

2008

Evolution of an Idea

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Recommended Citation

Davis, Laura (2008) "Evolution of an Idea," *Linfield Magazine*: Vol. 5 : No. 2 , Article 5.
Available at: https://digitalcommons.linfield.edu/linfield_magazine/vol5/iss2/5

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Evolution of an idea

Andrew Sage '08 is a born researcher. As a child he continually asked, "Why? How come? Who says?"

"I was always doing my own thing," said Sage, now a graduate student at Western Illinois University. "I don't like to be told this is how it is. I want to know why it works and how it works."

The Linfield College Psychology Department proved an ideal setting for his inquisitive mind. Asking question after question, he learned to investigate ideas, design experiments and evaluate evidence for himself.

He joined the ranks of generations of Linfield students asking, "Why?"

Asking questions

It happens every day at Linfield – students and faculty ask questions and wrangle with answers. Some puzzle at a whiteboard or peer into Petri dishes, while others plunge into discussion. Whatever the method, the outcome is the same. Knowledge and ideas. But where do these ideas come from? What sparks that moment of clarity? When does curiosity take hold?

Just how do Linfield students learn?

It begins with a question. Asking questions and then answering them through research projects is one way stu-



Andrew Sage '08 became curious about deception during a seminar course and ultimately designed a collaborative research project on the topic with Kay Livesay, associate professor of psychology. The project propelled him to graduate studies at Western Illinois University. Right: Courtney (Worthington) Zerizef '08, now a research assistant at Oregon Health and Science University, said she was drawn to psychology because she likes the challenge of pursuing new ideas.





With a combined 41 years at Linfield, psychology professors Lee Bakner and Eugene Gilden have nurtured a research setting where students are encouraged to ask questions and pursue answers.

dents learn, said Eugene Gilden, professor of psychology.

“It’s a culmination of thinking and reading about something, in some cases for an entire semester or more,” he said.

In the Psychology Department, collaborative research has been a priority for decades, nurtured by emeriti faculty such as Jim Duke ’58, who taught from 1968-98. Then department chair Adrian Tieleman hired Duke specifically to develop laboratory facilities and a research program.

“Research is exciting,” Duke said. “You can talk all you want to, but there’s no substitute for hands-on work.”

Recent changes, such as an interactive curriculum that requires every psychology major to take a research class, bolster the emphasis even more.

“Research is a tradition that’s been around a long time,” said Lee Bakner, professor of psychology. “Our curriculum has made it easier for students to get to a point to do research.”

The heart of the curriculum is a framework of classes designed to systematically focus students’ interests. Think of the curriculum as a pyramid. At its base, six introductory classes cover the core areas of psychology. Next, students refine their interests in seminars, where they develop a research proposal and frame a project. Finally, a senior capstone course sharpens their area of interest even further.

“Psychology is such a broad field,” Bakner said. “Although the areas seem disparate and separate, by the time they graduate, students see how it all ties together. It’s important to give this breadth of opportunities where students can find their niche.”

Nurturing creativity

Encouraging creative thinking is crucial to the learning process. Gilden, like many Linfield faculty members, spends hours talking to stu-

Six areas of study

Linfield students gain a broad perspective of the psychology field by taking introductory courses in six main areas.

Biopsychology – Study of the brain and behavior

Cognitive – Study of thinking, memory, problem solving, concept formation

Abnormal – Study of classification, causes and treatment of dysfunctional behavior

Developmental – Study of an individual from birth to death

Social – Study of individuals in social settings

Personality – Study of human personality

Power tools in the lab

Hollin Buck and Courtney (Worthington) Zerizef, both '08, wielded power tools in the psychology lab.

Before tackling research on drug addiction, they had to first build place conditioning chambers for their experiments. The plexi-glass compartments they fabricated were used to measure the reward value of psychoactive drugs in rats.

Zerizef used the chambers to study the brain regions responsible for drug reward. Buck designed an experiment to study the role stress plays in the retention of drug-induced place preferences.

"I'm interested in stress prior to drug exposure," said Buck. "How does that influence drug addiction, retention and relapse?"

dents about their projects in the lab, the classroom or O'Riley's coffee shop. Through repeated conversations, a student's passion takes shape, Gilden said.

"I almost never answer any questions," he said. "I expect students to answer their own questions. It's not about what I believe. It's about them figuring out what they believe. It's important that students own the entire project from inception to completion. Otherwise, it just becomes another assignment."

Emily Young '05 discussed her ideas in detail before extending a place preference research experiment she'd read about. She worked with rats to study the effects of cocaine and alcohol during her senior year.

"Linfield's small classes are set up to spark ideas and encourage creativity," said Young, now a research assistant at Oregon Health and Science University along with Jennifer Malgrew '07 and Courtney (Worthington) Zerizef '08. "I would have gotten lost in the crowd at a large school."

Questions become projects

Research ideas are kindled in a number of ways. Students may become interested in a topic from class, stumble across a question in their reading or discover an offshoot from faculty projects. Often, they recreate an experiment that has already been run, personalizing it with a different slant.

"It is interesting to ask questions that others may have asked but in a different way," said Gilden, who found his niche in psychology during graduate school when he rediscovered a question from his undergraduate years – how do people know things about themselves? "Why does your heart slow down when you're interested in something and speed up if you're repulsed? How does that happen without us even knowing?"



As a Linfield student, Hollin Buck '08 designed an experiment to study factors that contribute to addiction and the role stress plays in the retention of reward states produced by cocaine. She is now a graduate student at Binghamton University.

As a Linfield student, Carrie (Blomquist) Ericksen '03 collaborated with Gilden to study bias blindspot, one aspect of Gilden's research, after finding unanswered questions in reading.

"That was the catalyst," said Ericksen, who wondered whether individuals benefit from feeling superior to others. (She found they do not.) Ericksen presented her Linfield results at local, regional and national conferences and said her research experience was instrumental in launching her graduate studies.

"My colleagues were very surprised by how many conferences I'd been exposed to as an undergraduate," she added. Now pursuing a Ph.D. in the applied social psychology program at Loyola University, Ericksen works as a study director at Calder LaTour, a market research and strategy development firm.

Whatever the field, the undergraduate research experience is essential as students apply to graduate school.

"It opens up a lot of doors," Bakner said. He found an interest in biopsychology before he knew the field existed, after seeing the effects of his grandmother's stroke.

"I saw how radically that injury changed her emotions, memory and language expression," he said. As a sophomore at Shippensburg University in Pennsylvania, he took a physiological psychology class and realized, "This is exactly what I'm interested in, the mix of behavior and the careful science that informs where behaviors come from."

Discovering knowledge

As questions become ideas, and ideas become research projects, students start to find answers. They detail their results in research papers, which ultimately are presented alongside those of graduate students and faculty professionals in the form of posters, articles and talks at local, regional and national conferences.

"Their projects often parallel work submitted by graduate students at national meetings," Bakner said.

Students are creating knowledge. Rather than summarizing existing work, they are adding to the body of research that is already out there. And perhaps more importantly, Gilden said, students are strengthening the scientific community.

"We are training future scientists," he said. "These are students who will go to graduate school and beyond and make very real contributions to the storehouse of human knowledge."

And as they satisfy their own curiosities, students are part of a larger movement.

"Our hope is this data is contributing a small piece to the psychology community," Sage said of his research on deception and lying. "This is just one small piece of the puzzle."

— Laura Davis



Amanda Struthers '04, a doctoral student at the University of Nebraska conducting nicotine cessation research, said the broad Linfield program allowed her a taste of the different divisions of psychology.