Thinking Critically About Research on Sex and Gender

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Chapter 2

A Brief Historical Perspective on Sex-Difference Research[1]

Research on sex differences in behavior has a long history and has aroused intense scientific and public interest during the past two centuries. In studying current sex-difference research, knowing something of its historical background is important for several reasons. First, we can learn from the mistakes of those who have gone before us. If we understand the errors researchers have made in the past, it can help us to reduce them in our own new research and to progress more efficiently. Second, knowing the history of sex-difference research helps us understand people's attitudes today. Experiments from the last century may sound quaint, naïve, and obviously biased to us. We might assume that no researcher today could ever do that kind of research. However, becoming familiar with the faults in those early studies makes it easier to spot the (sometimes more subtle) descendants of such experiments in our own day. Often, we find that studies from the distant past—and the attitudes and prejudices that characterized their experimenters—are really not very different from those of today.

In this chapter, we examine some of the influential early research on sex differences, pointing out some common themes, identifying some significant and common errors researchers have made, and studying various assumptions and attitudes of the people who have done the studies and interpreted the results. Then we note some parallels in the research of our own era. In general, as described in Chapter 1, until recently, most research has been done with the aim of trying to document sex differences. Hyde's (2005) paper about research revealing similarities is an example of a very different and fruitful approach.

Whose History Is It, Anyway?

Today's science was heavily influenced by the Victorian Age in Europe. At that time and in that place, the people who were the most influential in scientific research were white, middle-class or wealthy, and male. The people of that era had been heavily influenced by the Judeo-Christian

[1]Portions of this chapter were extensively based on Catherine Gildiner's 1979 paper, *Science as a Political Weapon: A Study of the Nineteenth Century Sex Differences Literature*, York University, Downsview, Ontario, Canada.

tradition, which was filled with stories that were used to "prove" women's inferiority to men. At the very beginning of the Bible, for instance, Eve—who symbolizes women in general—is described as having introduced evil (sin) into the world. Although many people might interpret that story differently today, in the Victorian Age this was the most common interpretation (Gildiner, 1979). (In fact, it is worth noting that Eve's "sin" was her desire to eat the fruit from the tree of knowledge, which has often been regarded as evidence of women's inferiority or even dangerousness.)

Religion had for centuries been the authority on human nature, but in the nineteenth century the scientific method became a popular way to find out about the world. When people wanted to know about the nature of the world and about the right ways to behave, instead of going directly to their religious leaders for directions, they turned increasingly to scientists for answers. Science came to be highly respected, and it has even been said that in some ways it replaced religion (Young, 1971).

For the past two centuries, most scientists in the Western Hemisphere have come from cultures characterized by certain powerful beliefs, including belief in the intellectual inferiority of women and of anyone who was not White, and this has profoundly affected the directions research has taken. In fact, since most scientists have themselves been members of the privileged class, race, and sex, it is not surprising that the majority have chosen research questions that helped perpetuate the view that members of their group are superior. For example, instead of setting out to investigate whether males have superior intellectual abilities, scientists have tended to maintain the status quo by trying to determine why males are intellectually more capable.

The Search for Proof of Women's Inferiority

The Great Brain Hunt

Let us look at how scientists in the nineteenth century set about their search for the answer to the question of why women are intellectually inferior to men. In hindsight, it may seem obvious that earlier research was misguided, but it is important to remember two points: (1) To most people living in the time and place when that earlier work was done, it did not seem misguided, and (2) Research can be advanced by testing and challenging of what turn out to be flawed theories. Sometimes these insights make their way into common knowledge, and then what used to seem reasonable now seems absurd. The Earth being round is a concrete example of this.

In the nineteenth century, as now, some people based their research questions on assumptions that they simply considered true, without questioning those assumptions—for example, that women are intellectually inferior. When research is based on an unchallenged assumption, it is extremely unlikely that the results of that research will ever lead anyone to question that assumption; for instance, when researchers ask why women are not very smart, the kinds of studies they design are likely to produce information that seems either to support their assumption or shed no light on it but not to disprove it.

One popular nineteenth-century notion was that women were less intelligent than men because women's brains were smaller. George Romanes (1887) claimed to have proven this, saying that because women have smaller heads, they must have smaller brains, making them less intelligent. Those who wished to believe in females' inferiority believed him. Rarely did anyone

raise such questions as, "Does a smaller brain make one less smart?" or "If a woman has a very large head, will we expect her to be smarter than most men?" Romanes's claim was eventually discredited when it was documented that human brain size failed to correlate with intelligence (Gildiner, 1979).

Romanes's claim illustrates yet another important point: When "data" seem to confirm what is already believed, not only is the assumption underlying the research rarely questioned but people go on to construct theories based on that assumption and those data. For instance, as a result of Romanes's conclusions, other writers said that women's lesser intelligence was actually necessary for the survival of the human species, since women—free from intellectual interests—could devote their energies exclusively to bearing and raising children (Mobius, 1901). Then, as with many theories, scientists and laypeople became so fascinated by the survival theory about sex differences in intelligence that they were even less likely to go back to Romanes's study and think critically about how he conducted it and the merits of the inferiority assumption. This process continues today, as we illustrate in Chapters 4 and 5 on math and spatial abilities.

The long life of beliefs based on Romanes's research after the research was discredited reflects another characteristic of the way people treat scientists' claims: Many scientists and laypeople (and, today, the media) become intensely interested in an issue, believe a report of some bit of research about that issue, then lose interest in it (Davidson, 1991). If, later on, the research is discredited, they may have become so accustomed to believing in that early research that they do not invest the mental and emotional energy necessary to revise their belief. This is particularly true when the initial research confirmed what they wanted to believe. In this way, after claims about brain size determining intelligence were discredited, belief in both females' intellectual inferiority and its alleged survival value persisted.

Some researchers, however, rather than clinging to belief in the Romanes research, clung to their basic assumption about the intellectual inferiority of females but decided it would be important to seek its source in something other than simple brain size. Then followed decades of what may seem to us today to be clearly misguided experiments in this line. After most people gave up on believing that bigger brains were better, some scientists, still assuming women were the less intelligent sex, proposed that the sex difference might be due to brain size *relative* to body size. But this effort backfired—relative to body size, it was learned, women's brains were actually larger than men's.

So, researchers gave up on the whole-brain theories, but the quest continued. If it wasn't due to the size of the whole brain, scientists speculated, perhaps there was a difference in the size of one part of the brain that might be the crucial seat of intelligence. Scientists checked one part of the brain after another, expecting that each part would be larger in men than in women. In no case was the expectation borne out. Tavris (1992) reports that the trend continued: "Just like the nineteenth-century researchers . . . kept changing their mind about which lobe of the brain accounted for male superiority, twentieth-century researchers keep changing their minds about which hemisphere . . . accounts for male superiority" (p. 48).

Today, we might expect that such studies are no longer done, especially since it is well known that chemical and electrical changes, not just sheer volume and weight, are critical for the effective functioning of the brain. Furthermore, it is now known that intelligence does not depend on only one part of the brain. Rather, each of a vast number of different brain areas is related to one or more of a vast number of intellectual abilities (e.g., Uttal, 2001). However, in 1987, Ruth Bleier told an important story to the American Association for the Advancement of Science. She described a study published in the respected journal *Science* (de Lacoste-Utamsing & Holloway, 1982), in which

it was claimed that the splenium, the back part of the structure that connects the two hemispheres of the human brain (the *corpus callosum*), was bigger in females than in males. The study's authors suggested that this sex difference might explain females' supposedly inferior spatial abilities (see Chapter 7 for an update on this line of research, which continues to this day). Bleier and her colleagues found major flaws in that study, including that only nine males' and only five females' brains had been studied. As part of her presentation, Bleier showed a slide on which pictures of the splenia from a number of males were displayed in one column, and those from a number of females were displayed in the other. She asked the audience of scientists to determine by looking which were the males' and which were the females', or which column clearly had the larger segments. It was impossible to tell by looking at them. Bleier explained that she and her colleagues then looked at the splenia from a much larger number of people of both sexes, had the segments carefully and objectively measured, and found no sex difference. When they submitted their article about this work to *Science*, it was turned down on the grounds that it was too "political." Bleier's challenge to the de Lacoste-Utamsing and Holloway findings has gained recent support (see Chapter 7), perhaps because prevailing biases changed in recent years, with people being more open to no-difference findings, which fit better with popular notions of increased similarity between the sexes.

A more recent example of what might seem to be nineteenth-century research but which is accepted for contemporary "scholarly" journals is LeVay's (1991) claim to have found a difference in the hypothalami of heterosexual and homosexual men after studying the brains posthumously of 19 homosexual men, as well as of 16 men and 6 women who were assumed to be heterosexual. He assumed those people were heterosexual because there are so many heterosexual men in the population, but that is inadequate reasoning. Furthermore, all of the homosexual men, six of the men assumed to be heterosexual, and one of the women assumed to be heterosexual had died of causes related to acquired immunodeficiency syndrome (AIDS), which frequently includes infection of brain tissues (Fausto-Sterling, 1992). Again, it is surprising in our own era to find a respected journal like *Science* publishing a claim about group differences when all of the people studied from one group were infected with a brain-destroying illness. Throughout this book you will find examples of unquestioned assumptions and wrongly interpreted data.

The previous examples illustrate another important point: Historically, whether in the nineteenth century or our own, research that supports the beliefs of the people in power is likely accepted as legitimate; however, research that might lead people to question those beliefs is scrutinized for methodological flaws and dismissed as "motivated by political aims." Of course, research that supports the status quo may also be motivated by political aims, but that does not tend to be recognized, because those who control the political and scientific arenas simply feel that it confirms what they already "knew" to be true. See Chapter 3 for a more thorough discussion of how research motivations can influence what research is done, how it is carried out, and what ends up being published.

During the nineteenth century, as one by one the parts of females' and males' brains were found not to differ, scientists reached further to seek the location of what they believed to be males' superior intelligence. For instance, they measured the length of the spinal cord, putting together convoluted explanations for how a sex difference in spinal cord length might relate to intelligence. In this enterprise, scientists not only measured parts of the body but also administered various tests to people of both sexes. When females performed better than males on such tests, the researchers usually interpreted that information as further "proof" of males' superiority (Caplan, 1989, 2000). For instance, when Romanes (1887) found that women could read faster

and more accurately than men, that finding of a skill superiority was transformed into evidence of females' moral inferiority: Two prominent scientists of the era accounted for the sex difference by saying that the ability to read is coupled with the ability to lie, and women are better liars than men (Lombroso & Ferrero, quoted by Ellis, 1934).

Interestingly, during the twentieth century, two conflicting theories about sex differences in spatial ability were simultaneously proposed:

1. Women have poorer spatial abilities than men because they use both hemispheres for spatial tasks, and cross-talk—information passing between hemispheres—causes interference (Levy, 1976).
2. Women have poorer spatial abilities because they are more likely to use only one hemisphere, and good performance requires both hemispheres (Buffery & Gray, 1972).

Note that both theories are "explanations" based on the assumption that women's spatial performance is inferior to men's, and as we discuss in Chapter 7, that is by no means a proven fact or a universal pattern. Historically, there have been many problems with work on brain lateralization, including failures to replicate findings, conflicting results from different studies, and poor research methods. Some of the early research involved brains that were clearly abnormal, such as those with gunshot wounds or strokes, making it problematic to draw conclusions about undamaged brains. Usually this was done for practical reasons, since before modern brain imaging techniques were available, it was impossible to examine the anatomical structure of a brain without cutting into it, so researchers had to wait until people died to study their brains. Furthermore, in such studies the researchers usually did not attempt to make sure that the gunshot wounds were the same sizes or in the same locations in the men and the women, leaving us with little or no idea what was really being studied. More recently, researchers have studied patients in whom the *corpus callosum* has been severed. They are sometimes called split-brain patients. The corpus callosum is a bundle of nerve fibers that connects the right and left hemispheres, enabling them to coordinate their activity or inhibit each other. These patients, however, typically had enormous numbers of damaging seizures, making it hard to know whether the locations of cognitive functions in their brains are similar to those of people without epilepsy (generalization problem).

Following up on the split-brain patients and theories about females and males differing in the degree of their lateralization of function, researchers have asked whether a particular kind of task is done better using just one side of the brain or both simultaneously. In order to do that, you have to (1) define the ability, (2) choose what tasks best measure it, and (3) figure out how to tell whether a person uses one hemisphere of the brain or both—or one or more areas of the brain—to perform the task. In Chapters 4, 5, and 6, we shall see how complicated it is to define math, spatial, and verbal abilities, as well as how difficult it is to assemble tasks that *clearly* tap the whole range and variety of those abilities, and it is impossible to find a single task to measure, for instance, math abilities. Furthermore, at this stage of science it is difficult to tell whether the way that human beings choose to divide up and label abilities corresponds to the way the brain subserves various abilities and their components.

It is often unclear whether it is better to use one hemisphere or both to perform a given task. It is known that for at least one highly spatial task, copying a three-dimensional cube on paper in two dimensions, each hemisphere makes some contribution to proper performance (Warrington, James, & Kinsbourne, 1966). But at this point not much is known about for

which tasks one hemisphere alone is better and for which, both are needed. Furthermore, just as hand preference varies from one person to another, so does the choice of strategies—and thus perhaps of uni- or bihemispheric involvement—for solving particular kinds of spatial problems.

A major problem in laterality studies has been that females and males have not been matched, for example, for their spatial abilities before testing about lateralization was done. You will see in Chapter 5 that cross-cultural sex differences in socialization can affect spatial test scores, so if a researcher randomly chooses research participants in the United States, where spatial skills may be considered unfeminine, they will likely include more females with somewhat poorer functioning. In essence, you could be comparing boys with better spatial skills to girls with poorer ones, so if you found a sex difference in hemispheric activity doing a spatial task, you could not know whether that was because good spatial performers are hemispherically different from poor ones or because boys and girls of any skill level are hemispherically different when solving spatial problems.

Social Darwinism

A major theory that was used in the nineteenth century to "explain" women's intellectual inferiority is Social Darwinism, using Charles Darwin's claim that, as species evolve, the individual animals and humans that survive tend to be those best suited to their environments (1859). This was his concept of survival of the fittest. Darwin himself and Social Darwinists extended the meaning of the word *fittest,* reasoning that, therefore, whatever survives—including social and political structures, individuals, and aspects of human personality—must be the fittest. Thus, they said, what exists today must be the best possible state of things.

Since women were already considered less intelligent than men, it was argued that such a sex difference was necessary for the survival of the species, so that women's energy could go into bearing and raising children. Similar reasoning was used to justify a myriad of factors that had actually been imposed by society, not determined by evolution. For instance, intense social pressure on women to behave passively did tend to increase women's passivity. But Social Darwinists claimed that this was a biologically based trait, necessary for encouraging women's sexual receptivity, so that they would become pregnant and thereby help the species survive.

Related to Social Darwinism was the maternal instinct theory, according to which women have an innate desire to take care of children, whereas men do not. Therefore, goes the theory, men can develop other abilities, like intelligence and perseverance, while women must concentrate on nurturing and protecting. Of course, even if women have some maternal instinct, that would hardly explain "women's lesser intelligence." In fact, certain intellectual capacities are enormously helpful in making women (or men) better nurturers, protectors, and conveyors to the young of information that can help them survive and flourish (Ruddick, 1989).

Still another theoretical tack related to Darwinism was a notion called *morphological infantilism.* Proposed by Darwin, it is the idea that women, being smaller than men, are morphologically (physically) more like infants and children than are men. Some Victorian theorists speculated that, therefore, women are less intelligent than men but more intelligent than children. This is equivalent to saying that men must be more like gorillas than are women, because men have more hair: It might even be valid, but what reason is there to believe it? The notion of morphological infantilism to "explain" women's alleged intellectual inferiority was again used to justify depriving women of legal, economic, and political power. The Social Darwinists who

applied morphological infantilism to women used the same notion to keep Whites in power over Blacks. Black people, they argued, are physically more similar to apes, and therefore less intelligent, than are White people. Black women were the group most demeaned by this sexist and racist theory.

Morphological infantilism and other Social Darwinist theories persist even today. In our own era, Philippe Rushton (1989, 2008) has attracted wide media coverage with his claims that such characteristics as brain size, test scores, and numbers of offspring prove that those he calls *Orientals* are more advanced on the evolutionary scale than Whites, and Blacks are less advanced than both. He made this claim despite research showing that races are social constructs, that there is more variability among individuals within a race category than among categories, and that one cannot use physical appearance to classify individuals reliably into racial categories (Cooper & David, 1986; Williams, 1994). Two key components in Rushton's argument are that the number of offspring a woman produces and the duration of her pregnancies are signs of her place on the scales of intelligence and evolutionary advancement. Thus women's bodies again become a prime focus for arguments about which humans are inferior. Rushton's work has been criticized in great detail for its poor methodology. When methodology is poor, more scope is provided for bias such as racism and sexism. For example, Peters (1993) suggested that because Rushton used calipers to measure cranial size, simple variations in how snugly the researcher placed the calipers to the head could account easily for differences he reported. If a (consciously or unconsciously) biased researcher were to squeeze the calipers slightly more on one skull than another, this could result in an apparent difference of about a millimeter in a single direction. Peters showed that even such a small effect could account for all of the differences reported by Rushton. Nevertheless, some people still want to believe that Rushton is right.

Interrelationships of All Forms of Bias in Research and Theory

As the previous description illustrates, racism in research and theory has often gone hand in hand with sexism. It is important to know that those forms of bias, as well as others including, but not limited to, ageism, classism, heterosexism, and prejudice about physical, mental, or emotional characteristics often shape research. Ethnocentrism, the practice of focusing only on one's own culture, is also undesirable because, for instance, cultural differences have been found in variability of performance on mathematical, spatial, and verbal abilities tests (Feingold, 1994). Researchers can minimize the effects of these biases when they take care to be aware of their biases and of how biases can give rise to certain research questions rather than others, as well as facilitating careless definitions of terms, study designs, and data analysis and interpretation of results. But such awareness and attention are ideals; too rarely are they the realities. Virtually every kind of research problem discussed in this book with regard to sex-difference research is applicable as well to research on any group differences (e.g., between poor and rich people; among homosexual, bisexual, and heterosexual people, and so on).

Readers are urged to consider how each problem discussed in this book might appear similarly in research about other group differences. Reading some of the older and some of the current studies about such topics as alleged differences between members of different "races" or different age groups in intelligence, for instance, will provide insight into the similarities in the ways that various biases shape research and conventional wisdom.

Sociobiology and Evolutionary Psychology: Today's Social Darwinism?

One offspring of Social Darwinism was called sociobiology, defined in *Webster's College Dictionary* as "the study of the biological, and especially genetic and evolutionary, basis of social behavior in animals and humans" (1991). Kramarae and Treichler (1985) defined it as "an androcentric science which persistently depicts males as the norm while defining females in relation to them, naming females passive and inferior," a definition that was more accurate in the early days of the field than now, though it continues to apply to some of the theorists (p. 426). More recently in use is the term *evolutionary psychology (EP)*, which the Center for Evolutionary Psychology defines as "an approach to psychology, in which knowledge and principles from evolutionary biology are put to use in research on the structure of the human mind. . . . In this view, the mind is a set of information-processing machines that were designed by natural selection to solve adaptive problems faced by our hunter-gatherer ancestors" (www.psych.ucsb.edu/research/cep/primer.html). Some early and some contemporary heirs of Darwin are similar to Social Darwinists in important ways: They have often based their theories on the assumption that existing human behavior patterns are good things because they are the patterns that survived as humans have evolved, and therefore they must help to ensure the survival of the human species. For instance, in a widely read book titled *The Evolution of Desire* (1994), influential psychologist David Buss argues that the following patterns "appear to be universal features of our evolved selves" and "govern the relations between the sexes" (p. 211):

1. men's wish for casual sex with women
2. men's treatment of women's bodies as men's property
3. men's dealing with their sexual jealousy by beating or killing the women about whom they are jealous
4. women's greediness for money

Although Buss occasionally says that he is not justifying those kinds of behavior and acknowledges some within-sex variability, his focus is on arguing that these patterns are necessary to preserve the human species. Thus he asserts that patterns 1, 2, and 3 ensure that a man can impregnate as many women as possible and make sure that no other man impregnates "his" women, so he will know which children he has fathered. He does not present persuasive evidence that the human species would die out otherwise, however, and indeed in some societies the identity of a child's father is not even a focus of interest (Reiter, 1975). In regard to pattern 4, the value of women's alleged greediness is said to be for finding a man to support their children financially. Buss ignores or dismisses the possibility that these patterns result from differences in social, political, and economic power (e.g., that many men have been allowed or encouraged to have casual sex and to mistreat women) (Walker, 1979; Russell, 1982), or that because women are more likely than men to be underpaid at work, the former are left relatively dependent on men to support them and their children. This illustrates a fundamental problem for many EP theorists, which is that they assume all sex-related behavior to be universal, in essence, that sex and gender are inextricably linked; thus, when they encounter variability, they often maintain their belief that the underlying problem or situation is universal but that various solutions have been developed to deal with it. In the example from Buss just described, he postulates the universality

of men following patterns 1, 2, and 3 and their necessity for providing men certainty about which children are their own; but when he discovers societies in which the identity of a child's father is not even a matter of interest, instead of considering how various factors such as power distribution might lead to societal differences, he clings to the claim of universality and tries to find ways within his original theory to explain divergent data. There is nothing wrong in principle with trying to find explanations within an original theory, but the problem arises when the possibility that the theory is wrong is not considered. An additional problem is that, because EP is based on notions about what had survival value millions of years before, many of its theories are no more provable than, for instance, Freud's claim that all girls have penis envy and that those girls who deny it are simply deceiving themselves (Freud, 1962/1905).

Some of EP is like Buss's work not only in being based on unquestioned assumptions about what is right and good, as described above, but also in its faulty logic and on the inferior nature of "evidence" presented for the truth of its claims. It is important to keep in mind that we chose Buss's work because it is typical of some of EP. In regard to faulty logic, Buss says, for instance, that a court's order to a man to pay $200,000 to a husband whose wife he "enticed" away reflects "an intuitive understanding of human evolutionary psychology" because "Men everywhere seem to regard wives as chattel to be owned and controlled" (p. 140). In addition to the fact that this simply has not been proven to be a universal attitude (and indeed is offensive to many men), many such court cases involve no awards of that kind. This example thus illustrates not only faulty logic but also the use only of data that support one's arguments and the inferior nature of "evidence" presented by many EPs. Another example is Buss's presentation as evidence of women's greediness for wealthy husbands the fact that his colleague reported overhearing a conversation among four women in a restaurant, in which the women complained that there were no eligible men around, even though, Buss says, they were "surrounded by male waiters, none of whom was wearing a wedding ring" (pp. 26–27). Readers might wish to consider the variety of methodological problems involved in Buss's going from that observation to his interpretation of it. But even when Buss refers to studies involving a great deal of data, his interpretations can be curious, such as his proposal that men's lust for their wives wanes over time to encourage men to engage in casual sex with other women, thus increasing the number of children they are likely to sire (Buss, 1994). In a 2008 paper, Buss and Shackleford reported that they found that women who were physically attractive were more likely than those considered less attractive to have high standards for the men they want as their mates, a finding they interpreted as evidence that attractive women look for traits critical to their reproductive success. This reasoning is based on numerous unproven assumptions, including that (1) men in hunter-gatherer societies would have the same standards for judging women's attractiveness—and thus responding to the women's overtures—as did the 107 American midwestern, newly married men in their study and (2) men in hunter-gatherer societies would choose their mates based on physical attractiveness—thus increasing the more attractive women's power to choose their mates. In the same study, the authors express surprise that the two groups of women did not differ in the degree to which they valued intelligence in a man, a surprise that seems based in a simplistic theory about how women choose partners.

Another branch of EP began to develop in the late 1960s as the second wave of the women's movement increased awareness of the effects of sexism on academic inquiry and policy, as well as on wider social policy and legislation. One of the most interesting writers in this tradition is Sarah Blaffer Hrdy, who, among other major challenges to more traditional Darwinian theory, has argued convincingly in *The Woman That Never Evolved* (1999; also Hrdy, 1986a) that the

role of human and other animal females in sexual selection is neither coy nor passive. Hrdy has also gathered evidence that calls into question the traditional view of one mother raising her children alone except for whatever help their father might provide, showing instead how frequently mothers receive abundant help from other males and also from women (2001). Clearly, Darwin's theory continues to provide fertile ground for research, and as with many theories, it can be used as a basis for high-quality research and responsible interpretation of data or not.

Summary of Some Problematic Patterns

In this chapter, we identified some of the problematic patterns of scientists' behavior in the history of research that persist even today. These include:

1. beginning with a biased assumption (e.g., that males are more intelligent than females)
2. failing to question the assumption(s) underlying the research (e.g., failing to question whether the predominance of males in high academic and political positions is proof of males' greater intelligence)
3. asking research questions based on that assumption (e.g., "Is men's greater intelligence due to their bigger brains?")
4. when results of a study do not support the assumption, continuing to avoid questioning the assumption (e.g., if men's brains turn out not to be larger than women's, relative to their body sizes, not questioning whether men are more intelligent)
5. misinterpreting research that seems to contradict the assumption. (Thus what had been considered a desirable characteristic—such as reading quickly—is portrayed as an undesirable one, or one that leads to trouble)
6. failing to question the evidence for, the logic of, and the damaging consequences of theories

Our predecessors in the history of research on sex differences certainly made major—and often damaging and oppressive—errors in conducting, interpreting, and theorizing about their investigations. That historical perspective is helpful to keep in mind as we turn in the next chapter to some specific methodological errors often made by researchers and then move in the following chapters to an examination of the research on particular topics.