

*don't*  
You ~~can't~~ always get what you want:  
Identifying practical ways to ~~get the~~  
~~right information~~

*reduce  
knowledge  
noise*

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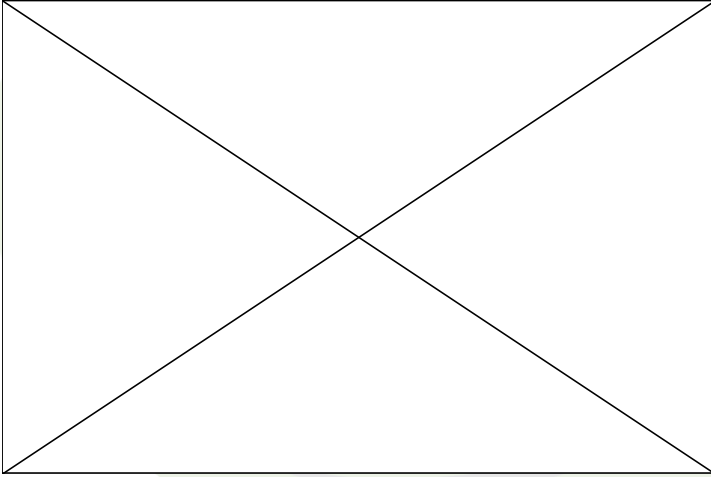
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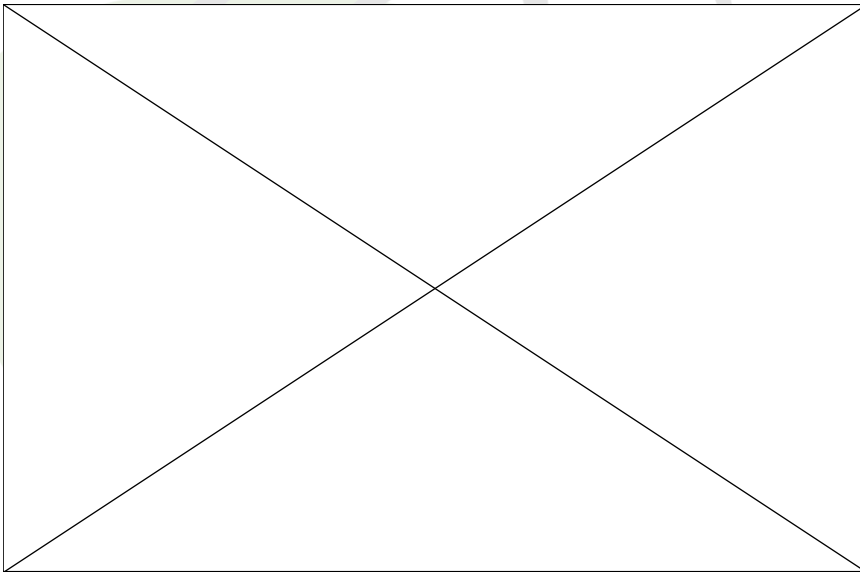
## Presentation Summary

1. Knowledge is often expensive to obtain, but invaluable once it is possessed. Invest time up front in making sure you are capturing 'good' knowledge.
2. Knowledge noise is inevitable but its sources are somewhat predictable.

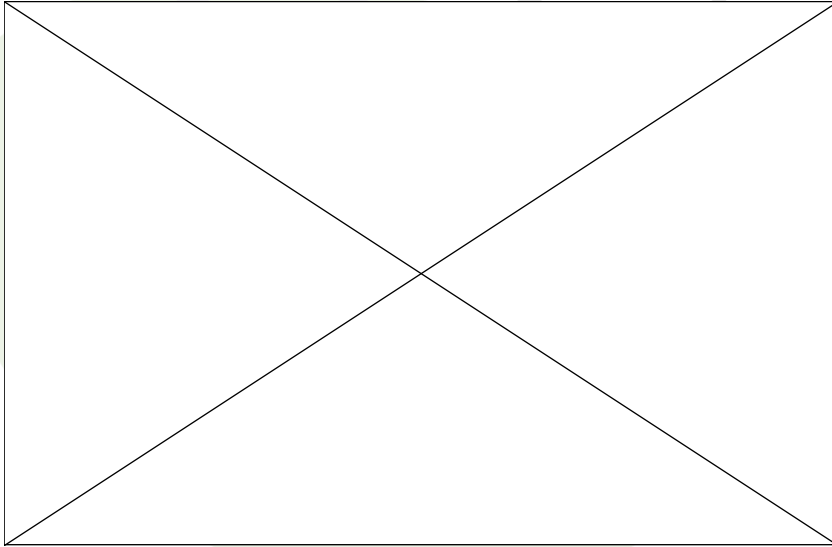
## Example Survey Question



## Survey Question #1



## Survey Question #2



What does the following mean?

$$y_i = \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_p x_{ip} + \varepsilon_i$$

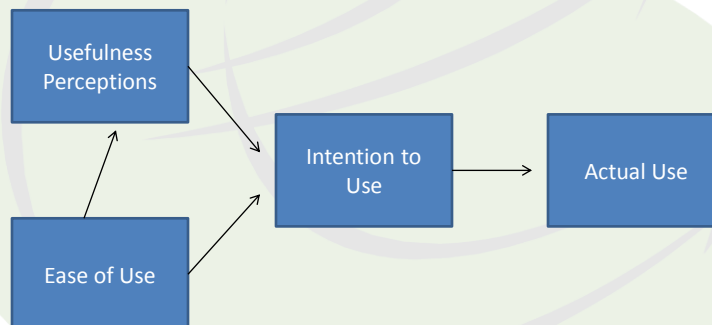
In telecommunications we call this a signal to noise (SNR) ratio – how much of the transmissions is the intended signal versus noise?

## The Matter of Removing Noise

1. Definitions matter
  - Are you answering the question(s) you think you are?
2. Data collection methods matter
  - Are you ‘leading the witness’?
  - Knowledge ‘attenuation’
3. Environmental factors matter
  - Social (informal) pressures to comply
  - Organizational (formal) pressures to comply

## Definitions Matter: An Example

- Understanding the usage of IT (Davis, 1989)



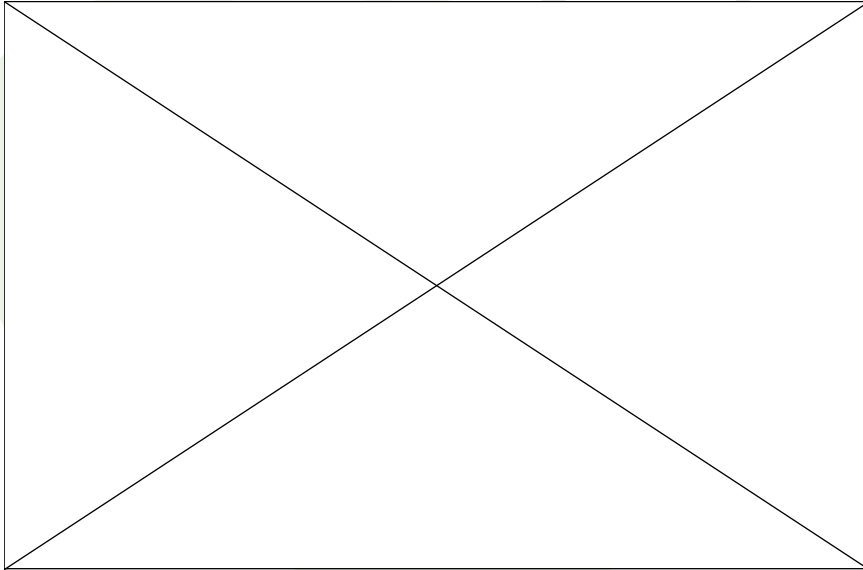
## Definitions Matter: An Example

- Over time, assumption has become accepted that intentions = usage behavior
  - Intentions are a strong indicator of behavior, but...
    - Is this a **safe** assumption?
    - Is this a **necessary** assumption?
  - Can you think of an instance where intentions  $\neq$  behavior?

## Definitions Matter: The Takeaway

- What is driving your definition?
  - Path of least resistance? Easy to collect? Simple to understand?
- Does your definition match the knowledge you are seeking?
  - Have you asked other 'domain experts' for their opinion?
  - Have you 'pilot tested' your approach to see if it flies?

## Survey Question #3



### Data collection methods matter

- Consider your answers to the previous three survey questions
  - Response scales of Q1 and Q2 are the same...
  - Subject matter of Q1 and Q2 are not 'theoretically' related...
    - Was there a 'impure' similarity in your response?
  - Consider your answer to Q3...
    - Does your natural disposition possibly 'pollute' the relationship between Q1 and Q2?
- Called 'common methods bias' in research

## Data collection methods matter: An Example

- All definitions of 'use' are not the same
  - Sharma, Yetton and Crawford (2009) meta-analysis found
    - Perceived Usefulness correlation with Usage was highly dependent on how usage was measured\*
      - When Usage measured similar to PU,  $r = 0.59$
      - When Usage is objective,  $r = 0.16$

*\* common method variance explains 56.09% ( $p < 0.05$ ) of the between-studies variance in PU-U correlations*

## Data collection methods matter: An Example

- Variable relationships can be unduly influenced by
  - Phrasing of the question
  - Response format
  - Time when questions were asked
  - Homogeneity of respondents

## Data collection methods matter: The Takeaway

- Don't always strive for expediency (knowledge is extracted over time)
- Involve others in the knowledge gathering process
- Collect information from multiple sources using multiple methods (triangulation)
- Remember that causality can be elusive
  - Only 'theory' can provide insights regarding what really 'causes' what

## Environmental factors matter

- Social and organizational pressures can encourage people to respond in
  - 'inaccurate' ways
    - Are individuals able to respond without fear of giving a 'wrong' answer?
  - 'incomplete' ways
    - Do individuals believe that giving a complete response is worthwhile?
  - 'counterproductive' ways
    - Are individuals incented to respond in 'inappropriate' ways?

## Environmental factors matter: An Example (Work in Progress)

- Current research project on how to encourage the creation of strong and memorable passwords
  - Variation of control methods in the password creation screen
    - Self-control
    - Clan control
    - Behavioral control
  - What do you think will happen when we ‘tighten the screws’ – how will that impact strength and memorability?
  - Any unintended consequences here?

## Self Control

**Password Creation Screen**
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Passwords are often used to protect individuals from fraud. However, there has been a tremendous amount of debate regarding how to create a strong and valid password. To help in creating a strong password, the guidelines below (taken from <https://www.google.com/accounts/PasswordHelp>) provide a few simple steps one can take:

- Include punctuation marks and/or numbers.
- Mix capital and lowercase letters.
- Include similar looking substitutions, such as the number zero for the letter 'O' or 'S' for the letter '5'.
- Create a unique acronym.
- Include phonetic replacements, such as 'Luv 2 Laf' for 'Love to Laugh'.

With these guidelines in mind, use the fields below to create a strong password that you will be able to remember in one week's time. Your password strength is displayed in the bar below.

**PLEASE NOTE: I will not save / store the actual password you enter below, but rather characteristics of the password (for example, how many characters, numbers, etc.). However, for your personal protection, please DO NOT enter any existing password you use in the form below.**

Keep in mind that you will be asked to remember the password you create **in one week's time**. As such, please take steps to memorize the password you enter below.

Enter your newly created password:

Verify your newly created password:

Your password strength:  Good

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## Environmental factors matter: The Takeaway

- Too early for me to offer much here... but...
  - Need to anticipate unintended consequences of organizational policies
    - Post-it note under the keyboard, anyone?
  - Do your best to create a 'safe' environment for respondents
    - Do you need to know the specific person that responded? Can you use anonymity?

*Questions?*