**Research Hypotheses**  
(and evidence required to support each)

1. **attributive**  
   - a way to measure the behavior  
   - how to discriminate it from related behaviors

2. **associative**  
   - reliable statistical relationship

3. **causal**  
   - temporal precedence (cause before effect)  
   - reliable statistical relationship  
   - no confounds/alternative causal explanations

**Research Design**  
Which participants do what when?

<table>
<thead>
<tr>
<th>Causal Interpretability</th>
<th>Between groups</th>
<th>Within-groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>True Exp.</td>
<td>BG True Exp.</td>
<td>WG True Exp.</td>
</tr>
<tr>
<td>Non Exp.</td>
<td>BG Non Exp.</td>
<td>WG Non Exp.</td>
</tr>
</tbody>
</table>

**Data Collection**

1. Collection – observation, self-report or tace
2. Setting -- laboratory, structured setting, or field
3. Data source – primary or archival

**Internal Validity**  
(components and type of variables involved)

1. Initial Equivalence  
   (measured/subject vars)
2. Ongoing Equivalence  
   (manipulated/procedural vars)

**External Validity**  
(components and type of variables involved)

1. Population  
   (measured/subject)
2. Setting  
   (manipulated/procedural vars)
3. Task/Stimulus  
   (manipulated/procedural vars)
4. Societal/Temporal

**Role of each Measure/Behavior**

1. Causal/Independent variable
2. Effect/Dependent variable
3. Control  
   - variable  
   - constant
4. Confounding variable

**Types of Research Validity**

1. Measurement
2. External
3. Internal
4. Statistical Conclusion

**Stages of Participant Sampling**

1. Target Population
2. Sampling Frame (complete pop or purposive)
3. Selected Sample (research selected or self-selected & simple or stratified)
4. Data sample (volunteerism & attrition)

**Participant Sampling Decisions**  
(and choices)

1. Complete population or purposive sampling frame
2. Researcher selected or invited/self-selected
3. Simple or stratified

**Types of Participant Assignment**

1. RA of individuals by the researcher
2. RA of intact groups
3. Arbitrary
4. Administrative
5. Self-assignment
6. Non-assignment ("measured IV")

**Kinds of Measures/Behaviors**

<table>
<thead>
<tr>
<th>Measured/Subject</th>
<th>Variable</th>
<th>Constant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manipulated/Procedural</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>