

Developing a Research Question

FACULTY SCHOLARSHIP WORKSHOP

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Today's Objectives

1. Introductions
2. Develop a strong, significant, and measurable research question
3. Generate at least one testable hypothesis from your draft research question



Introductions

Types of Research Questions

Research question type	Formulation
Descriptive research	What are the characteristics of X?
Comparative research	What are the differences and similarities between X and Y?
Correlational research	What is the relationship between variable X and variable Y?
Exploratory research	What are the main factors in X? What is the role of Y in Z?
Explanatory research	Does X have an effect on Y? What is the impact of Y on Z? What are the causes of X?
Evaluation research	What are the advantages and disadvantages of X? How well does Y work? How effective or desirable is Z?
Action research	How can X be achieved? What are the most effective strategies to improve Y?

<https://www.scribbr.com/research-process/research-questions/>



Narrowing the Research Topic

To develop a strong research question from your ideas, ask yourself:

- Do I know the field and its literature well?
- What are the important research questions in my field?
- What areas need further exploration?
- Could my study fill a gap? Lead to greater understanding?
- Has a great deal of research already been conducted in this topic area?
- Has this study been done before? If so, is there room for improvement?
- Is the timing right for this question to be answered? Is it a hot topic, or is it becoming obsolete?
- Would funding sources be interested?
- If you are proposing a service program, is the target community interested?
- Most importantly, will my study have a significant impact on the field?



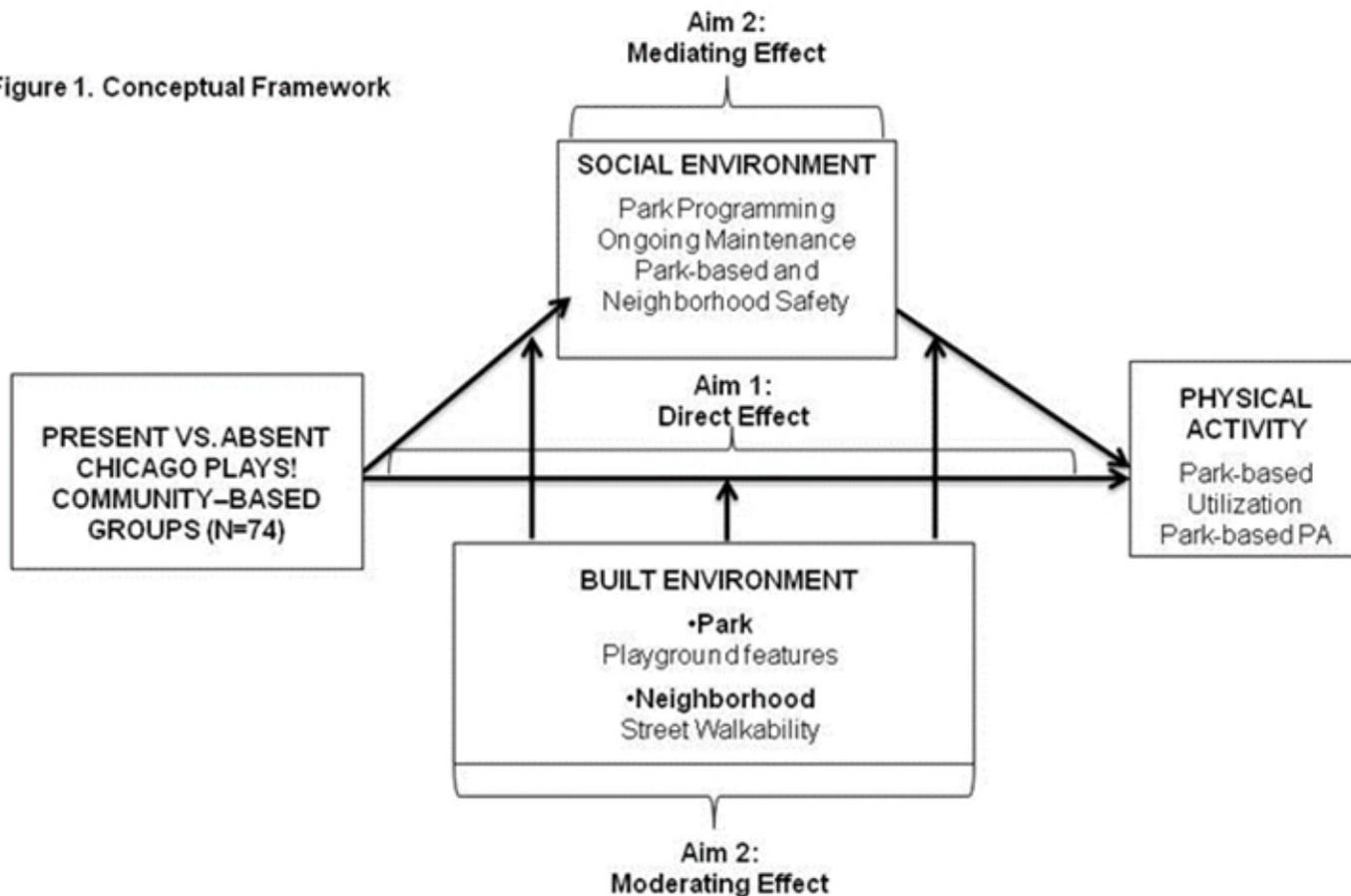
Research Ideas

Sample Research Questions:

<p>Too narrow: What is the childhood obesity rate in Phoenix, AZ? This is too narrow because it can be answered with a simple statistic. Questions that can be answered with a "yes" or a "no" should also typically be avoided.</p>	<p>Less narrow: How does the education level of the parents impact childhood obesity rates in Phoenix, AZ? This question demonstrates the correct amount of specificity and the results would provide the opportunity for an argument to be formed.</p>
<p>Unfocused and too broad: What are the effects of childhood obesity in the United States? This question is so broad that research methodology would be very difficult and the question is too broad to be discussed in a typical research paper.</p>	<p>More focused: How does childhood obesity correlate with academic performance in elementary school children? This question has a very clear focus for which data can be collected, analyzed, and discussed.</p>
<p>Too objective: How much time do young children spend doing physical activity per day? This question may allow the researcher to collect data but does not lend itself to collecting data that can be used to create a valid argument because the data is just factual information.</p>	<p>More Subjective: What is the relationship between physical activity levels and childhood obesity? This is a more subjective question that may lead to the formation of an argument based on the results and analysis of the data.</p>
<p>Too simple: How are school systems addressing childhood obesity? This information can be obtained without the need to collect unique data. The question could be answered with a simple online search and does not provide an opportunity for analysis.</p>	<p>More Complex: What are the effects of intervention programs in the elementary schools on the rate of childhood obesity among 3rd - 6th grade students? This question is more complex and requires both investigation and evaluation which will lead the research to form an argument that may be discussed.</p>

<https://cirt.gcu.edu/research/developmentresources/tutorials/question>

Figure 1. Conceptual Framework

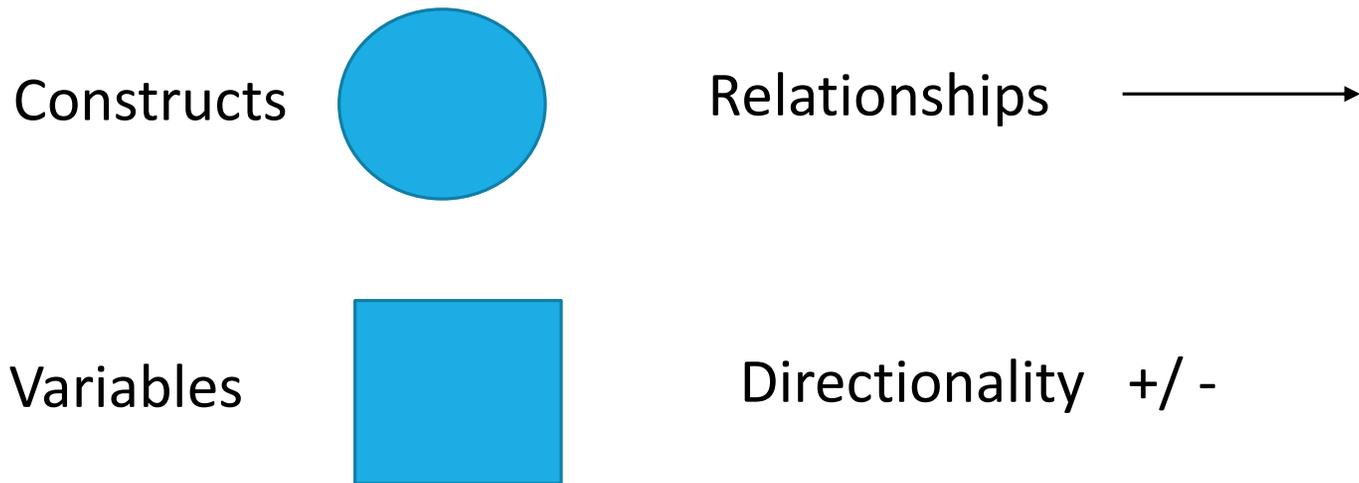


Operationalizing a Research Idea

Visualizing a Research Question

Put everything down on paper visually

For example:



Example 1

Research Question: Does involving community groups in planned playground renovations influence park-based utilization and physical activity (PA)?

H1: Playground renovations in parks with community engagement activities will result in increased overall park-based utilization and PA compared to playground renovation alone at 12 months and increases will be sustained at 24 month follow up.

H2a. The effect of playground renovations on park-based utilization and PA will be higher at parks with a greater number of newly installed playground features at 12 and 24 months compared to baseline.

H2b. Built environment (e.g., street walkability) will moderate the relationship between playground renovations and park-based utilization and PA at 12 and 24 months compared to baseline.

H2c. Enhanced park programming, ongoing maintenance, and reduced crime will mediate the relationship between playground renovations and park-based utilization and PA at 12 and 24 months compared to baseline.

Example 2

Research Question: How do active living policies and environments influence body mass index (BMI)/obesity risk?

H1: Living in counties with stronger active living policies helps people maintain a lower BMI over time compared to people living in counties with weak or absent policies.

H2: Living in counties with more supportive built environments helps people maintain a lower BMI over time compared to those in counties with less supportive environments.

H3: Changes in the built environment (e.g., street connectivity, traffic calming,

park availability) partially explain effects of active living policies on BMI.

H4: Effects of active living policies on BMI over time will differ by individual gender, race/ethnicity, and age group (e.g., young, midlife, older adults), as well as area SES.

Example 3

Research Question: Are adolescents' in-the-moment decisions about restaurant food choices in the presence of food labels influenced by contexts at multiple (individual, restaurant, and neighborhood) levels?

H1: Adolescents who recall menu labels will purchase items with fewer calories than those who do not recall labels.

H2: We hypothesize that the following factors will be associated with less healthy food choices: higher fast food restaurant density and food-related street advertising, higher levels of hunger, negative mood, presence of friends, food-related special pricing promotions, and appetite appealing advertising. In contrast, we expect that girls, weight concern, higher pricing, fewer promotions or advertising, prominent menu label placement, lower restaurant density, and concerns about what others ordered will be associated with healthy food choices.

Figure 1: Conceptual Framework

Nested contexts influencing in-the-moment food choice decisions in the presence of menu labels

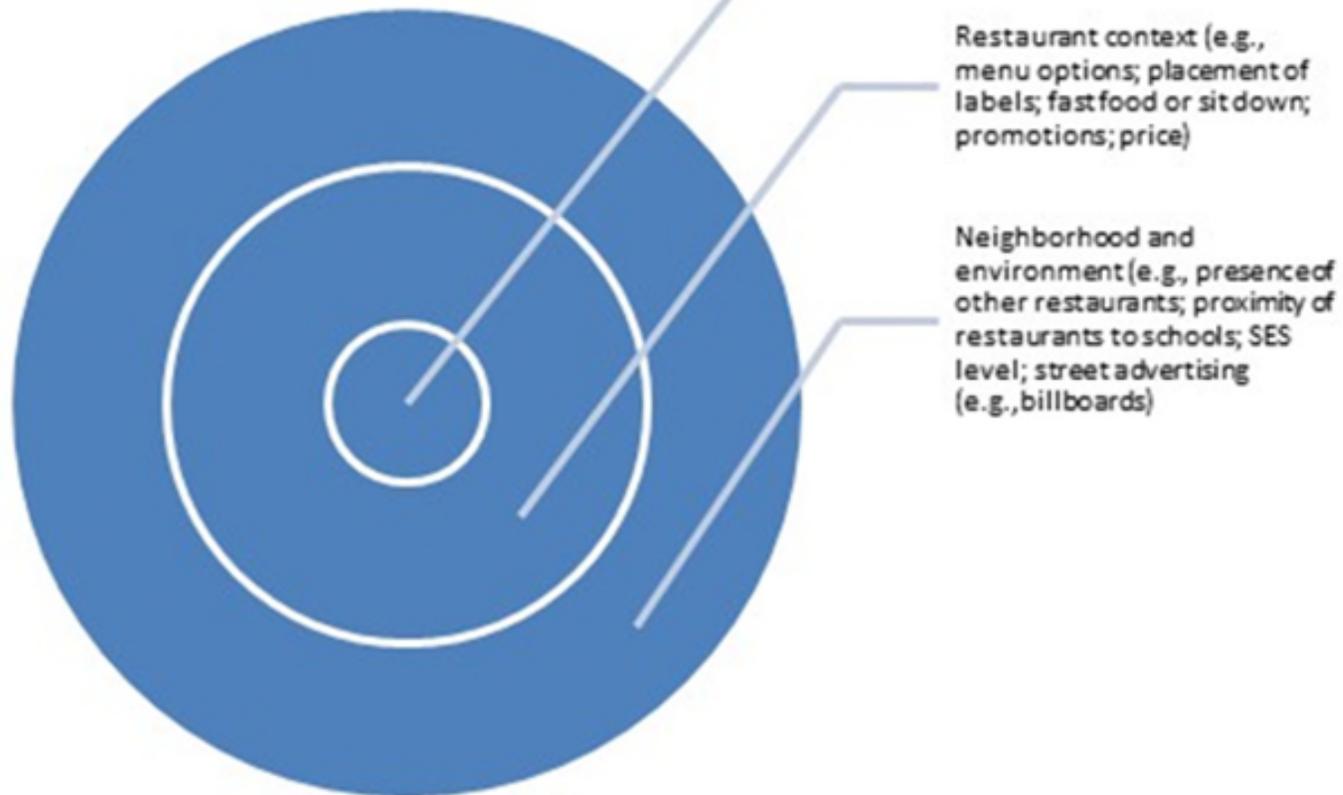


Table 1: Constructs, Definitions, and Data Sources for Individual, Restaurant, and Neighborhood Measures				
Construct	Variable / Operational Definition	Assessment		Source*
Outcome Measures				
Food Choice	Self-reported planned food choice from menu/restaurant: • Total kilocalories of energy intake of probable purchases <i>coded using corporate documents/website</i>	Pre-visit		N/A
	Restaurant receipt: • Total kilocalories of energy intake of actual purchases, <i>coded using corporate documents/website</i>		Post-visit	N/A
	Self-reported actual food choice from menu/restaurant: • Total kilocalories of energy intake of actual purchases (<i>coded using corporate documents/website</i>)		Post-visit	N/A
Menu Labeling	• Awareness of posted calorie information • Perceived calorie information influenced food choice		Post-visit	Hammond et al. ⁶⁵⁻⁶⁸
Individual Factors – Situational/Time-Varying				
Mood and Stress	• Positive Affect • Negative Affect • Stress	Pre-visit	Post-visit	(1) PANAS (short form) ² (1) PSS ³
Hunger	• How hungry are/were you?	Pre-visit	Post-visit	
Time Constraints	• Time pressure to eat		Post-visit	(3) Cohen and Babey ⁷⁶
Family/Peer Influences	• Who at restaurant with (alone, friends, family) • Concern/awareness of what others will/did order • Friend/family support for eating habits	Pre-visit	Post-visit	(1) Sallis, et al. ⁷⁴
Motivation	• Reason selected the restaurant (e.g. healthier food) • Reason for visit	Pre-visit	Post-visit	(2) Elbel et al. ⁴
Self-efficacy	• How confident are you that you can make informed decisions about healthy foods?	Pre-visit	Post-visit	(1) Sallis, et al. ⁷⁴
Other Individual Factors – Time-Invariant				
Demographics	• Race/ethnicity, gender, age, grade in school, parental education (proxy for SES)		Post-visit	N/A
Diet	• Concerns about diet • Awareness of diet • Awareness of recommended daily caloric intake for an adult to maintain a normal weight	Pre-visit	Post-visit	(2) Elbel et al. ⁴
Social Norms	• Lots of my friends/people I know eat fast food often • Lots of my friends/people I know eat healthy food when they are out.	Pre-visit	Post-visit	(3) ⁶⁻⁹
Affordability	• Available monetary funds at time of visit • Price of food items influenced food choice		Post-visit	(2) Elbel et al. ⁴
Physical Activity	• Participation in physical activity		Post-visit	

Restaurant Environment ^{31, 76}			
Menu Labeling	<ul style="list-style-type: none"> • Calorie information posted • Label placement • Recommended daily calories provided • Nutritional information posted, or available upon request 	Restaurant observation form (Appendix A)	(1) Rimkus et al. ⁷⁷
Advertising	<ul style="list-style-type: none"> • Exterior and interior advertising (food images, slogans, mascots, etc.) 	Restaurant observation form	(1) Rimkus et al. ⁷⁷
Price	<ul style="list-style-type: none"> • Regular or promotional pricing (e.g., \$1 menu, price specials, food bundling) 	Restaurant observation form	(1) Rimkus et al. ⁷⁷
Food Selection	<ul style="list-style-type: none"> • Menu food options 	Restaurant observation form	(1) Rimkus et al. ⁷⁷
Customers	<ul style="list-style-type: none"> • Customer crowding (crowded/empty) and ages (e.g., older, younger, mixed) 	Data Collector Restaurant Survey	(1) Rimkus et al. ⁷⁷
Neighborhood Environment			
SES	<ul style="list-style-type: none"> • Median household income (census block group or CT) • % of residents below the federal poverty line (CBG/CT) 	ACS	Secondary Data
Racial/ethnic Composition	<ul style="list-style-type: none"> • Predominant race/ethnicity (CT) 	ACS	Secondary Data
Restaurant Availability	<ul style="list-style-type: none"> • Fast food restaurant density (1-mile buffer) • Fast food restaurant proximity to schools (1-mile buffer) 	GIS/business lists	Secondary Data
Food Advertising	<ul style="list-style-type: none"> • # and type of outdoor food-related ads on billboards and signs 	Street advertising observation form	Appendix B
*Source: Indicates: (1) reliability and validity studies that tested the proposed constructs/measures, (2) studies that have previously used similar measures, and (3) reviews of the literature indicating proposed constructs as important measures influencing adolescent away from home eating behavior.			

Homework

What ideas do you have for a research question?

Issue (Broad)	Research Question (Narrower)	Underlying Problem(s)	Social Significance	Proposal/Solution
Childhood obesity	Is physical activity associated with decreased incidence of childhood obesity?	Disparities in access to quality physical activity settings and programs may exist across key demographic features.	Human health environment	Communities should identify what combination of policies and built environments facilitates making being active the easy choice.

Resources

Generating useful key words for a literature search:

<https://www.youtube.com/watch?v=233DzkmimV4&feature=youtu.be&t=4s>