



THE
~~NO~~ KNOW
WAY
GUIDE

Turning Research into ACTION



The No Know Way Guide

*Turning Research into **Action***

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No Power or KNOW Power?

Brady's headed home after work, his wheelchair in the car. He's about to pull into a handicapped parking spot in front of the grocery store when a second car, coming from the opposite direction, pulls in just ahead of him. Brady watches a 20-something college student, on two good legs, jump out and head into the grocery store.

Brady takes a deep breath. Then another. It's happened before. About half the time, it seems the handicapped spaces are filled, and usually with cars that have no hang tag or license plate indicating the driver has a disability.

In the past, Brady's called the cops. For a while, they patrolled the lot and handed out tickets. That helped. But then the cops got busy with other stuff, and the parking places filled up again.

Today, Brady's thinking, "If the kid had to roll a mile in my shoes, he might learn." But Brady knows that's not going to happen.

He's fed up. There must be a good way, he thinks, to discourage people without disabilities from using handicapped parking spots.

He's determined to make a change.

Eventually, because of the effort he makes, he manages to change handicapped signing practices in his town.

How?

He starts by reading into the research available on what sorts of measures keep people from parking in spots they shouldn't.

Somebody once said, "Knowledge is power." That means that people who have knowledge can get more of the things they want than people who don't have knowledge.

Those who possess the latest knowledge that research provides can make a difference, not only in their lives but also in the lives of others. Instead of thinking "No Way!" they can follow a path called the Know Way-and change society.

Brady's about to become such a person.

Billions for Research — Here's Why

Every year, this country spends billions of dollars on research. Some of that research is basic, done for no other reason than to answer an intellectual question, like the age of the universe.

But much of it has direct relevance to people's lives. Why is that? Because people who hold the purse strings in Washington, in state legislatures, in private foundations and in corporations want dollars spent where they'll get results.

So they put money into research that will make a difference. That money helps researchers decide what they'll study. Not to be too unkind, but everybody needs money, and researchers are no different. The results of research are usually available publicly, if people just know how to find them and how to wade through them.

The purpose of this booklet is to help you understand what research is, learn to read a research paper and pick out the results that are important to you. Your tax money probably helped pay for the research. You deserve to understand and benefit by it.

THIS BOOKLET DESCRIBES:

- 1) The process of research.
- 2) Research results and how to understand them.
- 3) How to use research information.

Brady had made up his mind to learn more about the actions that might stop people from abusing parking spaces reserved for people with disabilities. Brady hadn't researched a topic since high school, and he wasn't sure what to do first. But he had his mind made up; this was a problem he was going to do something about, one way or another.

He just had to find a way.

Brady thought about the people who might be able to help him learn about this topic. He called his sister, Michelle, a college student. She could help, he thought. Michelle told Brady that she didn't know much about research or parking signs, but she could help him search for information on the computer in her dormitory. She showed Brady how she used what she called a database to get information. First, she had to select the right database for her topic of interest.

"For example," Michelle said, "if you want information about diabetes, you go to a database called MEDLINE and look for a box that's got the word 'search' near it and type in the word 'diabetes.' MEDLINE is a collection of the titles of recent articles that have been published in medical journals on particular topics." Once the system is told to hunt for articles on diabetes, it goes through the titles of many articles, looking only for ones on diabetes.

"Since you're interested in how to keep people out of handicapped parking spaces, maybe we should look at an education or psychology database," Michelle said. "We can use either ERIC or PsycINFO to get information on parking signs. Let's do a quick search and see what we turn up. The computer came up with the titles of several articles. Just from the titles, Brady could tell that most of them probably wouldn't help much. A couple sounded promising.

One of the most likely was called, "Deterring Unauthorized Use of Handicapped Parking Spaces." The article was published in 1988 in a journal called *Rehabilitation Psychology*. Michelle copied down the other information about the article (when it was published, the page numbers and so on) and handed the information to Brady. His next stop would be the library.

"Call the librarian and tell her that you want a copy of this article," said Michelle. "They should be able to get you a copy from another library.

It won't be easy to read, but you can do it."

That's what Brady did. About a week later, the article arrived. Once he got to the library Brady talked more with the librarian, who said that she was always glad to try to help him find research articles.

"This might not be so hard after all," Brady thought.

Knowledge in Two Nutshells – Research Articles at a Glance

Beginnings and endings are so important. Think of love: You remember the first glance, the first chance to talk, the first foolish words out of your mouth- and if things don't work out, you remember the final meeting, too.

Researchers, like everyone else, recognize the importance of beginnings and endings. That means the most important parts of a research paper, to a consumer of research like you, are the first and last.

At the beginning of every research paper is something called an “Abstract.” The abstract of a research paper is like a one-paragraph version of a news story: It's the nutshell version of what's to come. The abstract tells the purpose of the study and summarizes the results. Often, a quick read through the abstract will tell you if you want to read more. The “Introduction” comes right after the abstract and outlines what research has been done in the past to solve a problem.

Brady read in the abstract of the paper he'd found that "the differential effects of two types of handicapped parking signs were analyzed," followed by some gobbledygook about "multiple baselines" and "alternating experimental conditions design." He ignored the hard stuff. He figured out that the researchers had used two kinds of signs to try to keep people out of handicapped parking spaces.

Then he read the results, which also appeared in the abstract. It said, "Warning signs were more effective than standard signs in deterring unauthorized vehicles from parking in spaces reserved for people with disabilities."

Brady was puzzled.

What was a "warning sign" and how was it different from a "standard sign?" He flipped to the last section of the study, labeled “Discussion”. In the first paragraph, he read, "Previous research has shown that proper signage is a necessary, but not sufficient, factor in deterring misuse of handicapped parking spaces. The present study expands these findings by showing that the specific information conveyed by signs may improve their effectiveness."

The discussion section of a research article is a second nutshell summary of the research question being investigated, the procedures used and the results obtained. It reviews what was learned in the study. But there's more. The discussion also relates the current research findings to other findings that have been made. The article described another study showing that ticketing by police, along with a message on the sign, will "strengthen the stimulus control effects of signage"-in plain English, keep even more people out of the parking space.

The authors also discussed the possibility of leaving notes on the windshields of wrongly parked cars. They urged further research into these and other tactics to test their effectiveness.

Brady had learned a lot, but he hadn't yet found out the difference between the two kinds of signs the researchers had tried. He'd have to keep poking around in the research report. His next stop was the “Methods” section.

Methods: Nuts and Bolts

In the methods section, you learn how the study was conducted. You learn about the

- **Participants:** who was involved

- **Setting:** where the study took place
- **Independent Variable:** something the researcher manipulated to see what effect it would have
- **Dependent Variable:** the changes in a person or his/her environment that result from applying the independent variable
- **Measurement System:** a system for gathering information, such as direct questioning of people or observations of them. The persons studied might also be asked to report their feelings, symptoms or other information without being asked specific questions
- **Safeguards:** a system for assuring that the data gathered were reliable (such as having two people collect data and compare results)

Brady looked at the methods section of the report. He found that the study setting was a Midwestern city of 60,000. The study participants were store customers who parked in handicapped parking spaces or undesignated parking spaces next to the handicapped spaces. The researchers would watch the spaces for an hour, somewhere between 4:00 p.m. and 6:30 p.m., on weekdays, counting the number of people who parked there.

Then Brady came to the keywords that described the independent variable: the two kinds of signs used. "The standard signs were 45 cm x 30 cm signs, with a blue background and white border." On them was the word "PARKING" and the international symbol for handicapped parking: a person in a wheelchair. The second type of sign, called warning signs, were the same size but carried the word "WARNING" in large letters, plus the words "FINE OF UP TO \$250 FOR PARKING WITHOUT PERMIT." This type of sign also had the international symbol on it.

What measurement system did the researchers use to see which sign worked better? Observers monitored the parking spaces. One watched the parking spaces and who used them, while another double-checked that observer as a safeguard against error. The observation was carefully planned, as was the display of the two kinds of signs. The number of minutes in which vehicles were parked in violation of the signs was recorded during each one-hour observation session.

Brady read about the dependent variable—the amount of time the handicapped parking spaces were occupied when one kind of sign was put out, versus the other kind of sign—in the next section of the research report.

Research Results = NEW KNOWLEDGE

In an article's "Results" section, readers will find a written presentation of the findings. There may be visual aids—graphs and charts—to help readers understand the outcomes of the study. The results may come in the form of a summary of an interview or interviews. The results may appear in a graph showing individual data or averages of scores rung up by whole groups.

The research report Brady was reading showed this result: big drops in the illegal use of handicapped parking spaces when the "warning sign" went up, compared with use when the "standard sign" was in place.

The study was conducted at two stores, Brady learned. At one store, he read, violation decreased from 18 minutes per hour with the standard sign to 3.2 minutes per hour with the warning sign. When the standard sign was then put back up, violations increased to 20.3 minutes, on average. Lastly, when the warning signs were brought back the violation figure dropped to 13 minutes. You can't rely on simple respect for the law to change people's behavior, Brady thought. It's the possibility of big fines that scares parking violators. In 15 or 20 minutes worth of reading through the article, Brady had pretty much summed things up for himself.

Brady had most of the information he needed at this point. But he glanced at the last page of the article and saw a couple of things that sparked his interest. One was a list of references: articles

and books from other sources that the authors had used in writing their article. He saw a couple of articles listed that looked like they might contain some information that would be useful to him. He also saw a line that acknowledged the source of some of the funding for the research: the National Institute on Disability and Rehabilitation Research. Brady had never heard of it, but it sounded reliable.

With the information from the article, Brady was ready to take action.

He was ready to go before the city council.

The Tools of Research

The research project described in the article Brady found was fairly typical. It began with researchers looking up articles related to the topic. Their search was like the one Brady did with his sister at the library, only more in depth.

Next, the researchers planned the study, deciding what kind of experiment would best answer their question, how to measure the results, how to analyze them—the kind of information that was described in the methods section of the article.

From there, the researchers applied for funding from the National Institute on Disability and Rehabilitation Research. The application included a description of the problem to be studied and a detailed discussion of the methods to be used for studying it. Because the project involved studying the behavior of people, it had to provide a detailed description of the way the information would be gathered and used. At the funding agency, the proposal went through careful review by a panel of scientists and was eventually funded.

In general, research uses two methods for answering questions.

- “Qualitative Research” depends on personal interviews, life stories or the gathering of other writing about personal life experiences. Qualitative research involves collecting information about a topic but not really using numbers or statistics to prove something. Interviewing people who parked illegally in spaces designated for people with disabilities would have been one way of producing information about the issue Brady was interested in. That probably wouldn’t have proved what works and what doesn’t when it comes to making certain the spaces are used correctly. But it might have answered questions about why people without disabilities sometimes park in handicapped spaces.
- “Quantitative Research” focuses on specific factors, or variables, and tries to determine which factors are responsible for certain behaviors. That was the approach taken in the research article that Brady read. Quantitative research focuses on collecting data, numbers to be analyzed in a fashion that will answer a question. Statistical analysis is one way of analyzing numbers to determine what they mean.

In Brady’s article, for example, the researchers did quantitative research by using a statistical test called a t-test to determine whether the changes caused by the sign were large enough to matter. For example, the difference between 18 minutes and 3.2 minutes is obviously a big one. But is the difference between 20.3 minutes and 13 minutes really enough to show that the signs’ messages made a difference in driver behavior? According to the t-test, the difference was significant.

Once the research was completed, it had to be published so that other researchers could find out about it. Research that doesn’t get published — that stays in desk drawers — has very little value.

Once the results are published, anybody who is interested can read about them. To make certain that research results are accurate, and in case someone wants to repeat a piece of work to check on it, researchers have to know exactly how the research was done. That’s the reason that methods are described in detail and that research is published in public journals. That way everyone in the research community can see, and understand, the work that’s been done. (That’s also one reason why the language in research journals can be such tough reading — it’s really written for other researchers, not for the general public.)

As part of the publication process, research articles are peer-reviewed — that is, they are carefully read and analyzed by other researchers before they appear in print. The article that Brady

read, for example, showed that it had been submitted, revised, and then submitted again to the journal that published it. The revisions were based on comments by the reviewers. Peer review is a crucial part of the research process, because it makes certain that not just anything makes it into print. An article in a peer-reviewed journal has credibility, a stamp of approval from the scientific community. You may not agree with everything it says, but you can be assured that other scientists have looked it over closely.

New Knowledge = ACTION

Brady was confident when he went before the city council to talk about handicapped parking. He was no stranger to the process of trying to change laws. He'd been to the council before to point out problems with sidewalk ramps or elevators that weren't handicapped accessible.

But in those cases, he was trying to let the council know about problems that could be easily solved. There were already laws in the book to back him up.

This was different. Brady knew what the handicapped parking signs looked like in his town. They were exactly like the ones in the research article—the ones that didn't work. Making a change was going to require printing new signs. That would cost money. Brady knew how the city council felt about spending money.

So when he went before the council, he began by describing the problem. The council listened politely, but before he could get more than a few minutes into describing the problem, one of the council members interrupted.

"What do you want us to do?" the council member asked.

Brady described the signs that carried warnings about fines.

"New signs cost money," said one council member. "How do we know they're going to make a difference, that we're not wasting taxpayer money?"

Brady pulled out copies of the article and passed them around.

"This is proof," he said, "that if you change the signs, you'll make a difference."

The council members flipped through the article as Brady described what the researchers had found. One of the council members asked about the cost of new signs. Another instructed the city staff to draw up an ordinance that required putting the amount of the fine on the signs. It was a few months before the new ordinance got written and approved by the council.

Even better, that's not the end of the story.

The Know Way Leads to New Ways

Research continually improves the lives of people with disabilities by identifying problems and raising consciousness, as well as developing products, policy changes and know-how. Here are some examples.

- A survey of 91 people with severe physical disabilities revealed that 40 percent had been victims of thefts by their personal assistants and 10 percent of those had been physically abused. Research has led to recommended strategies for people with disabilities to effectively screen, hire and manage their personal assistants.
- A Risk Instrument for Secondary Conditions (RISC) is a user-friendly computer program that assists people with spinal cord injury to assess their personal risk of developing such secondary health conditions as urinary tract infections and pressure ulcers.
- An Action Letter Portfolio has been developed and tested to teach people with disabilities to write effective advocacy letters.

These examples have a few things in common. They were based on research that was sound, work that could be repeated and checked so it could be relied upon. None of these individual research projects was, by itself, revolutionary, but each added a new piece of information to what we know. Just as a house is built brick by brick, knowledge and new understanding are built through research project after research project. The examples also focused on problem solving. The solutions were practical and efficient, not extremely costly or wasteful.

People who know about research can use it to solve problems, just as Brady did. Equipped with information about research, people can be heard. They can improve their lives-and the lives of people they love.

They can turn knowledge into power.

Brady's work with the sign was just the first step. The local newspaper ran an article about the change. Not a front-page story, but a short article and a photo that showed the new signs.

The research didn't just change things in Brady's hometown. From there, the information traveled to other states. Today, the parking laws in Minnesota and New York, among other states, require that handicapped parking signs include the amount of the fine.

A piece of research started it all.

Websites

Need help? Your local librarian or research and training center on independent living can help you find these resources.

The National Institute on Disability and Rehabilitation Research website, www.ed.gov/offices/OSERS/NIDRR/, contains descriptions of several hundred research projects in a project directory database. (202) 205-8134

You can also learn more about disability research by contacting several NIDRR funded dissemination projects, including the National Center for Research Information on Independent Living located at www.getriil.org (785) 864-4095

The National Center on Dissemination of Disability Research is at <http://www.ncddr.org/index.html> 1-800-266-1832

And for information on assistive technology, try the ABLEDATA homepage at <http://www.abledata.com>

A site concerning international disability research is maintained by the Center for International Rehabilitation Research Information & Exchange (CIRRIE) at <http://cirrie.buffalo.edu> (716) 829-3 141, extension 149

The National Rehabilitation Information Center is at <http://www.naric.com> 1-800-346-2742