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G.I.F.T.S. (Great Ideas For Teaching Students)

Explaining Theory-Guided Research through *The Big Bang Theory*

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Abstract

The Big Bang Theory is a comedy aired on CBS that features the lives of a group of scientists. Like many people, the characters in this show find it difficult to avoid taking their work home with them. Thus, most episodes are rich with research terminology and demonstrations. This paper details an activity that provides a fun means of introducing students to the role of theory in guiding research through the use of *The Big Bang Theory*.

Courses

Theory, Research Methods

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Objective

- To show students the process of using theory to guide research within a single class period so that the concept of a theory does not remain abstract upon introduction.

Introduction and Rationale

Abstract concepts are best solidified for learners through the use of example (Newby & Stepich, 1987). Though students engage in hands-on experience with hard science throughout their education, most are not exposed to social science theory until college. The lack of social science exposure coupled with the intangibility of measurement in communication (e.g. measuring a social scientific construct like teacher immediacy vs. a physical measure such as weight in pounds), makes communication theory abstract, indeed. Though approaching communication theory using students' familiarity with hard sciences can build upon what they already know (Zimmerman & Schunk, 2001), it is not enough to overcome the abstraction.

Giving a good example of a theory necessitates that the theory be explicated (Reynolds, 2007), which can take an entire class period in and of itself. Ideally, therefore, an effective introduction of theory-guided communication research must accomplish three tasks: 1) building on students' preexisting knowledge, 2) explicating an individual theory, and 3) showing an example of how that theory has been used in research. As such, this activity was developed to accomplish all three goals through a method that will engage rather than overwhelm students, and allow the instructor to achieve all three phases of these lesson outcomes within a single class period.

Activity Phase One: Introduce the Concept of Theory

Again, because abstract phenomena are best conveyed through demonstration, the instructor needs to begin the lesson with something concrete, preferably accessing knowledge students can build upon (Zimmerman & Schunk, 2001). For example, the instructor may begin class by holding a small object, like a pencil, over her/his head and asking the class what will happen to the elevation of the pencil if it is released. Of course, after students realize that this is a serious question, they answer that the object will fall to the floor. The instructor can then drop the object to test whether what the students have predicted is accurate. After the object hits the floor, the instructor should then ask students how they knew this to be true, to which students always answer "gravity." Then, students can be prompted to explain gravity, leading them towards the explanation that it is a law of the natural world.

The question can then be posed, "If there is a law-like nature to the world, and social interaction exists within this world, then does it follow that there could or should be a law-like nature governing social interactions?" Students typically vary in their answers to this question, so once all views have been heard, the instructor can conclude the discussion by sharing that many communication scholars do believe in a law-like nature of the social world, and work towards developing communication theories to explain it.

Then, the instructor will present the definition of theory to students. Kerlinger and Lee's (2000) thorough definition explains that a theory is "a set of interrelated constructs (concepts), definitions, and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomenon" (p. 11). Though this thorough definition may seem very straightforward to a graduate school veteran, it is exceedingly abstract to undergraduates, especially on their first day of communication theory or research methods. Therefore, the definition must be broken into three facts for the instructor to elaborate upon:

1. A theory proposes relationships between well-defined variables, all of which are relevant to a given phenomenon.
2. By defining the relationships between these variables, a theory presents a systematic way of describing the phenomena.
3. Because theory explains a phenomenon in terms of relationships among variables, it allows researchers to predict the ways these variables should behave together (Kerlinger & Lee, 2000).

Arguing conclusions from the above facts, it is important the instructor or students also add the following facts about theory:

4. Theories may apply across contexts to many phenomena, people, and places.
5. Theories guide research by generating testable hypotheses.

This discussion and explanation takes 10-15 minutes.

Activity Phase Two: Watch *The Big Bang Theory*

Next, students will view a demonstration of communication theory in action by playing Season 4, Episode 20 of *The Big Bang Theory*, titled "The Herb Garden Germination." This particular episode focuses on physicist Sheldon and neurobiologist Amy. Early in the episode, Sheldon and Amy speculate about the concept of gossip and wonder why some bits of information spread faster than others. Amy concisely introduces Sheldon to meme theory (Dawkins, 1976), an evolutionary biology theory that views information as living organisms whose survival is determined through natural selection such that stronger information survives through being shared and weaker information dies quickly. Using meme theory as a guide, Sheldon and Amy conduct an experiment among their friends, starting two rumors about themselves by telling them to a third friend. One rumor is of a racy, gossip-prone nature and the other, a control rumor, deals with starting an herb garden. The duo spends the rest of the episode tracking the progress of each rumor's penetration through their group of friends. This episode is 21 minutes long.

Activity Phase 3: Debriefing

Once the show is over, the instructor will help students make connections between the show and the material presented in Phase One; this can be done through a class discussion. The instructor should be prepared with a list of questions that prompt students to make connections such as the following:

- What is a meme?
- How did meme theory guide the study?

- What did meme theory predict in this episode? Consequently, what did Sheldon and Amy expect to happen?
- What if Sheldon and Amy had been curious about information sharing in an organization instead? What sort of information would meme theory predict is most apt to survive?
- How about in politics?
- How does meme theory explain what was observed?
- Meme theory is used to explain the way that communicative behaviors spread within culture. *What other communication phenomenon could meme theory be applied to besides gossip?*

This debriefing phase is intended to drive home for students that theories predict relationships between variables across contexts. Therefore, the crux of this debriefing is asking students to generate examples of instances in which they have seen meme theory in action. If they initially have trouble generating examples on their own, help them by giving examples such as popular social media memes or advertising campaigns. This discussion takes 10-20 minutes and should not conclude until students can readily provide original examples of the theory in action.

Supplemental Activity: Another Use of *The Big Bang Theory* in the Theory Classroom

For instructors who like to use similar instructional techniques throughout the year and would like to demonstrate a theory more commonly discussed in business communication research, Season 3, Episode 11 titled "The Maternal Congruence" is a great segue to communication privacy management theory (CPM) in that it shows the role of self-disclosure in interpersonal relationships. This episode focuses on physicist Leonard, Leonard's emotionally distant mother, and Leonard's girlfriend Penny. Leonard is upset that his mother self-discloses more with his roommate, Sheldon, than with him. Penny is upset that Leonard has not disclosed the fact that they are dating to his mother, and Leonard's mother is upset that Leonard does not disclose to her at all. CPM posits that individuals follow certain rules when choosing to disclose information, and that they then negotiate boundaries concerning sharing of the information (Griffin, 2006; Petronio, 2002). The characters' interpersonal struggles, although humorous, demonstrate how the choice to disclose affects relationships. After watching the episode, instructors can break students into groups of five or six to discuss the role of self-disclosure in the lives of the characters. The following questions can be utilized to prompt student discussion:

- How would CPM explain why Leonard's mother chose to disclose to Sheldon rather than to her son?
- How does Penny's decision to share her relationship status with Leonard's mother relate to CPM?
- Think back to the scene where Leonard, his mother, and Sheldon are in the car and Leonard shares his feelings about his mother's selective disclosure. How does CPM relate to this discussion?
- What modifications in the characters' self-disclosure could improve their relationships?

CPM explains that individuals protect their private information through self-imposed

boundaries, the permeability of which is dynamic in nature. This episode demonstrates the fluctuation of those boundaries as the characters decide how much of their own information they want to keep private, share publically, or share only with certain individuals. These disclosure norms must be considered when assimilating into any new organizational dynamic. As such, this activity encourages students to critically analyze the underlying processes that lead to disclosure.

Activity Appraisal

Both activities have been a great success for the authors in their communication theory classrooms. Either can be conducted in a 50- or 75- minute class period. The students find the episodes to be comical and the laughter early in the semester sets the tone for a relaxed, discussion-based classroom.

If this activity is being used in a research methods course where students are already familiar with theory, then the activity can be extended to include discussion of the experiment. For example, students can discuss that the experiment was actually a quasi-experiment because it does not take place in a controlled environment or utilize random sampling. Also, Sheldon and Amy conduct their experiment twice. Therefore, students can discuss how scientists look across a body of literature to draw conclusions in order to account for measurement error and sampling error in individual studies. Finally, because between study one and study two Amy reverses the order in which the racy and control rumors are introduced, the role of counterbalancing inductions can be discussed.

In their assessment of the activity, one student commented "For me personally, I was a little confused about how theory worked or what it meant, but using that show kind of put it in a perspective that I could understand more." Another student wrote, "To be honest it was one of the better ways that you could have brought forward this subject." A third student noted that, "There were a shocking amount of 'theory' references - it was almost like that episode was designed to be used in the classroom. Haha!" Finally, another student wrote that "I thought it was very useful and got the point across very well. It was also good because it was through something comical rather than a boring lecture." Overall, the activity has been successful at being simultaneously beneficial and informative.

Instructors who wish to use a more concrete assessment of the activity may consider asking students to define "theory" and "variable" on a sheet of paper using their own words both before and after watching the episode. In this way instructors can identify how seeing a theory utilized to guide research as well as the manipulation and measurement of variables enhances their understanding of these concepts. Such an assessment will help demarcate intellectual gain vs. enjoyment of the activity.

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