Chapter 11

Mythbusting in Introductory Psychology Courses: The Whys and the Hows

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As anyone who has taught introductory psychology courses knows, beginning students – even the best and the brightest – enter their classes with a host of misconceptions about human and animal behavior (Chew, 2004; Della Salla, 1999, 2007; Mercer, 2009; Vaughan, 1977). Survey data collected over the past three decades bear out these perceptions. Across various studies, investigators have found that undergraduates hold the following largely or entirely false beliefs (with the percentages of students endorsing the belief in parentheses):

- Opposites tend to attract in romantic relationships (77%; McCutcheon, 1991)
- Most elderly people are lonely and largely alone (65%; Panek, 1982)
- Expressing anger reduces pent-up anger (66%; Brown, 1983)
- Hypnotically-enhanced memories are especially accurate (35%; Brown et al., 1997)
- The polygraph test accurately detects lies (45%; Taylor & Kowalski, 2003)
- Memory operates like a tape recorder (27%; Lenz, Ek, & Mills, 2009)
- People with schizophrenia have multiple personalities (77%; Vaughan, 1977)
- Tourette's disorder is characterized primarily by cursing (65%; Taylor & Kowalski, 2003).

What's more, psychology students tend to hold these and other incorrect beliefs with even greater confidence than they hold correct beliefs (Landau & Bavaria, 2003).

In our new book, *50 great myths of popular psychology*: *Shattering widespread misconceptions about human behavior* (Lilienfeld, Lynn, Ruscio, & Beyerstein, 2009), we examine fifty widely held, but largely or entirely false, beliefs about human nature, trace their potential

psychological and social origins, explore their ramifications in popular culture, and review the scientific evidence bearing on their accuracy – or much more often, inaccuracy. More briefly, we dispel over 250 "mini-myths," or more specific claims about human nature. One core thesis of our book is that many psychological misconceptions are not only ubiquitous, but of prime educational importance.

For many instructors of introductory psychology, debunking erroneous beliefs about human nature may not seem like a major teaching priority. This view is understandable, especially given the daunting amount of material they must cover in their courses. After all, if our students hold erroneous beliefs about some psychological issues, what's the harm?

The Dangers of Psychological Misconceptions

In fact, we maintain that misconceptions are among the most crucial issues to address in introductory psychology courses (Lilienfeld et al., 1999). For one thing, psychological myths can impede accurate knowledge. Students who believe falsely that most of us use only 10 percent of our brain power (Beyerstein, 1999) may assume that many of the brain structures they learn about in class lie dormant most of the time. Students who believe falsely that memory operates like a videocamera or DVD, accurately recording and playing back all of the information it receives (Loftus & Loftus, 1980), may be unreceptive to evidence demonstrating that our recollections are fallible and subject to a host of distortions.

Psychological misconceptions may also leave our students at the mercy of the vast popular ("pop") psychology industry, which dispenses a bewildering mix of accurate and inaccurate information on a daily basis. As we demonstrate in our book, many psychological misconceptions are perpetuated by self-help books, radio call-in shows, television programs, Hollywood movies, magazines, and Internet sites (Lilienfeld et al., 2009). For example, scores of self-help books falsely inform readers that low self-esteem is a virtual guarantee of psychological maladjustment (Baumeister, Campbell, Krueger, & Vohs, 2003), that most physical abusers grow up to become abusers themselves (Lilienfeld et al., 2009), and that venting anger is a good way of dissipating anger (Lohr, Olatunji, Baumeister, & Bushman, 2007). Without explicit guidance for distinguishing fact from fiction in pop psychology, our students may find themselves virtually helpless in the face of widely disseminated misinformation. With such guidance, they should be better prepared to evaluate pop psychology claims with healthy skepticism, that is, with an open-minded insistence on evidence. Forewarned is forearmed.

As we also argue in our book (Lilienfeld et al., 2009), some psychological myths may be harmful for students in their everyday lives. Students who believe incorrectly that opposites attract in romantic relationships – a belief fueled by scores of Hollywood movies - may invest fruitless time, energy, and effort in finding a partner who differs markedly from them in their personality traits and attitudes. They may also pursue relationships that are at high risk for failure. Students who believe incorrectly that only deeply depressed people commit suicide may falsely assume that a roommate or sorority sister who talks frequently about killing herself, but who does not seem very depressed, is at extremely low risk for suicide. And students who believe incorrectly that life events and material possessions are the principal determinants of happiness may look outside themselves (e.g., to a high-paying job after

college), rather than inside themselves, for long-term happiness. Because psychological misconceptions touch on so many domains of daily life, including friendships, romance, interpersonal communication, positive and negative emotions, memory, sleep and dreams, and peer pressure, addressing these misconceptions in our courses can reap substantial practical rewards for our students.

The Didactic Value of Addressing Psychological Misconceptions

Most psychology instructors focus on providing students with the factual knowledge they need to become "psychologically literate" consumers of claims about human and animal behavior (Boneau, 1990; McGovern et al., 2010). By doing so, instructors may assume that their students will emerge from their courses more skeptical of poorly supported psychological claims.

If so, they would be mistaken. The results of most studies suggest minimal, if any, change in psychological misconceptions following introductory psychology courses (Gutman, 1979; McKeachie, 1960; Vaughan, 1977). The average decrease in misconceptions following such courses has typically been only 5 to 6.5%. Moreover, even these small percentages may be overestimates given that they derive from pre-post designs, which are vulnerable to practice effects, maturation, and other threats to internal validity. In addition, the decreases in misconceptions following introductory psychology courses are lowest among D and F students, who are the most susceptible to these beliefs to begin with (Gutman, 1979).

Research on "extramission beliefs" provides an illustration of this point. Remarkably, studies using a variety of methodologies demonstrate that large percentages of college students believe that tiny particles emerge from the eyes when people perceive the world (Winer, Cottrell, Greg, Fournier, & Bica, 2002). Moreover, these beliefs do not decline much, if at all, following standard college lectures on sensation and perception (Gregg, Winer, Cottrell, Hedman, & Fournier, 2001), most or all of which presumably do not address extramission beliefs explicitly. If such research is generalizable to other psychological domains, it suggests that the failure to address misconceptions explicitly in coursework often leaves such misconceptions intact. As we will soon discover, however, recent research suggests at least some reason for hope.

Presenting psychological myths in the classroom also affords instructors the opportunity to impart scientific thinking skills, which we regard as tools designed to overcome cognitive biases (Lilienfeld, Lynn, Namy, & Woolf, 2009). Because many psychological myths derive in part from the misapplication of availability, representativeness, and other heuristics, as well as from errors in thinking that afflict all of us from time to time (e.g., illusory correlation, confirmation bias, hindsight bias), these myths can serve as helpful didactic vehicles for showing students how scientific thinking skills can compensate for human error. For example, the misconception that unusual behaviors, like suicides, homicides, dog bites, and psychiatric hospital admissions, are especially likely to occur during full moons (Rotton & Kelly, 1985) provides instructors with an excellent real-world illustration of illusory correlation (Chapman & Chapman, 1967). By discussing this misconception, instructors can explain how we tend to notice and recall strange events that occur during full moons, yet fail to notice and recall both

(a) strange events during non-full moons and (b) the absence of strange events during full moons, thereby leading us to perceive a statistical association that does not exist.

A final reason to address psychological misconceptions when teaching introductory psychology courses should not be overlooked: Doing so can be immensely fun, not only for instructors, but for students. Here, our impressions are anecdotal and therefore must be interpreted with caution, but in our experience they are widely shared by our fellow instructors. Most students seem to enjoy learning that their long-held convictions are in fact mistaken, particularly because they recognize that their newfound knowledge can help them to make better real-world decisions. Moreover, in light of research demonstrating that surprise is a key ingredient in learning (Fenker & Schutze, 2008), debunking student misconceptions can be a helpful means of increasing students' retention of information and interest in the subject matter.

How to Confront Psychological Misconceptions in the Classroom

Here and elsewhere, we have argued for what might be termed a "comparative" approach to psychology education. In this approach, instructors continually compare well established findings with popularly held but refuted findings, using false beliefs as "foils" for explaining accurate information. For example, dispelling the belief that most severely mentally ill individuals are violent (Douglas, Guy, & Hart, 2009) allows one to challenge other erroneous beliefs about psychosis, such as the assumption that virtually all people with psychotic disorders require institutionalization. Moreover, as the late paleontologist and science writer Steven Jay Gould noted, in debunking a scientific falsehood one necessarily affirms a scientific truth. Thus, by learning that the claim that abstinence is the only realistic treatment goal for all people with alcoholism is false (Rosenberg, 1993), students come to understand that controlled drinking is a feasible goal for all least some people with alcoholism.

This comparative approach also allays introductory psychology instructors' understandable concerns about how to fit discussions of misconceptions into their courses given their formidable time constraints. Rather than presenting psychological myths as disembodied facts, instructors can usually weave them seamlessly into their lectures by presenting them in conjunction with well-supported information.

As we have seen, research suggests that standard approaches to introductory psychology teaching, which presume that misconceptions will evaporate with the presentation of accurate information, are largely ineffective in reducing the rates of false beliefs. Nevertheless, research on extramission beliefs reveals that an "activation" approach – in which instructors explicitly introduce students to misconceptions and then refute them with scientific evidence - can significantly reduce levels of false beliefs (Winer et al., 2002). Moreover, recent research suggests that raising and then challenging psychological misconceptions in lectures, readings, or both can produce large – 50% or more – decreases in the levels of these misconceptions among undergraduates (Kowalski & Taylor, 2009). This approach, it is worth noting, necessitates a comparative approach in which instructors teach their students not merely about what is true or well supported, but also what is false and poorly supported.

In teaching introductory psychology courses, one can apply an activation approach to a host of topics. For one example, one can begin one's course by surveying students about the

prevalence of their misconceptions using a show of hands or graphical outputs from clickers. One can then use these misconceptions as didactic vehicles or "hooks" for imparting accurate information. For example, when lecturing on memory in his introductory psychology course, the first author initially introduces students to widespread false beliefs – such as the belief that memory operates like a videotape, and that our brains record exact replicas of everything we have experienced – and dispels these beliefs while providing students with accurate information about memory. In addition, he examines the probable psychological and social origins of this and other erroneous beliefs, including the inaccurate presentation of these beliefs in the popular media. In the case of false beliefs about memory, for example, he often offers examples from television shows, like *CSI*, that may portray memory as essentially infallible. By adopting this approach, one's students can achieve greater conceptual understanding because they come to appreciate the reasons for their uncritical acceptance of erroneous claims.

When addressing psychological misconceptions in one's courses, it can be helpful to emphasize that these false beliefs are widespread and psychologically understandable. In some cases, it may even be useful to admit to students one's own past psychological misconceptions. This "normalization" approach not only helps to avoid making students feel foolish, but it underscores the crucial point that many misconceptions stem from normally adaptive psychological processes, such as heuristics, that can mislead us in specific circumstances (Shepperd & Koch, 2005). In this way, students can become less defensive about their misconceptions and more open to scientific evidence that challenges them.

Concluding Thoughts

In sum, we maintain that instructors teaching introductory psychology courses should routinely address student misconceptions. By continually comparing accurate with inaccurate information and highlighting the differences between them, one can deepen students' understanding of psychological knowledge and assist them with distinguishing science from pseudoscience. Although we have emphasized this approach in the teaching of introductory psychology courses, it applies to more advanced psychology courses as well. In both cases, introducing students to misconceptions can assist them with acquiring scientific thinking skills, arm them with accurate knowledge, help them to make better everyday decisions and, if done skillfully, spark their interest in psychology.

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