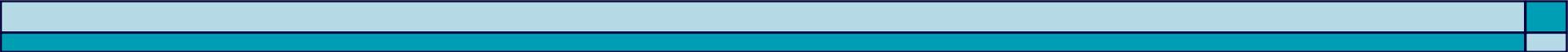# Lecture 32/Chapter 27
Putting Skills to the Test

- Seven Guidelines Applied to Night Light Article
- Chi-Square Analysis of Night Light Data

Seven Guidelines *(Review)*

Step 1: Determine if study was sample survey, experiment, obs study, census, or anecdotes.
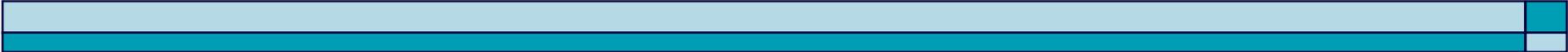
Step 2: Consider 7 Critical Components (details).

Step 3: Check for "Difficulties and Disasters" (sampling p. 69, exp. p. 90, obs. studies p. 96)

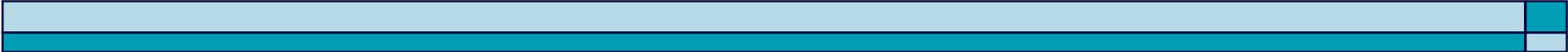Step 4: Is info complete? If not, find original?

Step 5: Do results make sense?

Step 6: Are alternative explanations possible?

Step 7: Do results affect your attitude/lifestyle?

Seven Critical Components *(Review)*

1. Source of research and funding
2. Researchers who had contact w. participants
3. Individuals studied, how they were selected
4. Variables studied [measurements, questions]
5. Setting (time, place)
6. Confounding variables [differences besides factor of interest] if causal relationship is claimed
7. Extent or size of claimed effects/differences
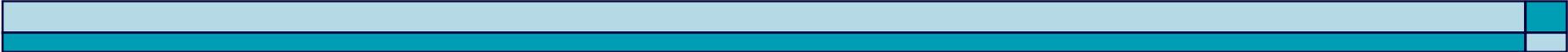
Example: *Night Lights & 7 Guidelines*

- **Background**: *Night Lights Bad for Kids?*
- **Question:** How does each guideline apply?
- **Response:** **Step 1** (design): retro obs study

Step 2 (7 Components):

 #1 source/funding: (reputable?)

#2 researchers having contact w. participants:

#3 individuals/how selected:

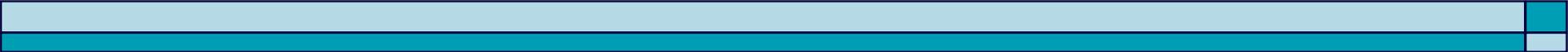# Example: *Night Lights & 7 Guidelines*

□ **Response: Step 2** (7 Components) continued:

#4 variables: explan: _____

response: _____

#5 setting: _____

#6 confounding variables (diffs in groups compared):

_____

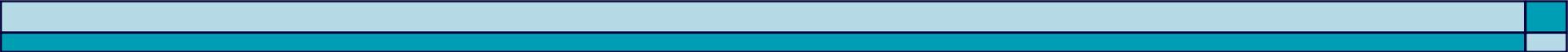#7 magnitude/quantify effect:

_____

Example: *Night Lights & 7 Guidelines*

☐ **Response: Step 3** Difficulties? (Obs. p. 96)

1. Confounding variables?

   _____

2. Extending results inappropriately? _____
3. Using the past as a source of data?

   _____

Example: *Night Lights & 7 Guidelines*

□ **Response: Step 3** Difficulties(sampling p.69)

1. Using the wrong sampling frame?

   _____
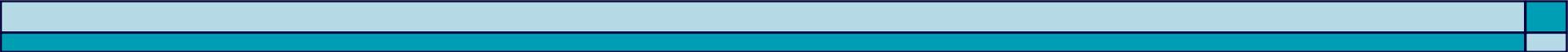
2. Not reaching individuals selected? _____

3. Having a low response rate? _____

4. Volunteer/self-selected sample? _____

5. Convenience or haphazard sample?_____

Example: *Night Lights & 7 Guidelines*

☐ **Response:**

Step 4 Information complete? _____

Step 5 Do results make sense?

_____

Step 6 Alternative explanation?

_____

Step 7 Results' impact on you? _____

Example: *Night Lights & Chi-Square*

- **Background**: Article reports % myopic: darkness 10% of 172; nightlight 34% of 232; lamp 55% of 75

- **Question:** What are the observed counts?

- **Response:**

	Myopic	OK	Total
Darkness			172
Nightlight			232
Lamp			75
Total			479

Example: *Night Lights & Chi-Square*

- **Background**: We have table of observed counts.
- **Question:** What are the expected counts?
- **Response:**

Obs	M	NM	Total
D			172
N			232
L			75
T	137	342	479

Exp	M	NM	Total
D			172
N			232
L			75
T	137	342	479

Example: *Night Lights & Chi-Square*

□ **Background**: Observed and expected counts are

Obs	M	NM	Total
D			172
N			232
L			75
T	137	342	479

Exp	M	NM	Total
D			172
N			232
L			75
T	137	342	479

□ **Question:** What is chi-square? Conclusions?

□ **Response:**