

Constructing a More Effective Survey: What Moves Minds May Not Move Feet

American Society for Quality
Northern Virginia Section 0511

Olive Garden, Vienna, VA
July 12, 2017

Who? What?

- Cory Sherb
- Section 0511 Chair
- Came to Six Sigma as a statistical consultant in automotive industry with a background in mathematics
- Then an MSc in Organisational and Social Psychology

Example

- Prejudice vs. discrimination
- Investigator followed a young Chinese couple across the USA in the 1930s to see how they received service in restaurants and hotels
- Followed-up each visit with a survey to each establishment asking if they would “accept members of the Chinese race as guests.”
- LaPiere, R. T. (1934) Attitudes vs. actions. *Social Forces*, 13, 230-237.

Outcome

- ***Excellent service*** was received in almost all establishments, while almost all survey responses came back negative

- (Page 54)

Unit of analysis is important

- We're all here to improve individual outcomes in a particular moment, but most of our tools are based on aggregate measures over time
- Group vs. individual
- General attitudes vs. specific behavior

Challenge is the same

- Construct a representative sample
- Ensure the object of our study is constitutionally equivalent to our desired outcome

- How to do this with surveys in order to predict human behavior?

Source of Theory

- Theories of Reasoned Action and Planned Behavior
- Martin Fishbein and Icek Ajzen
- Predicting and Changing Behavior 2010

- “General attitudes ... are generally very poor predictors of the specific actions that are investigated in different domains” (17)

Theory of Planned Behavior

- Six Sigma $y = f(x)$
- y = behavioral intention
- x_1 = attitude toward behavior
- x_2 = subjective norms
- x_3 = perceived behavioral control
- Behavioral intention is the *readiness to perform the behavior*

Behavioral Intention

- **Attitude toward behavior**
- Subjective norms
 - Strength of normative beliefs
 - Motivation to comply
- Perceived behavioral control
 - Strength of each control belief
 - Perceived power of the control belief

Attitude

- Key elements of the attitude must match the desired behavior
 - Action performed
 - Purchase
 - Target at which the action is directed
 - Dishwasher
 - Context or environment
 - Sears
 - Time element
 - Next 30 days
 - (Page 29)

Where things can go wrong

Generalizing behavior to a category

- “Major purchase”
- “Exercise”
- “Lifestyle”

Focusing on a goal, instead of underlying behaviors (38)

- “Going to the movies”
- “Losing weight”
- “Earn an MBA”

Behavioral Intention

- Attitude toward behavior
- **Subjective norms**
 - Strength of normative beliefs
 - Motivation to comply
- Perceived behavioral control
 - Strength of each control belief
 - Perceived power of the control belief

Subjective Norms

- Social pressure to perform a given behavior
- Injunctive norms
 - Perception of what specific others think we should do
 - “Do as I say”
- Descriptive norms
 - Perceived behavior of others
 - “Do as I do”
- (Page 132)

Where things can go wrong

- Excluding questions about respondents motivation to comply
- Give respondents a chance not to care; it will help to segment negative and positive responses
- Page (137)

Behavioral Intention

- Attitude toward behavior
- Subjective norms
 - Strength of normative beliefs
 - Motivation to comply
- **Perceived behavioral control**
 - Strength of each control belief
 - Perceived power of the control belief

Perceived Behavioral Control

- Two elements should be included in the survey
 - Capacity
 - Ability to perform a behavior
 - “I believe I have the ability to perform behavior X”
 - Autonomy
 - Degree of control and dependence on others
 - “The number of events outside my control which could prevent me from performing behavior X are”

- (Page 165-6)

Where things can go wrong

- Not including a question for each control factor that connects to impeding or facilitating the behavior in question
 - What difference would this factor make in achieving the behavior in question?
 - “My having reliable transportation would facilitate my ability to attend regularly”
- (Page 171)

Summary

- Attitudes are only a partial component to determining motivations of behavior
- Other elements to be considered are:
 - Subjective Norms
 - Perceived Behavioral Control
- Pilot discussions and smaller surveys are key to determining how these elements should be included in the larger survey

Sample Questions Related to Exercise
After Major Surgery
Each with a 7 point scale
(Fishbein & Ajzen, 457)

Sample Survey Questions

- **Attitude toward behavior**
- Subjective norms
 - Strength of normative beliefs
 - Motivation to comply
- Perceived behavioral control
 - Strength of each control belief
 - Perceived power of the control belief

Attitudes

- My exercising for at least 20 minutes, three times per week, for the next 3 months, will help me lose weight
- If I exercise for at least 20 minutes, three times per week, for the next 3 months, I will suffer pain
- If I exercise for at least 20 minutes, three times per week, for the next 3 months, I will be tired and exhausted
- If I exercise for at least 20 minutes, three times per week, for the next 3 months, I will build up my physical strength
- If I exercise for at least 20 minutes, three times per week, for the next 3 months, I will hurt myself

Attitudes

- My exercising for at least 20 minutes, three times per week, for the next 3 months will help me heal faster
- My exercising for at least 20 minutes, three times per week, for the next 3 months is good / bad
- My exercising for at least 20 minutes, three times per week, for the next 3 months is unpleasant / pleasant
- My exercising for at least 20 minutes, three times per week, for the next 3 months is harmful / beneficial
- My exercising for at least 20 minutes, three times per week, for the next 3 months is boring / interesting

Sample Survey Questions

- Attitude toward behavior
- Subjective norms
 - **Strength of normative beliefs**
 - Motivation to comply
- Perceived behavioral control
 - Strength of each control belief
 - Perceived power of the control belief

Descriptive Norms

- After major surgery, my close friends would exercise for at least 20 minutes, three times per week, for the next 3 months
- After major surgery, my parents would exercise for at least 20 minutes, three times per week, for the next 3 months
- After major surgery, my spouse or partner would exercise for at least 20 minutes, three times per week, for the next 3 months
- Most people who are important to me think that I should exercise for at least 20 minutes, three days per week, for the next 3 months

Descriptive Norms

- Most people whose opinions I value would approve of my exercising for at least 20 minutes, three times per week, for the next 3 months
- Most people I respect and admire will exercise for at least 20 minutes, three times per week, in the 3 months following major heart surgery
- Most people like me have exercised for at least 20 minutes, three times per week, in the 3 months following major heart surgery

Injunctive Norms

- My spouse or partner thinks that I should exercise for at least 20 minutes, three times per week, for the next 3 months
- My close friends think that I should exercise for at least 20 minutes, three times per week, for the next 3 months
- My doctor thinks that I should exercise for at least 20 minutes, three times per week, for the next 3 months
- My parents think that I should exercise for at least 20 minutes, three times per week, for the next 3 months

Injunctive Norms

- When it comes to matters of health, how much do you want to be like your close friends?
- When it comes to matters of health, how much do you want to be like your parents?
- When it comes to matters of health, how much do you want to be like your spouse or partner?

Sample Survey Questions

- Attitude toward behavior
- Subjective norms
 - Strength of normative beliefs
 - **Motivation to comply**
- Perceived behavioral control
 - Strength of each control belief
 - Perceived power of the control belief

Motivation to Comply

- When it comes to matters of health, I want to do what my spouse or partner thinks I should do
- When it comes to matters of health, I want to do what my close friends think I should do
- When it comes to matters of health, I want to do what my doctor thinks I should do
- When it comes to matters to health, I want to do what my parents think I should do

Sample Survey Questions

- Attitude toward behavior
- Subjective norms
 - Strength of normative beliefs
 - Motivation to comply
- Perceived behavioral control
 - **Strength of each control belief**
 - Perceived power of the control belief

Perceived Behavioral Control

- I am confident that I can exercise for at least 20 minutes, three times per week, for the next 3 months
- My exercising for at least 20 minutes, three times per week, for the next 3 months is completely up to me
- If I really wanted to, I could exercise for at least 20 minutes, three times per week, for the next 3 months
- For me to exercise for at least 20 minutes, three times per week, for the next 3 months is under my control

Sample Survey Questions

- Attitude toward behavior
- Subjective norms
 - Strength of normative beliefs
 - Motivation to comply
- Perceived behavioral control
 - Strength of each control belief
 - **Perceived power of the control belief**

Perceived Behavioral Control

- Having physical strength would enable me to exercise for at least 20 minutes, three times per week, for the next 3 months
- Experiencing pain would make it difficult for me to exercise for at least 20 minutes, three times per week, for the next 3 months
- Getting physical therapy would enable me to exercise for at least 20 minutes, three times per week, for the next 3 months
- Having others to exercise with would enable me to exercise for at least 20 minutes, three times per week, for the next 3 months

Perceived Behavioral Control

- I will have physical strength in the next 3 months
- I will experience pain in the next 3 months
- I will be getting physical therapy in the next 3 months
- I will have others to exercise with in the next 3 months

Behavioral Intention

- I intend to exercise for at least 20 minutes, three times per week, for the next 3 months
- I will exercise for at least 20 minutes, three times per week, for the next 3 months
- I am willing to exercise for at least 20 minutes, three times per week, for the next 3 months
- I plan to exercise for at least 20 minutes, three times per week, for the next 3 months

Past Behavior

- In the past 3 months, how often have you exercised for at least 20 minutes, three times per week?
- Asked 3 months later
 - I have exercised for at least 20 minutes, three times per week, in the past 3 months