

# University research:

## Achieving goal of creating new knowledge

By Sandy Johnstone  
Of the Emerald

The scientist examining an organism through a microscope, the psychologist testing students about alcoholism and the literary expert reading an ancient manuscript seem diverse.

But at a place like the University they are all after the same goal — the creation of new knowledge.

"If there wasn't research we would still think the world was flat, we'd still be bleeding people as a form of healing and we'd still think the earth was the center of the universe," says Dick Hersh, dean of the graduate school.

Research is an integral part of the University, and all professors are expected not only to disseminate knowledge to students, but to contribute some of their own to society.

"A person in research is a much better model for what it means by learning. They are constantly in contact with learning," says Dick Hersh, dean of the graduate school. "It is humbling."

Professors must know what is already known in their field before beginning

research, which gives students the advantage of learning the newest information, especially in upper division and graduate level courses.

"When they walk into the classroom they are at the frontier of at least a piece of their field," says Hersh. "Students come into contact with the most reknown people in the field."

Researchers may not be the best professors, Hersh admits, but it does ensure a high level of knowledge.

"It doesn't guarantee they are good teachers, but they should know what they are talking about. Research is how we guarantee the professor is supposed to know more than the text," he says. "Text-books are usually two to five years old and stay in print three to seven years before they are revised. Textbook knowledge is quite a bit behind what is known."

But classroom knowledge isn't the real test of research. Professors are required to publish their work in professional journals, texts or through conferences.

"It's a way we force the faculty to remain honest and accountable. They can get away with things in class, but not with their

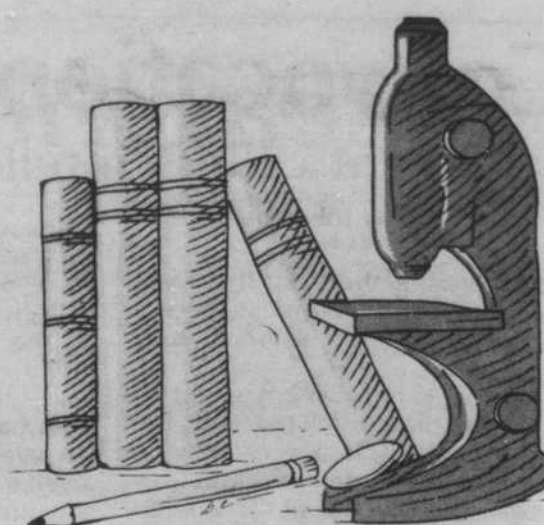
peers," Hersh says. "People who do not publish are judged by their peers not to have anything worthwhile to say that is new. It tells us (the University) if people are worth keeping."

The pressure is generally felt more by young faculty who must prove themselves. When professors are eligible for promotion and tenure, the personnel committee looks at three major factors — teaching, research and service. Not all professors are expected to be great researchers, but they must make up for it in other ways, says Hersh.

One way to show the viability of a particular line of research is to attain a research grant. Grant money most commonly comes from the federal agencies such as the Department of Education or the National Science Foundation (See graph below).

Writing a grant proposal is complex, taking from 40 to 100 hours, says Hersh. After it is submitted to the agency, the proposal will be sent out to a panel of experts in the field who evaluate it. The proposals that are funded are the ones rated excellent by the most people.

"Someone has decided you are damned good compared to a national sample," says



Emerald graphic

Hersh.

Receiving grant money usually allows a professor a certain amount of release time from teaching duties to devote to research work. For example, professors may ask for enough money to pay for one-third of their salaries and then would spend one-third of their time doing research.

The University also adds 40 percent, a number predetermined by the federal government, to each grant proposal to cover fixed costs like lights and maintenance.

The University funds 10 to 15 people per year for the summer, giving them about \$2,500 to help them continue their research. Usually the money is used for special activities like visiting a particular museum, ruin or laboratory in another part of the world.

How do professors decide what topic to research?

Usually they start by accumulating so much knowledge in a certain area that certain questions pop to mind, says Hersh.

"If you've got so much knowledge that you know what the edge of a field is, you find out what questions are for the future and can raise questions yourself," says Hersh. "New knowledge raises new questions by raising new unknowns."

"Research is an answering and questioning process."

The results may be only as good as the question asked, he says.

"An important part of the quality of research is to define the particular problems well — raising the right questions."

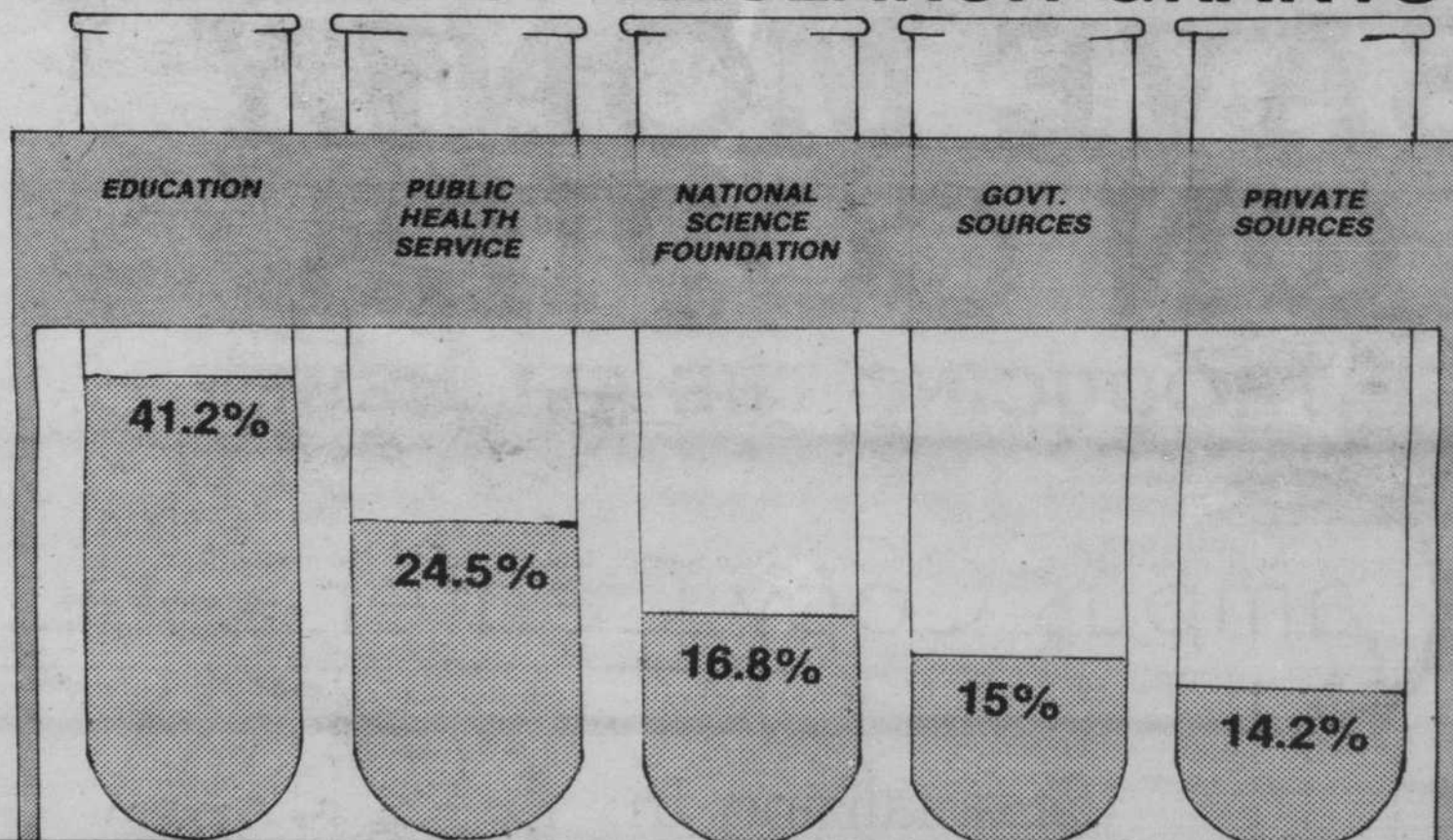
Researchers read all they can in their field to shortcut their work and make sure they don't replicate research or information. They can use other people's research to build their own and others will use their research as well.

"Your research gets read and used," says Hersh. "The polio vaccine was not developed by chance. Those scientists had read all the information published in the last 30 to 40 years."

In some fields such as molecular biology, many people may be working on a problem, and it is a race to be the first to discover the answer.

"Hard sciences are viewed as the queen of research because science is most visible in terms of breakthroughs in medicine and other fields," says Hersh. "Laboratories are more visible than libraries."

### SOURCES OF RESEARCH GRANTS



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