

Researchers study brain's activity

By Colleen Pohlig
Emerald Associate Editor

Inside the small, white sound-attenuating booth, the nervous-looking subject stares straight ahead, her head held still by a chin rest and her fingers ready to push one of two buttons.

The button on the right indicates the trait-descriptive word on the screen applies to her, the one on the left says she doesn't identify herself with the word.

The subject stares nervously into the computer, a small video camera aimed at her head, where the Geodesic Sensor Net sits hooked up to a computer monitor. One of the research attendants speaks into the microphone, which is hooked up to the booth's speaker. "OK, here we go," he says.

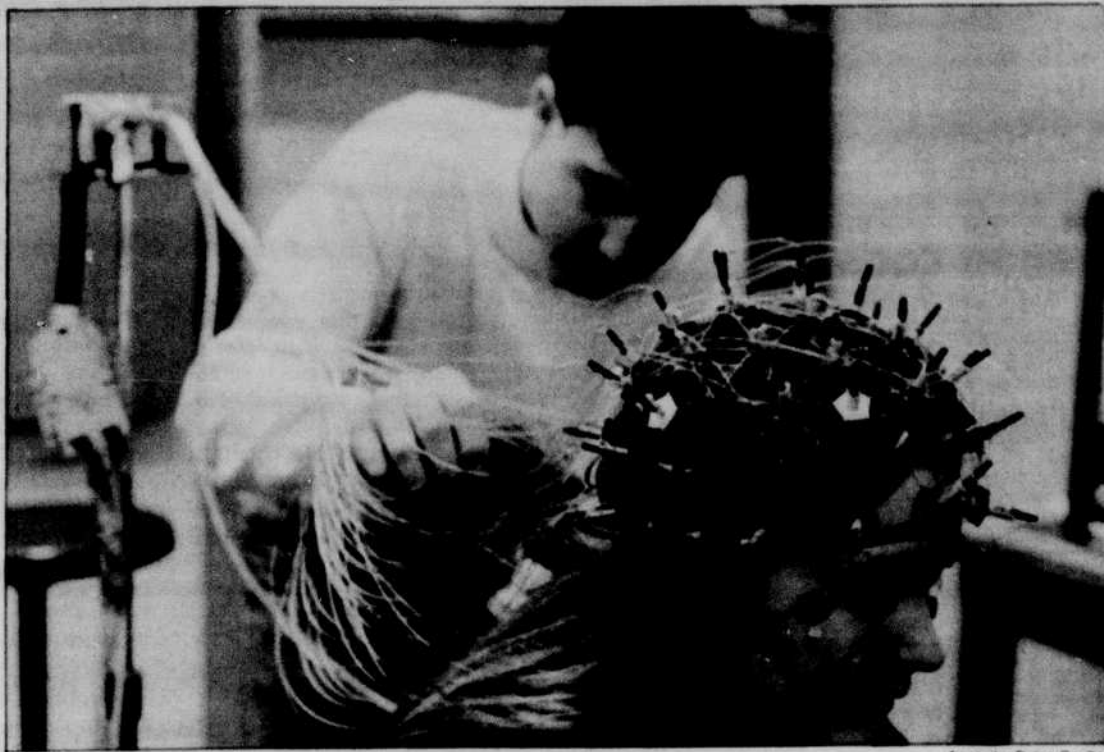
Tucked away in corners of various University laboratories, faculty and students are hard at work conducting experiments, studying results, peering into microscopes and inventing equipment to be used for research.

"The nature of a University education, unlike a liberal arts education, is that we have real research going on here at the UO," said Don Tucker, a psychology professor and the inventor of the Geodesic Sensor Net. "Many of the undergraduates here are really working with me to further the field."

One experiment that the University psychology department is working on studies the brain's electrical activity as it processes emotionally meaningful information.

Freshman pre-journalism student Kara Tison, who was fulfilling an undergraduate requirement of three experiments for her psychology class, signed up to do an experiment. The experiments are named only by states, so the subject usually doesn't know what the experiment entails before they arrive.

Tison didn't. When she arrived at the Neuro Imaging lab, or "Cog Lab," in the basement of Straub Hall, the graduate student who conducted this particular experiment, Phan Luu, explained that she would have a Geodesic Sensor Net applied to her head and that the electrodes, which are attached to the net, would read her brain waves onto a computer screen, to be studied for research purposes.



Brett Patterson, a senior in psychology and a research attendant, places the Geodesic Sensor Net on freshman Kara Tison's head. The net was invented by psychology Professor Don Tucker.

The University has been designated a research university by the Oregon State Board of Higher Education. The Emerald will look at various University research discoveries and discoveries. This is the first of an ongoing series.

er screen, to be studied for research purposes.

Tison, admitting that she was a little nervous but wanting to be a good sport, said, laughing, "I don't know if I have a

person's brain waves that should be studied."

Two research attendants, seniors Brett Patterson and Paul Shepodd, carefully applied the net on top of Tison's head, taking care to keep the tiny sponges, which the electrodes sit on, lubricated with a distilled water solution. This provides for a better conductor to be able to read Tison's brain waves, they said.

"I'm really curious to know what I look like," Tison said. "I bet I look like the guy from *Hellraiser* with all those things sticking out of his head." Patterson and Shepodd agreed that she did resemble the horror movie character.

Luu observed the process and ensured the net was applied perfectly, otherwise they may not be able to read the subject's brain waves as well. He explained the purpose of the experiment, a small smile on his face as he admitted that they don't quite know what they are looking for or what results will come of it.

"Since this experiment is still exploratory, we don't know what we'll be getting," Luu said. "We'll be looking at what happens with the brain waves when they are negative and when they are positive, and hopefully, by studying the waves, we'll be able to make some type of inference."

Tucker invented the Geodesic Sensor Net three years ago, and since then, a whole series of experiments that use the net have sprung up in the lab.

Tucker explained that the net is used to map the anatomy of the brain and to find where emotion occurs in the brain.

"My particular interest is in how emotion serves as the basis for intelligence, and in understanding the emotional basis in thinking," Tucker said. "The brain doesn't work automatically — it works when it's scared or intrigued or curious and that's what we want to find out about."

Tucker explained that a clinically depressed person's cognition or thinking becomes relatively negative, and their thinking is distorted. The same is true for an optimistic person; they are able to see things more positively.

This is one idea the experiment Tison did shows. However, Tucker said, in the past, researchers have said only clinically depressed people have negative traits. Tucker has found this not to be true. His research shows that everyone does indeed have negative traits, but some are just stronger than others.

Besides the net being used for various experiments in the Cog Lab currently, Tucker said he has long-term goals for his invention.

"I want to see how basic science has implications — how emotion and intelligence interact," Tucker said. "If we can understand it at a basic level, then perhaps we can redesign education so students are taught in a way that they can really learn, by being excited or curious."

Tucker, who is currently teaching a graduate class in clin-

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