THE LIFE OF SURVEY DATA:
From conception,
to birth
then graduation,
culminating in its life purpose

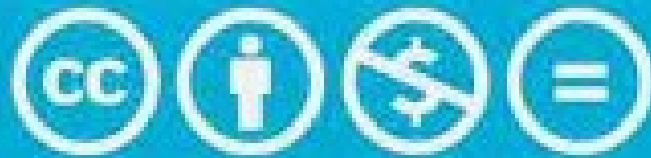Low-Choy, S. (2021) "The life of survey data: From conception, to birth then graduation, culminating in its life purpose", Presentation at Research Bazaar (ResBaz), The University of Queensland, 25 November 2021.

Abstract

Embarking on developing your own survey for the first time can be a challenge. Some researchers, however, may be **over-confident and underestimate the complexities involved, and the rigour** required to provide evidence suitable for publication. This talk demystifies the process, by describing the full lifecycle of developing and conducting surveys. The process starts with conception of the idea, goals and logic, to the creation of the survey as a measurement instrument. The survey the matures after refinement, validation and testing before venturing out into the real world. We signpost various research methods that can help the survey fulfil its purpose.

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Using Surveys for Research:

What is involved?

- Most are aware of the concrete steps of survey development.
  - survey tool
  - questions
  - frequency tables

Advice

Surveys seem so simple, but they rarely are in real life. Slightly vary the types of questions and response options in your survey, and you can seriously impact the quality and value of your survey's results.

Bad results can lead to bad decisions—the very thing you set out to avoid by making a survey in the first place. Ask the wrong questions, or ask them in the wrong way, and you'll end up with products and services no one wants.

That's why **thoughtful survey design** is so important. It'll **help you get better, trustworthy results**.

Briggs, Stephanie (June 25, 2015) Surveys 101: A Simple Guide to Asking Effective Questions, in *Zapier* blog, https://zapier.com/learn/forms-surveys/writing-effective-survey/

Ensuring your Survey Research is credible:

The hidden overhead

	Valid	Are questions relevant to your topics?
	Accurate	Do questions reveal the information desired?
	Representative	Do selected participants reflect a larger "population"?
	Reproducible	Can someone else repeat what you have done?
	Reliable	If you survey the same person in another sitting, would you get similar results?

Preparation
. is
the key
to success

"Give me six hours to chop down a tree and I will spend the first four sharpening the axe."

Abraham Lincoln

Advice on surveys often focuses on the questions

- Use simple, direct language

- Be specific

- Break down big ideas into multiple questions

- Avoid leading questions

- Ask one thing per question

- Use more interval questions (beyond yes/no to Likert or numeric scales)
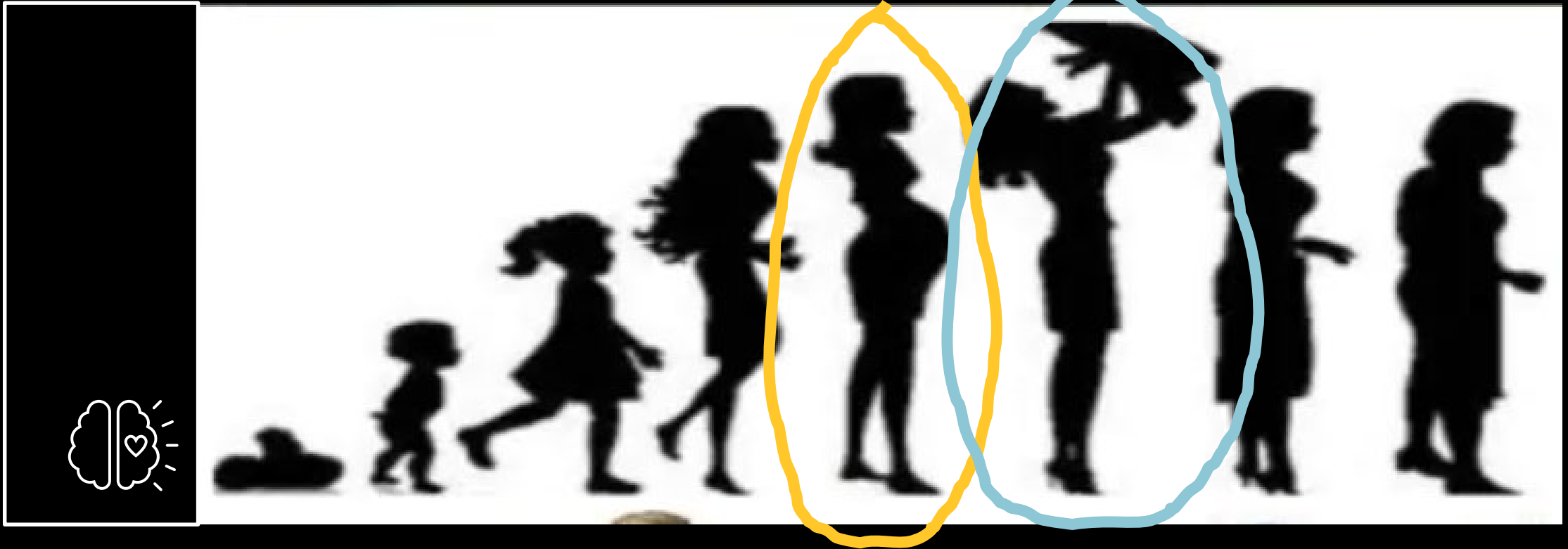
All great advice …
… just not a great place to start!

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Refocus on what you need

It's easy to begin the survey writing process by brainstorming a list of questions to ask. Your head's full of questions you're dying to ask your customers, and it'd be so easy to type them out in a survey app and call it a day.

But that's far from the best way to start. **Instead, you should begin your survey building process by brainstorming the *answers* you want.** You want actionable feedback, and you'll be most likely to get that by thinking through the exact answer you want. This could be a simple answer (perhaps "*Our customers want us to offer THIS flavor of soda*") or a more complicated hypothesis you want to prove (such as "*Concern about social status is/is not correlated with social media usage.*").

So sit down, and **think through what you want to learn from your survey**.

Briggs, Stephanie (June 25, 2015) Surveys 101: A Simple Guide to Asking Effective Questions, in *Zapier* blog, https://zapier.com/learn/forms-surveys/writing-effective-survey/

Many researchers focus on the middle stages of development ...

- Questions & survey tool –before being clear on the answers you need

- Piecemeal frequency analysis – without concern for the big picture

Poor planning and care for infant surveys can undermine adulthood, & limit potential & longevity.

The most useful surveys take time to fully develop …

Stronger preparation is required for more credible methodology (tool) & results.

- Conception – of the idea (critical reading of what others have investigated, via surveys or not!)

- Birth – design population & survey topics (reading of other survey tools/topic)

Better preparation supports more interesting analysis …

- Beyond frequencies – Exploratory Factor Analysis (EFA) discovers key dimensions underlying Qs.

- Confirmatory Factor Analysis (CFA) & Structural Equation Models (SEM) confirm dimensions.

- Many different methods of analysis, including Mixed Methods (e.g. of textual responses).

Planning → Design → Implementation

Analysis → Communication

Phases of Research with Surveys

0. Clarify the research problem prior to Survey development

Critical thinking

1. State the Research Question that will be addressed by the survey

Critical thinking

2. Review the relevant Literature

Lit Review

3. Decide Topics of Survey

Critical thinking & reading

4. Map concepts (topics) to Survey questions (measures)

Methods

5. Choose who will be surveyed (Population)

Critical thinking & reading

Methods

Lit Review - gaps

*Planning Research with Surveys: **At-a-Glance***
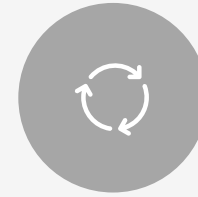
Designing
Research with Surveys

Designing Questions

Research methods

Research Ethics

Clarifying the Answers you Seek

Research methods

Implementation

Pilot survey
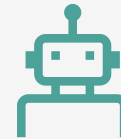
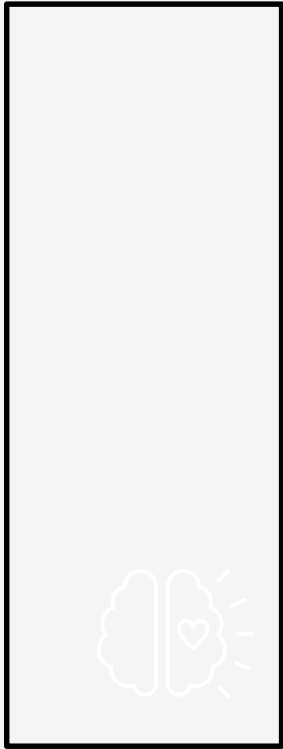### Validation of Questions

Literature review

Qual & Quant research methods

Sampling designs

Qualitative approaches

Quantitative statistical sampling for design of experimental or observational studies

Implementing Research with Surveys

Survey tools & delivery

Survey tools training

Getting data into a Stats package

Statistical software training

Basic statistical analysis

Statistical concepts & approaches

Statistical methods

Statistical software training

Statistical paradigms
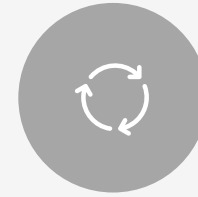
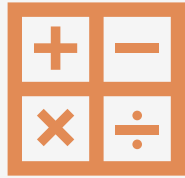Statistical concepts & approaches

Literature review

Statistical modelling (absolute beginner)

Visual methods
(SEM, Bayesian networks, DAGs)

Regression (Least Squares)

Machine learning

Statistical modelling (advanced beginner)

Regression (Max Lik)

Generalized linear models
(for non-normal outcomes)

Advanced SEM (mediation, moderation)

Diagnostics for machine learning or
statistical modelling

Bayesian statistical modelling

Bayesian networks

Bayesian hypothesis testing

Bayesian regression

Bayesian hierarchical models

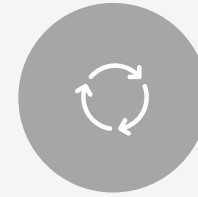Bayesian computation

Analysing Research with Surveys

Planning

Design

Implementation

Analysis

Communication

Communicating Research with Surveys (End-of-life)

Who can help?

You   research team   Peers   Methodologists   Library & eResearch

Final word

This is an early draft.

If you think any information is missing, or that this information can be presented in a better way, please let us know.

Please contact:

Convenor Stats/Mixed Methods training delivered via RED – stats@Griffith.edu.au