Chapter 2

Eat Your FIBER: How to Help Students Digest Psychological Science

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One of our most difficult and rewarding quests as teachers of psychology is to get students hooked on science. Our success in this regard is not only possible, but is likely if we present and package psychological science in a digestible format. Despite the common tendency to describe studies in APA style (i.e., introduction, method, results, and discussion), there are actually a plethora of ways to present psychological research to our students, each with varying aims and goals.

Fiber has been defined as the coarse fibrous substance in grains, fruits, and vegetables that aid digestion and clean out the intestines. It is a major component of plants' supporting and strengthening tissue; it also refers to a person's strength of character. In my view, science is the fiber of psychology. It is a major component of any psychology course and it forms the supporting structure or "strength" of our discipline. In this chapter, I discuss the "FIBER" approach, a mnemonic that captures 5 different and complementary approaches for optimizing students' engagement in the science of psychology.

The FIBER Approach

F = Follow-Up

After presenting an interesting study to students but before explaining the results, instructors can ask students to design a follow-up investigation to answer lingering questions about the present study's findings. This approach can be used with virtually any research study. My personal favorite has been Adams, Wright, and Lohr (1996), who used pornography and plethysmography to support a popular theory on the causes of homophobia. Adams and colleagues concluded: "The results of this study indicate that individuals who score in the homophobic range and admit negative affect toward homosexuality demonstrate significant sexual arousal to male homosexual erotic stimuli... Another possible explanation is found in various psychoanalytic theories, which have generally explained homophobia as a threat to an individual's own homosexual impulses causing repression, denial, or reaction formation... These data are consistent with these notions (pp. 443-444)."

Rather than asking students to discuss these results, I ask them the following question: How would you design a follow-up to the Adams et al. (1996) study? This encourages students to engage in higher-level thinking, which includes an explanation of the study's results and goes beyond it.

I = Incomplete

Instructors can also present incomplete findings without a supporting theory and students can be asked to integrate the results. In other words, instructors can present two or more findings from psychological science and students have to generate a theory from the results or make sense of conflicting findings. For instance, I present two different studies (Florian, Mikulincer, & Hirschberger, 2002; Landau et al., 2004) and students figure out what the studies have in common, i.e., derive a theory that could explain these two different research results. Both studies employ the same independent variable (mortality salience) by asking the experimental group to "describe the emotions that the thought of your own death arouses in you," whereas the control group writes about physical pain instead of death. In the first study (Florian et al., 2002), the dependent variable is the level of commitment the participant has toward their current romantic relationship, which increases in the mortality salience condition. In the second study (Landau et al., 2004), the dependent variable is whether the participant intended to vote for Bush or Kerry in the 2004 presidential election. In the mortality salience condition only, participants at a New York liberal arts college were significantly more likely to vote for George W. Bush.

After presenting these results in brief, I ask my students: How would you explain the results of the Landau et al. (2004) and Florian et al. (2002) studies? In other words, why does thinking about our own death increase our stated commitment to our relationship as well as our endorsement of George W. Bush? The answer lies in terror management theory, which states that we protect ourselves from the fear of our inevitable mortality by investing in our culture, e.g., our romantic partner or our acting president, especially when the president offers strong support for the annihilation of competing cultures.

Another way professors can employ the "incomplete" approach is to give students seemingly contrasting findings to consider. For example, until recently, scientific evidence and the popular press agreed on one cause of eating disorders, namely dieting (e.g., Brewerton, Dansky, Kilpatrick, & O'Neil, 2000; http://www.cnn.com/2007/HEALTH/01/01/diet.girls.magazines.ap/). After discussing this "common sense" notion, instructors can give students a 5-page journal article to read (Presnell & Stice, 2003) that describes an experiment in which dieting actually helped decrease eating disorder symptoms. Students can be asked to discuss or write about why these opposite findings may both be true. One answer is that fad dieting is usually unsuccessful and overly restrictive, resulting in rebound eating disorder symptoms. On the other hand, the diet in Presnell and Stice (2003) was based on the LEARN program for weight management, which promotes healthy lifestyle and reasonable eating patterns (see http://www.thelifestylecompany.com/).

B = Backwards

In some cases, it is valuable for instructors to present research results before discussing relevant theory, especially if the theory emerged from the data. Two of the most famous studies in the history of psychology (Milgram, 1963; Zimbardo, 1971) are actually backwards research designs in which the theory was derived from the research data rather than the other way around. In presenting these studies backwards, students can see an interesting finding before they understand why it happened, and they can also learn that scientific discovery can move in either direction.

For example, in my class I begin by quoting Milgram (1963, p. 371): "Obedience, as a determinant of our behavior, is of particular relevance to our time. It has been reliably established that from 1933 to 1945 millions of innocent persons were systematically

slaughtered on command. Gas chambers were built, death camps were guarded, daily quotas of corpses were produced with the same efficiency as the manufacture of appliances. These inhumane policies may have originated in the mind of a single person, but they could only have been carried out on a massive scale if a very large number of people obeyed orders." I then ask students the following questions: (a) What percentage of participants do you think would obey these commands? and (b) How high in shock level (15-450 V) would you go? After presenting the actual results, I ask: (c) Why did most participants obey even though they thought they were hurting someone? In this way, students are following in Milgram's footsteps as they try to predict the results and then develop a theory to explain why so many people obeyed fully. Zimbardo's (1971) Stanford Prison Experiment (http://www.prisonexp.org) is another "backwards" research design in which Zimbardo himself was shocked by the actual results and thus terminated the experiment after 6 instead of 14 days. Students can be asked to predict and then explain these results.

E = Experiential

One of the most effective ways for students to understand science is for them to participate in a research study in class and then reflect on the experience. The horoscope demonstration (Ward & Grasha, 1986) is a quick "experiment" that can be completed in about 10 minutes and is designed to test whether horoscopes can actually predict students' personality.

I have also designed my own class experiment wherein students are randomly assigned to rate either of the following two personal ads (labeled Version A or Version B). Version A: Single female, blonde hair, attractive, into nature and hiking, likes to cook and travel, seeks partner who's sporty and healthy OR Single male, wealthy, very active, into sports and travel, seeking adventure. Version B of the ad is exactly the same as Version A, except that the evolutionarily charged words are removed (i.e., the word "attractive" for females and "wealthy" for males).

Before discussing evolutionary psychology in my personality course, I perform the personal ad experiment so that half of my students receive each form (Version A or Version B ads) along with a rating scale assessing how much they like the person in the ad that is most relevant to their sexual preference. I then debrief students by having them look at other people's forms and asking them to consider why the group means might be different. I analyze the numbers in class and we discuss whether we replicated one of the fundamental tenets of evolutionary psychology, which is the existence of differential mate selection strategies by gender (Buss, 1989).

R = Real world

One of the best ways to engage students in psychological science quickly is to make its real-world applications crystal clear from the onset. For instance, the two famous studies discussed above (Milgram and Zimbardo) can both be readily applied to current world events, such as genocide and Abu Ghraib. Often, I present a real-world concept before I present the scientific study, and only later do I connect the two. For example, I show a video clip about the Boston Red Sox infamous "curse of the Bambino," which refers to the idea that the Red Sox baseball team was cursed for trading Babe Ruth (a.k.a. the Bambino), and would thus never win a World Series title. This leads into a discussion of superstition, including students' own superstitious beliefs, which serves as a backdrop to my presentation of Skinner's (1948) classic study about how superstitious behaviors can be conditioned by random reinforcement.

Conclusion

FIBER is a mnemonic that captures 5 different ways to get students excited when learning about psychological research in any class. Regardless of the classes you teach, explaining research from a multitude of angles keeps your students interested, provides options for different styles of learners, models how science moves forward, and shows the interplay among experience, theory, and empirical research.

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