

# WHITE BLANKETS MAY MAKE YOU SMARTER

## AND OTHER QUESTIONABLE SOCIAL SCIENCE FINDINGS

*Looking for amazing research that will make the nightly news  
or turn an administrator's head? If you find it, be warned.  
The findings may have been reported out of context or based on faulty logic.*

BY GREGORY S. BLIMLING

**I**FIRST NOTICED IT in the Sunday morning newspaper—a full-column article about how college students can improve their academic performance. The column reported on a national study conducted in 2001 that found that environmental factors, such as room furnishings and bedding, influenced student behavior. I read that 57 percent of males who brought a white blanket to college reported having a GPA of 3.6 or higher, but not one male who brought a green blanket

to college reported having a 3.6 GPA or higher; students who brought stuffed animals to college were more likely to make the academic dean's list than students who didn't; and students with sofas in their residence hall rooms were more likely to study daily than students who didn't. Unfortunately, students who owned a white blanket were also more than twice as likely to have gained weight during their freshman year than students with green blankets, who were more likely than white blanket students to major in prelaw.

## A PROBLEM OF CAUSE AND EFFECT

I IGNORED THE findings and continued reading the paper. Later that Sunday, my neighbor mentioned that he had read the article and wanted to know what I thought of it. Monday, several colleagues either mentioned it to me or sent me a copy of the article. I was surprised at how many people saw value in the study.

I located the source of the newspaper story. Not surprisingly, it came from a news release published by IKEA, a company that sells furniture and household goods. The referenced study was marketing research represented as social science research and had never been published in an academic journal. The researchers apparently concluded that because a number of significant correlations occurred in their survey findings, a cause-and-effect relationship existed. As most researchers know, survey items can be correlated for many reasons, and a cause-and-effect relationship cannot be inferred from this research. For example, there is a high correlation between employment as an NBA basketball player and having significantly longer trouser inseams than the average man, but purchasing pants with longer inseams won't help a man get a contract to play basketball with the Chicago Bulls.

Not too surprised, are you, that a business might play liberally with survey research to get people to buy their products? Despite the implausibility of the research results, attaching a number to them makes them seem more authentic. Numbers invoke the authority of analytic inquiry and scientifically based knowledge. As David Boyle observes in his book *The Sum of Our Discontent: Why Numbers Make Us Irrational*, “numbers have become a substitute for knowledge.” Most of us have become so accustomed to this form of marketing that we have learned to be suspicious. But, what about social science research that educators bandy about as fact? Have you ever wondered how reliable that information is?

The social sciences are awash with studies of varying quality. As editor of the *Journal of College Student Development* for nine years, I read thousands of studies. Some were excellent; some were not so good; and some were really bad. The process of getting published is supposed to sort the good from the bad and, through feedback and editing, make the good better. Ideally, that's how the system should and usually does work—but it does not always work that way. There are more than 450 journals in the field of education. Add to these the hundreds of other social science journals that publish research, and the number of available sources for publication is staggering. Some journals are wonderful and

publish high-quality research that has withstood a rigorous peer review and editing process. Other journals struggle to find worthy manuscripts, and editors are forced to compromise their standards in order to fill pages for the next issue and meet publishing deadlines. This often leads to the publication of social science research of marginal quality. Getting published is not difficult; getting published in a good journal and getting read is.

As consumers and researchers in the social sciences, educators have a duty to create and use research responsibly. Yes, it's more difficult to get published if your research efforts didn't yield anything that brings a gleam to the journal editor's eye. Yes, it's great to have journalists quoting your findings and have your opinion solicited by others. And yes, it's tempting to inflate research findings to emphasize the urgency or importance of a serious problem when you are trying to convince others of the need to address it. But social science research is too fragile and too important to create and to use with anything less than complete openness and candor or for any reason other than the pursuit of truth.

However, truth in research may not always be transparent. Robert Silverman, who served as editor of the *Journal of Higher Education* for twenty-four years and has written extensively about academic scholarship and the creation of knowledge, has argued that what is “truth” in scholarship is defined by different cultures of inquiry. In a number of these cultures, it is a reflection of both fact and use, with these elements supporting each other. From a process perspective, Silverman views scholarship as embodying acts of persuasion in which the original author and other members of the relevant communities support and defend what becomes a joint production through the peer review process. What is considered persuasive “truth” in one community of inquiry may not be in another. Scholarship is contextual, and its creation and use needs to be considered within the conceptual boundaries of a specific community of inquiry.

## STATISTICAL GUESSING AS FACT

ONE PROBLEM WITH social science research is that the results are often quoted outside the context of the research methodology and represented as fact. In 2002, *USA Today* carried a story by Michelle Healy with the headline “College Drinking Kills 1,400 a Year, Study Finds.” The newspaper discussed a report by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), *A Call to Action: Changing the Culture of Drinking at U.S. Colleges*.

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Anyone reading the newspaper article would conclude that the nation was annually losing 1,400 college-age students to drunk driving or alcohol poisoning and that some enterprising researcher had taken the time to actually count the college students who had died due to misuse of alcohol. That's not what happened; no one actually counted anything.

The NIAAA report only quoted the figure 1,400 college student deaths. To learn how the authors of the study arrived at the number, one needs to locate the original 2002 study by Ralph Hingson and his colleagues published in the *Journal of Studies in Alcohol* and read the methodology.

Here is how the researcher created the number: there are about 25.5 million eighteen-to-twenty-four-year-olds in the United States; approximately 31 percent are enrolled full-time or part-time in a two-year or four-year college or university. The total number of alcohol-related traffic accidents among everyone aged eighteen to twenty-four (both college students and non-college students) was 3,674. Thirty-one percent of that number is 1,138. To get 1,400 deaths, the researchers then applied the 31 percent number to the 991 alcohol-related nontraffic deaths in the same year, which equals 307. Add this number to the 1,138 number from traffic-related deaths, and you arrive at 1,445 alcohol-related deaths annually for college students. Remember, these are "alcohol-related" deaths, which means that alcohol was involved but not necessarily ingested by the person who died. This number may have included people between the ages of eighteen and twenty-four who were completely sober and were killed in an automobile accident in which the driver of the other vehicle was intoxicated. Or the number might

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have included victims of liquor store robberies. The researchers used the same reasoning to deduce that because of alcohol, 500,000 students are injured, 600,000 are assaulted, 70,000 are victims of sexual assault, 25 percent have academic problems, and 150,000 have health-related problems. Guessing about a number is fine, as long as it is made clear that it's just a guess. Research can become a problem when it's taken out of context and quoted as fact.

Research like that reported in *USA Today* is sometimes produced by well-meaning researchers who have their own agenda. Steven Milloy, the publisher of *JunkScience.com*, an online journal that debunks research, analyzed the methodology of this study and reports that the principal researcher was a board member of Mothers Against Drunk Driving (MADD), which may not be the most impartial source on the topic of alcohol.

## DARK FIGURES

**W**HEN SOCIAL problems arise, people want to attach a value or size to the problem. Joel Best, in his book *Damned Lies and Statistics: Untangling Numbers from the Media, Politicians, and Activists*, asserts that inevitably the news media turns to a person engaged in working on the problem and asks, "How large a problem is it?" If no reliable data are available and someone needs to guess, the people doing the guessing are frequently the problem activists. Usually they suspect that the problem is larger than is reported and add to known cases the number of cases they suspect are unreported. Sociologists refer to this number as the "dark number." The number of prostitutes, homeless people, drug users, alcoholics, incest victims, homosexuals, bulimics, Satanists, UFO abductees, suicides, child abuse cases, rape victims, people in poverty, income tax evaders, and white supremacists are not real numbers. They are guesses, usually created by taking the actual number of those reported plus some dark figure that someone has added.

## ADVOCACY RESEARCH

**F**EW PEOPLE WHO work with college students have not seen “facts” quoted about the number of rapes of college women. Dozens of different numbers are quoted. Most support the commonly held belief that the problem is of epidemic proportions and is greater today than at any time in the history of higher education. Rape is a problem on college campuses. Colleges and universities have a responsibility to address the problem and educate students about the issue. It is a serious concern, and that is not disputed by any responsible educator. Exactly how large a problem it is, however, is open to speculation.

One of the most widely quoted statistics is that 25 percent of all college women have been the victim of rape. Advocates will sometimes take this percentage and apply it to the number of women at a particular institution, stating, for example, that 2,500 of the 10,000 women at a particular institution have been victims of rape. People see this percentage and assume that it's based on college women being asked if they were raped. Not so. In 1987, researchers in one well-publicized study asked, “Have you had sexual intercourse when you didn't want to because a man gave you alcohol or drugs?” The researchers concluded from the affirmative answers to this question that almost 25 percent of all college women had been the victim of rape or attempted rape, even though 73 percent of the “victims” reported that they did not consider the incident a rape. In the reporting of this information by advocates, the “attempted rape” part of the statement usually gets ignored, and the statistics are reported as completed rapes. To their credit, Mary Koss and Louise Fitzgerald, two of the authors of the study, corrected this misuse of their research in a letter to the editor of the *New York Times* in 1993. Koss and her colleagues actually found that 15.4 percent, not 25 percent, of the women in her study reported that they had been raped and 12 percent were victims of attempted rape. Advocates have combined these two numbers to arrive at the “one in four” figure that is widely reported on college campuses today.

In 2000, the Bureau of Justice Statistics at the U.S. Justice Department completed a survey of rape among

college women. They found that 1.7 percent of the female students surveyed reported that they were raped during one academic year. These findings are similar to responses of students taking the American College Health Association National College Health Assessment. Of the 9,935 female students who responded to the anonymous survey, 2.2 percent reported “sexual penetration against their will” during the last school year. These are very big numbers, and educators should be concerned and take action, but the numbers don't add up to 25 percent over four or five years of a college education and they do not imply that women at every college or university will experience this percentage of rapes.

Another frequently quoted study is the Bureau of Justice Statistics' *National Violence Against Women Study*. The 1998 survey estimated that 876,000 rapes occur per year among women of all ages. This survey appeared at about the same time as the Bureau of Justice Statistics' *National Crime Victimization Survey*, which in 1996 found that there were about half that number of rapes, 432,000, and that the number of rapes declined 60 percent between 1993 and 1996. The FBI Uniform Crime Report supports this decline (Department of Justice, n.d.). In 2002, there were 95,136 reported rapes, a decline of 10.3 percent between 1993 and 2002. If one adjusts these statistics for population growth, the FBI statistics show that between 1993 and 2002, reported rapes per 100,000 inhabitants declined 19.8 percent. Although a decline in reported rapes might be an indication of a reduction in the overall number of rapes, few researchers would dispute that many rapes go unreported and that additional variables would need to be considered in explaining a decline.

When statistics estimating the number of rapes are challenged, the response is frequently an attack on the person questioning the statistics. Dean Kilpatrick, director of the National Violence Against Women Prevention Research Center, offered this explanation to *USA Today*: “A lot of advocates are people who see rape victims every day. To some degree, they regard the statistics, even in decline, as an attempt to diminish rape as a problem when it really isn't that at all” (p. 3A). Even though the motivation of advocates who are trying to bring

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increased attention to the problem of rape may be laudable, inflating important statistical information diminishes the value of that information and undermines the credibility of those who are trying to address the problem.

## THE PROBLEM WITH AVERAGES

**I**N NOVEMBER 2003, CNN and other news media carried the headline, “Campus Diversity May Cut Binge Drinking.” The report led readers to believe that diversity causes a reduction in binge drinking. The research does not show that. Published in 2003 by the *American Journal of Public Health*, the study uses correlations to show associations based on large samples. Although some of the associations are statistically significant at the relatively low probability level of .05, the authors are careful to observe that no cause-and-effect relationship can be inferred. The study does not show that diversity has a direct effect on any student’s behavior. The unit of comparison is not individuals but institutional groups and subgroups, and the study does not account for response biases; as many as 40 percent of some student groups did not respond to a follow-up survey.

A large body of research shows that as college students get older, binge drinking declines until it resembles adult drinking patterns around the age of twenty-four. If college administrators want to decrease the percentage of binge drinkers on campus, all they need to do is change the institution’s demographic profile to increase the number of older students, women, and African American students. Because these groups drink less, the campus average for binge drinking would probably decline. Unfortunately, there is little evidence that high-risk binge drinkers under the age of twenty-four change their drinking behavior because of increased numbers of older students, women, and African American students. This is a problem of averages. Much of the research on changing social norms of college drinking fails to adequately adjust for the demographic profiles of samples before and after treatment. The treatment in this case would be giving students information about how much students really drink, des-

ignating alcohol-free residence halls, making alternative beverages available at events, and similar methods for changing the campus environment. If the demographic profiles of student populations before and after treatment are different, the response averages will be different, and those differences may be attributable to demographic factors rather than treatment effect.

## STATISTICAL TELEPHONE GAME

**M**ANY PEOPLE have played the game of telephone, in which one person whispers a message to the person next to her or him; that person repeats it to the next person in line, and the last person in line announces what she or he was told. The last message is usually very different from the original message. Quoting social science statistics, moving from one source to another without a clear reference to the methodology, can function in the same way. The statistics get repeated, interpreted, and edited to advance a particular point of view. Best, in his 2001 book, reports that in 1995 one researcher claimed that the number of children gunned down has doubled every year since 1950. Best did the math: if one child was gunned down in 1950 and that number doubled each year thereafter until 1995, 35 trillion children would have been gunned down in 1995. How could such a mistake be made? Best found the original source, a 1994 study by the Children’s Defense Fund. What the study actually reported was that the “number of American children killed each year by guns has doubled since 1950” (p. 3). That’s a very different number.

Occasionally, people read too much into statistical information. Researchers estimated that there were 150,000 women with anorexia, and it is known that anorexia sometimes leads to death. But Best found that what got reported in some studies was that 150,000 women—a number equivalent to the population of a medium-sized city—die each year from anorexia. According to Best, about 70 women die from anorexia each year. Anorexia is a serious problem, but the nation is not annually losing a population equal to that of Tempe, Arizona, to this illness.

## POPULAR STATISTICAL MYTHS

**H**IGHER EDUCATION is full of statistics. They change over time and are frequently misquoted. Here is a test: Which of the following statements is true about degree-granting institutions?

- Most graduate students are men.
- Adult students are the fastest-growing student population.
- There are more part-time students than full-time students enrolled.
- More men attend college than women.
- The proportion of minorities enrolled in higher education is declining.
- The proportion of African Americans in higher education is declining.

If you answered true to any of these statements, you would be wrong. According to the National Center for Education Statistics (NCES) statistical report for 2002 (the most recently published data available), which records the actual number of students enrolled from data supplied by institutions in higher education, since 1984, the number of women in graduate schools has exceeded the number of men. Between 1990 and 2000, the number of male full-time graduate students increased by 17 percent, compared with 57 percent for full-time female graduate students. Among part-time graduate students, the number of men decreased by 3 percent compared with an 11 percent increase for women.

During 1990–2000, enrollment of students under the age of twenty-five increased by 16 percent, while enrollment of persons twenty-five and older rose by 3 percent during the same period. From 2000 to 2010, NCES projects a rise of 14 percent in enrollments of persons under the age of twenty-five and an increase of 9 percent in the number of students of age twenty-five and older.

In 1999–2000, about 49 percent of all undergraduates (two-year colleges through research universities) were enrolled full-time, compared with 34 percent attending part-time and 16 percent of students with mixed enrollment intensity.

The last time the number of men enrolled in higher education exceeded the number of women enrolled in higher education was 1976. In every year since then, there have been more women enrolled. The percentage of minorities attending colleges has increased from 15.4 in 1976 to 28.2 in 2000. The percentage of

African Americans has also increased in every year since 1976, going from 9.4 to 11.3 percent in 2000.

One of the reasons higher education statistics become confusing is that different definitions are frequently used interchangeably. The term *postsecondary education* can refer to any education beyond high school, including that obtained in cosmetology schools, truck driving schools, universities, four-year colleges, and community colleges. The term *university students* usually includes students enrolled in four-year colleges but not in community colleges. *College students* can mean all students in degree-granting institutions—two-year through four-year colleges, universities, graduate schools, medical schools, law schools, and other degree-granting professional programs—but not always. Researchers use these terms interchangeably. When they fail to define a reference group, all kinds of contradicting statistical information emerges.

To further complicate educational statistics, try to find out whether funding for higher education has been increased or decreased. You're thinking that it has decreased, right? (Unless you're a state legislator, in which case you're thinking that it has increased, right?) Well, both answers could be correct; more money is spent on higher education today than at any time in the history of higher education, but on average it's a lower percentage of the state budgets and usually less money on a per-student basis. Therefore, it's really a decrease, isn't it? Unless you include private and for-profit colleges and universities, and adjust for tuition discounting, scholarships, and use cost-adjusted dollars as a percentage of endowment fund growth, in which case—well, you get the idea. The data can be construed just about any way you want, depending on what claim you want to support.

## USING SOCIAL SCIENCE RESEARCH

**S**Ocial science research is socially constructed information. Its methods are imperfect, and its findings might not be helpful in understanding future behavior. The results are best guesses, estimates, and probabilities. Computing the number of students who annually cheat on final exams is not like computing the force at impact of a 2,440-gram sphere dropped 100 meters while standing at sea level in an eight-mile-per-hour wind. Information and knowledge are not the same, even though we tend to treat them the same.

But there is the paradox. As Boyle observes, "If we don't count something, it gets ignored. If we do count it, it gets perverted. . . . The problem happens when we use numbers to count things that can never be counted,

and when we confuse the two” (p. 11). Thanks to twenty-four-hour, seven-day-per-week media coverage, advocacy groups of every type, academic pressures to publish, and a market-driven society, we are inundated with information of every kind: the number of left-handed people killed each year from using right-handed products (2,500), the number of years it would take to count the stars in a galaxy at the rate of one star per second (3,000), the number of people abducted by aliens (3.7 million), the average amount of time Americans spend going through junk mail in a lifetime (eight months), the number of people who annually choke to death on ballpoint pens (100), the proportion of corporate downsizing that occurred on Tuesdays (55 percent), the number of automobiles on Albanian roads that are believed to be stolen from other European cities in 1997 (80 percent).

Part of the problem with research today is that researchers are pressed to show something significant from their studies in order to justify future funding. In large grant-funded research, it is not uncommon to find researchers requesting funds for the dissemination of the results of their studies. Many federal grants require wide dissemination as a condition of funding. What is not commonly known is that some social science researchers hire public relations firms to disseminate these findings. Good researchers know that if they can get media attention for their research, they will increase the visibility of their research and the likelihood of additional funding for it. When media professionals look at research, they look for a headline—something that will grab the public’s attention. Usually this means something big, surprising, catastrophic, or awful. In a society flooded by information of every kind, sound bites and anecdotes have reduced complex research questions to a few unqualified statements represented as facts.

Not all sources of statistical information are equal. Government statistics are often more unbiased than other sources, but not always. Social politics play a role in which data are gathered, what’s revealed, how questions are worded, and when and for what purposes studies are done. Meta-analysis and narrative literature reviews are less biased, because a large body of research

is summarized and therefore the findings are less influenced by extreme results from any one study. Studies published in highly competitive peer-reviewed scholarly journals also are more likely to provide reliable information, as are studies conducted by researchers with reputations for good scholarship.

Misusing statistical information is troubling, not just because data will be repeated and used as justification for decisions, but also because data quoted out of the context of the methodology makes us distrustful of research and suspicious of statistics. As researchers, we have a responsibility to be brutally honest about what the research did and did not show, despite the temptation to massage the data or sanitize the results to make it fit our needs.

What can be done? Read the study and understand the context of the findings. If the findings seem too exaggerated, they probably are. In a conversation I had with Ernest Pascarella, one of higher education’s most respected researchers, he told me that he has found in his reading of thousands of published studies in higher education that usually the best studies have the smallest effect sizes (a numerical estimate of the magnitude of a treatment’s effect). Although good studies and bad studies frequently reach the same conclusions, the good studies control for more variables and provide more modest estimates of the influence of a program or treatment.

Social science research should be created to answer questions, not to bend the truth to prove a point. If you start by deciding what you want to find out, you can usually construct some way to find it. “These are the conclusions on which I intend to base my facts” is a phrase for political scoundrels, not for serious social science researchers.

Beware of advocacy groups that use statistical information to advance their agenda. The data might be correct, but it might not represent the whole picture. Advocacy groups frequently inflate numbers in the hope of bringing greater attention to their cause. Or when confronted with a range of statistics, they quote the most extreme. Social science research is about estimates and probability. Information can be very useful, but information is not knowledge. Reason, experience,

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# Information is not knowledge. Reason, experience, logic, and circumstances need to be considered when creating, using, and interpreting information.

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Read more than one study on a subject before becoming an expert and quoting statistics on the topic. Good researchers frequently disagree among themselves on how to describe a social science problem. If you are asked to quote a statistic for a report or grant application, don't automatically take the largest number you can find or redefine terms to advantage your viewpoint. Play fair. Make the best stab at the number you can, give a range of numbers if possible, and then qualify your answers.

Finally, if you are not comfortable with the data you have seen or created, say so. Describe the data for what they are, then declare with some pride, "I don't know." It could be the beginning of real wisdom.

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