

ORIENTATION OF THE SPECIES: A LOOK AT THE RESEARCH SURROUNDING HOMOSEXUALITY

BY LARRY RUDIGER

Does Size Really Matter After All?

Gambling brings out my cynical side. In my less forgiving moments I've referred to lottery games — at least the ones with huge prizes — as a tax on people who don't know much about statistics and probability. Oh, sure, the long odds are part of the fun and the thrill.

In a way, being afraid to travel by airplane is the flip-side. One might rationally conclude that the chances of winning the lottery and dying in a commercial air accident are vanishingly small. We've all heard that flying is the 'safest way to travel.' And, as the clever lottery advertisements put

it so enticingly, 'hey, you never know,' even though you really do. But in both cases, arguments based on facts are sometimes less compelling than the thrills and fears leading people toward (or away from) their hoped-for (or worst-case) outcomes.

So when trying to evaluate research on sexual orientation, many people's first impression is negative because, in general, the studies are small and must not be very trustworthy, right? Compared, say, to the US Census, or even those carefully constructed public opinion surveys, the majority of research that has examined uncommon sexual behavior has involved rather few people. Recognizing this quality of the work, it is easy to then dismiss it.

I think that would be a mistake. Yes, if you want to make a prediction about, how many people will vote for Elizabeth Dole, then, to a point, asking more people should yield more reliable predictions. In those instances, careful sampling is important. Likewise, if you want to measure opinions about

GLBT issues and people, then (sample) size does matter.

There are, however, other research questions where large samples don't necessarily give you more reliable results. Sure, in a perfect world you'd measure as many people as possible. But that's both inconvenient and expensive. Because there is no federal funding available targeting research on sexual orientation, then these real-world considerations bear down quite heavily on this matter. Researchers are most often pursuing these topics in addition to their time-consuming work that is funded.

So for all these reasons, when you read about research examining sexual orientation, I would recommend that you don't get too bogged down in criticizing a study because it's small. And here's a little secret: sometimes, with research, small studies are more informative than big ones. Let me talk about a rather well-known example.

Many people remember Simon LeVay's famous research where he found differences in the brain structures between gay and straight men. Critics dismiss that work because there were few subjects involved, and most of the gay men (actually, their brains, for this was done on cadavers) died of AIDS, although LeVay convincingly demonstrated that probably doesn't matter. But this project also 'suffers' because so few brains were studied, right?

Actually, no. As with most research, the techniques used to quantify the differences between straight and gay men's brains are called inferential statistics. These methods go beyond summarizing the findings (a part of straight men's brains is, on average, larger than gay men's) and make a probabilistic statement about the observations. When the findings are 'statistically significant,' that means there's a very low probability they were due only to chance.

In this case, the raw size of the difference has to be more pronounced than if LeVay had examined hundred of brains. That's because, as the size of the groups increases, then the amount of discrepancy required to pass statistical muster actually goes down. In addition, when the group studied is small, it's more likely that they are an un-representative sample of the larger population. So the statistical summary takes that into account.

Relatively speaking, the difference LeVay reported is very large and not easily dismissed. In fact, to my knowledge, there has yet to be any follow-up studies that would invalidate his finding. Still, it is one, small study. And as you probably recall from middle school, replication — literally doing the same thing again — is critical in determining the reliability of a result, no matter how dramatic. Among neuroscientists LeVay's findings are provoca-

tive, and within their more specialized research journals the matter generated some lively debate. However, it is just about impossible to write a grant that would garner the sort of research dollars that might fund conclusive studies, particularly of this sort, which tend to be expensive.

Before you conclude that this

Experience influences brain structure. So maybe being gay causes men's brains to develop differently, not the other way around.

Short of conducting a large experimental study, starting with infants, who were systematically exposed to different environments that 'should' lead to homosexuality or heterosexuality, there's not much chance that a single line of research will ever provide conclusive results

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is some form of institutional homophobia, a word of caution. People must train for many years to conduct this type of research. There is tremendous demand for skilled neuroscientists, (think about that, if you're looking for a career!) and the advances in understanding neurological disorders that affect millions of people are most impressive. Perhaps 'discovering' the cause of sexual orientation in this fashion is rightfully a lower priority venture than, say, trying to understand Parkinson's disease.

What's more, even though LeVay and other researchers have described differences between the brains of people based on their sexual orientation, that doesn't directly address the matter of causation. One of the more impressive general findings in neuroscience is that the brain is a much more flexible and plastic system than we once thought.

anyway, and the ethical problems of such a study are obvious. However, by examining the lives of twins, we can come very close to just such an ambitious experiment and consider the ways genes and environment interact to shape sexual identity. Again, just because we might find convincing evidence that, for sexual orientation, the environment doesn't matter — or matters a great deal — that doesn't establish exactly roads do lead toward GLB identity, or for that matter, to heterosexuality. So to this interesting area I would like to devote my next installment. ▼

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