INTRO PSYCH SCIENTIFIC REASONING MODULE: EXTRAVERSION

INSTRUCTOR GUIDE FOR SMALL CLASSES

TOPIC: PERSONALITY PSYCHOLOGY

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Summary

In this module, students learn how psychologists operationalize and measure constructs that lay people often think are intuitive or cannot be measured – Big 5 personality traits and social competence. Students interpret class data showing a correlation and compare it to published data. The module emphasizes opportunities to interpret scatterplots, *r* and *p* values, positive and negative correlations, and variance and extreme values. This module emphasizes the value and limitations of correlational research.

Topic Extraversion & Social Interaction

Source Article

Lopes, P., Salovey, P., Côté, S., & Beers, M. (2005). Emotion regulation abilities and the quality of social interaction. *Emotion, 1,* 113-118.

Content Specific Student Learning Objectives

1. Think critically about Big 5 personality traits and social competence as constructs that can be studied scientifically.
2. Evaluate the strengths and weaknesses of correlational design to assess the relation between extroversion and social competence.
3. Use, analyze, and interpret correlational data in tables and graphs.
4. Reason about correlation and causation.

APA Learning Objectives (2.0)

1.1 Describe key concepts, principles, and overarching themes in psychology.
1.3 Describe applications of psychology.
2.1 Use scientific reasoning to interpret psychological phenomena.
2.2 Demonstrate psychology information literacy.
2.4 Interpret, design, and conduct basic psychological research.

MCAT Learning Objectives (2015)

Psychological, Social, & Biological Foundations of Behavior: Foundational Concept 7A
Scientific Inquiry & Reasoning Skills

Skill 2: Scientific Reasoning and Problem-solving
Skill 3: Reasoning about the Design and Execution of Research
Skill 4: Scientific Statistical Reasoning

Class Time 30 - 45 minutes (note: student handout should be completed the day prior)

Other Resources For This Module

Student handout, PowerPoint Slides, Excel template (to create graph of class data)

BEFORE CLASS

Read through this guide, getting an estimate for much time to spend on each piece, depending on the time you have available.

Copy student handout (1 per student). Pass out and collect student responses at least one class period prior to using this module (see below for more info—if you don't want students to know what the scales measure, titles for each can be replaced with 'Scale 1' and 'Scale 2').

Update slides with class data using enclosed excel template—Note that in order to show class data when reviewing the module, you'll need to solicit student data prior to completing this module. The short survey can be passed out and completed the day before the module (or at any other time – e.g. the first day of class 'pre-survey', as a homework assignment, etc). Having students complete this in Qualtics, SurveyMonkey, or your LMS will speed up data collection, but you could hand enter the scores easily for smaller classes.

The following article summary provides an overview of the details:

This module focuses on the correlation between extraversion and competence in social situations described in Lopes et al. (2005). The study as a whole examined the larger network of relationships between emotional regulation abilities, personality traits, and quality of social interaction. 76 junior and senior undergraduate students at Yale University were recruited and paid $20 for their participation. Several self-report measures were distributed to participants, including a measure of Big 5 personality traits and measures to assess the quality of social interaction. For extraversion and competence in social situations (indicator of quality interactions), there was a significant correlation (r=0.55). These results indicate a positive relationship between trait extraversion and quality of social interaction.

DURING CLASS

SET THE STAGE

[Slide 1] (title slide)

- Ask students what personality traits they think are important for successful social interactions
- Click to add Big 5-specific question to slide - have students discuss the questions in pairs. (Encourage students to justify their predictions, and the direction of the predicted relationship)
- Review main predictions for class for each Big 5 (Which have most consistent predictions? Where is there disagreement?)
- Introduce topic – review of data from a research study investigating relationship between Big 5 and social competence
    - We'll focus on their findings for EXTRAVERSION, looking at relationship between these two things:

        - Extraversion: dimension of personality that is characterized by people who are outgoing, energized by interactions with other people, take pleasure in large social gatherings
        - Social competence: "capable of using interpersonal skills and navigating relationships with other people"
    - In other studies, extraversion has been positively associated with more positive affect (Costa & McCrae, 1980) and positively associated with more alcohol consumption in college students (Hussong, 2003). (See end of lesson plan for references)
    - How about social interactions? (encourage class to generate predictions – strength and direction of relationship)

ACTIVITY

[Slide 2] (study overview)

- Review study basics (see article summary above)
- Note this study is correlational - experimenters did not manipulate extraversion or competence in social situations -- looking at association between self-report of these two measures

[Slide 3] (correlation)

- Briefly review correlations
- Going to have r-values and scatterplots
- Quick review –? Positive/negative; strength of correlations; approximate r in each of these cases

[Slide 4] (study data)

- While slide is blank - Have students write down their guess for the r-value between extraversion and social competence (based on their earlier discussions)
- Show correlation – the study reported the correlation in their sample was +0.55… does this match your predictions?
- This study reported just r-values (no scatterplots)… Click to show the four scatterplots… which of these looks most like r = 0.55?

[Slide 5] (can you draw causal conclusions?)

- Can you draw causal conclusions for this study?
- No - didn't experimentally manipulate the variable of interest
- Here, it's a clear NO – correlation does NOT equal causation

[Slide 6] (Possible conclusions?)

- When we see a correlation, there are all these different logical possibilities…
- With someone near you, generate possible explanations that might be each of these….
- Why might…
    - A cause B?
    - B cause A?
    - Third variable that causes both?
        - Strong verbal language skills?
        - Social desirability? (people answer the way they think is desirable)
- Review student answers
- To draw a causal conclusion….
    - Would need a TRUE experiment
    - Can you manipulate extraversion?
        - Sometimes we have a variable that we can't manipulate
        - So why might psychologists still use correlational designs sometimes?
            - True experiment might not be possible
            - True experiment might not be ethical or practical
            - Ultimately we might be interested in whether there's an association regardless of whether causal

[Slide 7] (survey students completed)

- Remind students of a set of survey questions they answered earlier
- These were a reduced set of questions than in study, but in our class survey, we assessed your scores for 'extraversion' and 'competence in social situations'
- We can see how our class data compare to the study data

[Slide 8] (class data)

- Show class data (can calculate r and p-value in excel)

    - Similar or different from the study data?
    - Any outliers?
- Especially if results are different, have students brainstorm features about their class that may make them different from the pool of 76 juniors and seniors studied at Yale (location of university, year in school, etc.)
    - This discussion can also include consideration of sample size. Smaller sample sizes leading to more variable point estimates – if your class is smaller than the published study, we might be more likely to trust the study data

[Slide 9] (additional Big 5 correlations)

- What about the other Big 5 personality traits? We focused on extraversion, but we might consider your other predictions when we started talking about this research question
- This study also measured participants on the other Big 5 traits
    - Have students identify the significant correlations
    - Do any of the correlations surprise you (either between traits of between a trait and social competence)? Are there some relationships you expected to be significant that are not?
    - Discuss the additional information we gain from measuring multiple correlations

[Slide 10] (correlational vs experimental research)

- Reinforce the distinction between correlational and experimental research studies
- Correlational – predictor variable is not experimentally manipulated. We cannot draw a causal conclusion. (There might be a causal relationship – but there are too many other possibilities; no way to be sure without a true experiment)
- Experimental study – predictor variable is experimentally manipulated. With a true experiment, you can draw causal conclusions – but only if the study is well-done (check to make sure there's a good control condition, etc)
- Why might psychologists use correlational designs if you can't draw a causal conclusion?
    - True experiment might not be possible
    - True experiment might not be ethical or practical
    - We might ultimately be interested in whether there is an association

- If time – could have students brainstorm follow-up studies, identifying whether their design is correlational or experimental and making / justifying predictions
    - Studies with other populations? (e.g., different with older adults, younger children, or people in a different setting than a US college?)
    - Could you experimentally manipulate exposure to social situations or a 3rd variable proposed earlier?

CONCLUDING THOUGHTS

- Remind students that science is always evolving - one study often prompts new research questions, and as we conduct more studies, we can better understand a topic
- Note that you always want to find convergent evidence from multiple studies. One study never tells the whole story

Additional References:

Costa, P. T. & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology, 38*, 668-678.

Hussong, A. M. (2003). Social influences in motivated drinking among college students. *Psychology of Addictive Behaviors, 17*, 142-150.